Integration of Digital Technology in the Film Industry of Bangladesh: Readiness and Response Functions

Thesis submitted to the Faculty of Humanities,
University of Manchester
As part of the requirement for the
DEGREE OF DOCTOR OF PHILOSOPHY

2012

Muhammad S Ahsan

School of Arts, Histories and Cultures
Department of Drama

Contents

List of Diagrams

List of Tables

List of Abbreviations

2G- Second Generation

3G- Third Generation

ADSL- Asymmetrical Digital Subscriber Line

AI- Artificial Intelligence

BBAI- Behaviour Based Artificial Intelligence

BFA- Bangladesh Film Archive

BFCB- Bangladesh Film Censor Board

BFDC- Bangladesh Film Development Corporation

BFEA- Bangladesh Film Exhibitor's Association

BFI- Bangladesh Film Industry

BTCL- Bangladesh Telecommunications Company Limited

BTEC- Business and Technology Education Council

BTV- Bangladesh Television

CBA- Cost Benefit Analysis

CDMA- Code Division Multiple Access

CGI- Computer Generated Imagery

COAB- Cable Operators' Association of Bangladesh

DDN- Digital Data Network

DFP- Department of Films and Publications

DG- Director General

DMC- Directorate of Mass Communication

DST- Digital Story-telling

DT- Digital Technology

DTH- Direct to Hall

DTH- Direct to Home

DTS- Digital Theatre System

DV- Digital Video

DVD- Digital Video Disc

FDI- Foreign Direct Investment

FLV- Flash Video

GSM- Global System for Mobile-Communications

HD- High Definition

HND- Higher National Diploma

HSC- Higher Secondary Certificate

IIPA- International Intellectual Property Alliance

IPLC- International Private Lease Circuit

ISP- Internet Service Provider

JICA- Japan International Cooperation Agency

Kb- Kilo Bit

KB- Kilo Byte

KB/ps- Kilo Byte Per Second

LEDC- Less Economically Developed Country

MD- Managing Director

MEDC- More Economically Developed Country

MIT- Massachusetts Institute of Technology

MOU- Memorandum of Understanding

NBA- National Broadcasting Academy

ND- National Diploma

NGO- Non-Government Organisation

NIMC- National Institute of Mass Communication

NLE- Non-Linear Editing

NVQ- National Vocational Qualification

PD- Project Director

PDA- Personal Digital Association

PESTEL- Political, Economical, Social, Technological, Environmental and Legislative

PIB- Press Institute of Bangladesh

PM- Production Manager

PPA- Public Procurement Act

PPP- Public Private Partnership

R&D- Research and Development

SAARC- South Asian Association for Regional Co-operation

SSC- Secondary School Certificate

TVE- Technical and Vocational Education

USIS- United States Information Service

VCD- Video Compact Disc

VCR- Video Cassette Recorder

VOD- Video on Demand

VSAT- Very Small Aperture Terminal

WED- Workforce Education and Development

XML- Extensible Mark-up Language

Abstract

The objective of this study is to understand how the integration of digital technology (DT) in the Bangladesh Film industry has been responded to by its production, distribution and exhibition related organisations. Since no research on digital integration has been considered in a developing country context, and specifically within the area of concentrating on the industry rather than the films themselves, this research therefore addresses the gaps within the knowledge field. The Bangladesh Film Industry (BFI) used to be a centre for film production, distribution and exhibition, but this traditional industry has been in decline for decades. In response to the decline, the government started an integration process of DT in 2003, yet eight years after the launch only a fraction of the project has been completed. Apart from its partial adoption in the film production sector, distribution and exhibition have appeared to resist the adoption of new technology. This thesis therefore sets out to explore the causes of partial integration of DT in the film industry in Bangladesh through a study of the workforce, business owners, practitioners, scholars, government officials and executives functioning in and outside the industry. With the mixed method approach and emphasis on qualitative engagement (two case studies and 38 interviews), this thesis explores current attitudes and beliefs and identifies potential barriers to effective integration. In particular this dissertation examines five areas: technology integration, training for workforce development, production, distribution and exhibition capabilities, and argues that the political factor was the most important driver in integrating DT, while knowledge integration, training, and development of digital production, distribution and exhibition compatibility at individual and organisational levels were ignored. Moreover, the greatest concern of losing a job or business within the industry community due to inadequate knowledge, skills and finance is impeding the possibility of full completion of the integration process within the industry.

Overall, two important contributions of this research include 1) an exploration of factors that impeded progress of the film industry in responding to the DT and 2) a formulation of some suitable recommendations to overcome the challenges in order to completely realise the integration of DT within the Bangladesh Film Industry. However, further research is recommended to investigate whether completion of the integration process will save the industry from decline or not.

Declaration

I declare that no portion of the work referred to in the thesis has been submitted in support of an application for another degree or qualification of this or any other university or other institute of learning.

Copyright Statement

Acknowledgements

First and above all, I Thank *ALLAH* for the countless blessings that He has bestowed upon me.

Secondly, my sincere gratitude goes to Dr. Rajinder Kumar Dudrah for his continuous support, encouragement and academic guidance throughout the journey. I would like to acknowledge my Co-supervisor, Dr. Victoria Lowe, whose detail and perceptive comments in reviewing every draft of my thesis proved to be invaluable. My other Co-supervisor, Dr. Khaleel Malik introduced me to the PESTEL model which improved my ability in conducting empirical research. His positive encouragement throughout the programme lifted me up when I was feeling my worst.

I would also like to remember both of my parents and parents-in-law, who, if alive, would have been very happy of my success. I would like to specially thank my daughters, Tahira Resalat and Tahta Resalat, who sacrificed many of their school holidays with patience to pursue and support my Ph.D. The inspiration received from my brother, Muhammad Saiful Ahsan, brother-in laws (especially Major Hassan Ahmed), sister, Dr. Tahmina Satter, sister-in laws, nephews, nieces and wider family from all over the world should also not go unrecorded. I would also like to thank all my friends in and outside the UK for being pillars in holding me up whilst writing my thesis. My especial appreciation goes to Maryam Chowdhary and Steve Saxton, who have taken mounds of their precious time to proofread my thesis. My thanks also go to my colleagues of the Drama and Dramatics Department at Jahangirnagar University, where I am currently working.

I would finally like to thank my respondents, whose valuable insights have made my Ph.D possible. I would specially like to remember two particular respondents, Tareque Masud and Mosharraf Hossain, who have also passed away in the course of this programme. My utmost thank you also goes to Mr. Sajjad Zahir who introduced me to the Bangladesh Film Industry Community so that I could pursue my fieldwork.

My endless gratitude remains to my wife and best friend, Mahbuba Pervin; without her continual support, I would not have been able to withstand this programme. Therefore, I am dedicating this thesis to her.

Chapter 1: Introduction

1.1 Context

The potentiality of Digital technology (DT), as a complete system in covering the entire process of filmmaking from production to distribution and exhibition, has generated growing interest from film scholars and practitioners. Current scholarly approaches in this field have been mainly limited to the USA, Canada, Australia and most European countries (Wyatt 1999; Brancato 2001; Blassnigg 2005; Billups 2007; Daly, 2008 and Honthaner 2010), with less economically developed countries (LEDCs) such as Bangladesh hardly receiving any attention in this field. Specifically, the commercial use of DT for production, distribution and exhibition purposes in the Bangladesh Film Industry (BFI) is still in its infancy. It appears that the film practitioners in Bangladesh are not fully aware of the potential of DT within their industry context.

The integration of DT in the BFI remains incomplete eight years after the start of the project in 2003.[i] There is still much to be learned about the reasons for this incomplete integration process. In 2009, the government promised a vision to implement a 'digital Bangladesh' as part of their 2021 Bangladesh vision.[ii] The impact of this political vision upon the BFI has not yet been identified. This thesis will therefore describe and explore how the BFI decided to integrate DT and why the integration process remains incomplete. This thesis will also hence act as a guideline to overcome the barriers and take early steps towards completing this integration.

Until recently, very few scholarly attempts have been made to address the ongoing challenges of digital integration in Bangladesh (for example, Atique 2009; Haq 2011). These studies deal with the role and importance of using DT in film production. However, Atique and Haq have only drawn attention to this issue from an independent filmmaker's point of view and therefore the applications of DT in a commercial context have not been addressed. Moreover, the few studies (Raju 2006; Nasreen & Haq 2008; Hoek 2010) that have attempted to focus on BFI have failed to identify various internal and external factors which are crucial in terms of understanding how the BFI is going to respond to the integration process. It seems that there is an acute lack of research based on theoretical frameworks and empirical evidence that would allow us to understand the film industry. Questions regarding the aptitude of the workforce and the ability of the industry to integrate and synthesise the technology underline

the need for new research. Therefore, the aim of this research is to examine the readiness of the BFI to integrate DT in its pre-production, production, post-production, distribution and exhibition processes. In this regard, this study will develop a framework to understand the mindset of the workforce and its capability to identify the individual and collective responses towards the integration. Failing to identify the readiness and responses of the BFI workforce may cause this integration process to be abortive and hamper the initial equilibrium of the industry. This research will therefore be crucial to provide suitable recommendations for effective integration.

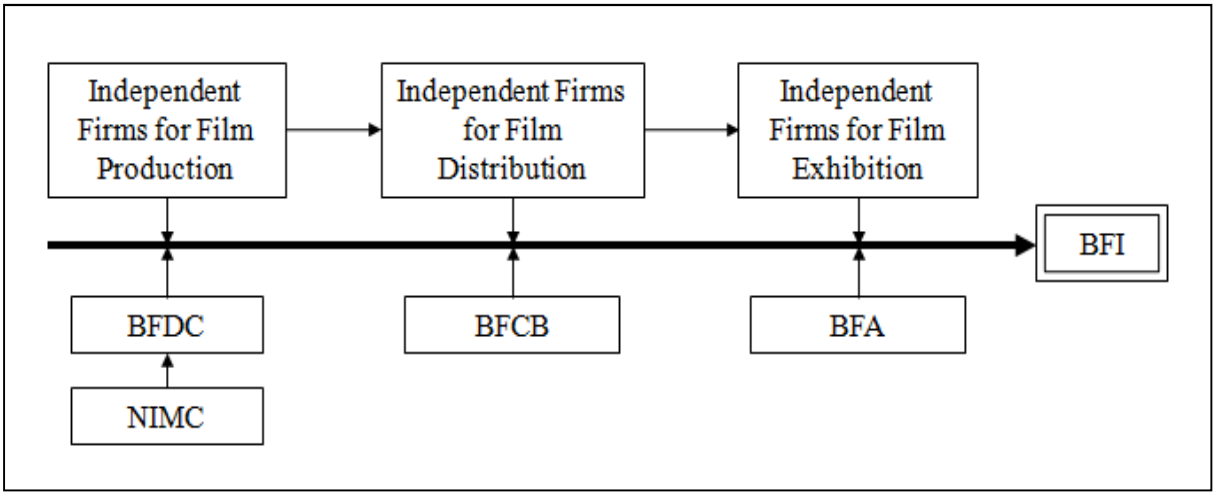
1.2 Uses of Terms

As this study will demonstrate the integration process within the context of the BFI, it is necessary to provide a thorough picture of the industry's essential mechanisms. Typically, the structure of the BFI can be characterised as 'an interlinked network' between the state-owned service organisation called the Bangladesh Film Development Corporation (BFDC) and privately-owned small, independent production, distribution and exhibition firms. The corporate structure of the BFDC provides various monopolistic services to the production firms, such as block booking or selective access to its studios, cameras, sound mixing, mastering, editing, film processing services. Most independent production firms utilise these services of the BFDC and sustain their existence through transactional relations with distributing firms and exhibiting enterprises for the commercial film business. Apart from the BFDC, only three privately-owned companies, Bari Studio, Popular Studio and Bengal Studio, provide partial services (such as studio service and film-processing service) for film production. Since the BFDC provides a full range of services for film production, this organisation has become the locus of the BFI. This dependency of the independent firms on BFDC therefore not only allows the government greater control over the entire industry, but also for itself.

In order to fulfil the state responsibility, the government of Bangladesh established three sister organisations to support the BFI. The first organisation representing the sister organisations is the Bangladesh Film Censor Board (BFCB). The BFCB is currently known to be the only organisation in Bangladesh that examines and certifies films for public exhibition.[iii] The second organisation is the Bangladesh Film Archive (BFA), who are currently dedicated to preserving old films in order to remind audiences about the rich heritage of Bangladeshi history.[iv] The third organisation is the National Institute of Mass

Communication (NIMC). Since 1980, this national establishment has been offering training to the current and prospective media workforce.[v]

Diagram 1: The Interlinked Network of the BFI



As this study will look at the integration process of DT in the BFI, it is important to know about the uses of the terms: technology and integration. Rogers (2002) argued that although technology is often thought of as just hardware, some technology do not or hardly have any hardware components. Technology can be considered as an option including the tools (the hardware) and associated knowledge or information that is put into use to accomplish a particular task. In particular, DT can be conceived as a technology where knowledge or information about the uses of the tools (the software) is more salient than the physical or material objects or tools (the hardware) used for it. In reality, DT is a technology where the software and the hardware are used together for film production, distribution and exhibition.

In general, technology integration can be viewed as successive occurrences of the act of incorporating innovative technology from an external source into a particular organisation. Initially, the technological innovation begins with the prolonged and dedicated engagement of an organisation's Research and Development (R&D) team, who are capable of developing a new product or technology. The following stages after innovation are the technology transfer and diffusion of innovations. Technology transfer involves the process of selling the innovated technology from the R&D laboratory in the marketplace and making the technology commercially viable as a product or service (Rogers et. al. 2001). The diffusion of innovations is a macro process over a long period of time, through which several organisations (including the innovator) integrate (adopt and utilise) the technology (Fichman 1992). Technology integration is usually a purposive decision of an individual organisation to

adopt and apply the recently-innovated technology (mostly external or foreign) for organisational improvement. Although diffusion has a greater range than integration, integration is more focused on dealing with the challenges of adoption and application phases of a specific organisation.

As this study is aiming to identify the readiness and responses of the film workforce, this study will therefore consider the individual as well as the organisational capability from various perspectives (such as the political, economical, social, technological, environmental and legislative contexts). Specifically, this study will view 'readiness' as 'the ability of an individual and organisation to maximise its potential to use right technology for achieving a goal' (Rowlingson 2004). 'Response' could be read as 'the performance or act on the basis of readiness'.

1.3 Summary of Methodology

The aim of this study is to discover the preceding factors and ongoing challenges of integrating DT into the BFI and developing suggestions to overcome those challenges. This thesis has been developed through interviews with production teams associated with 35mm celluloid and digital film productions in two divergent case studies. Interview data has also been gathered from other scholars, professionals, entrepreneurs, officials and executives linked to the film industry. The research method that dominates this study is largely qualitative and mostly confined to the interview technique. In addition to the open-ended semi-structured interviews, other methods such as observation techniques and secondary data-gathering methods have also been employed to unveil and address the issues that this study raises. In order to support and analyse the qualitative data with greater understanding, some quantitative data has also been collected and utilised.

1.4 Key Research Questions

DT is exclusively changing the industrial nature of 35mm celluloid film production. In order to identify the penetration of DT in film production, distribution and exhibition areas, this research has designed some key questions. In examining the impacts of DT in the BFI, these research questions were developed to discover the earlier and later conditions and experiences of the film workforce and business communities in response to that integration.

The relevance of the key questions can be better understood by discussing them in the context of identifying the significance of the study.

1.5 Significance of the Study

What are the forthcoming challenges for the industry if we want to integrate DT into the BFI?

When the integration process of a new technology in a workplace remains incomplete, it becomes crucial to identify the barriers or reasons for failure behind it. Understanding the barriers or reasons for failure has direct implications for this research. From this perspective, this study has identified three significant major challenges that the workforce and business community have encountered.

Firstly the workforce and business communities do not believe that integrating DT would be beneficial for them; rather they believe that they have to face the challenges of social class-based dispossession. The media professionals typically consider 35mm celluloid film technology as a superior and more expensive technology than TV. The argument which is emerging is that if DT is currently being used by the TV industries, then what is the logic of integrating this low-grade (in comparison to film) technology to produce films?

The second foremost challenge facing the film industry is the shortage of a qualified workforce. There are also issues, even eight years after the beginning of the integration process, with the existing workforce, which in terms of their qualifications and training is not yet capable of dealing with the complexities of the new technology. It is therefore crucial for the study to examine why the BFI workforce have not been able to overcome this challenge so far.

Among the many challenges, the third major concern is to manage the financial support to update the existing cinema halls with DT projection capability within the exhibition firms. The current government of Bangladesh heralded the development of a ‘Digital Bangladesh’ but gave little consideration to assisting the small independent exhibition establishments. This study therefore examines the pertinent issues of how this particular challenge can be overcome.

What are the effects of the integration of DT on the BFI?

An industry can resist integrating new DT by viewing it as comparatively inferior and deciding to continue their film production by using the 35mm celluloid film technology. It is probable that the integration of DT will have many effects on the industry. However, whether all these effects will be positive cannot be determined. For example, a psychological phenomenon may arise which will suggest that if films integrate DT, the film workforce and business communities will lose their sense of aristocracy gained from using superior technology and producing quality products. A Spanish film professional, Lauren Kogen, has revealed the deeply held beliefs of the filmmakers about 35mm celluloid technology and their responses against DT within the industry:

Most of those opposed to digital film not only denounce its inferior picture quality, but also argue that the inherent 'look' of 35mm is fundamental to the film medium. Whether this view is overly nostalgic or not, there are certainly inescapable visual differences between the two systems.[vi]

As a result, another effect of the integration could be the alteration in the audience taste. The important question is whether integrating DT will make films more casual products and less appealing like regular TV soaps. In such a case, these particular members of the industry might suggest carrying on with the 35mm celluloid technology. However, to do this, the industry needs to be independently capable of producing films without depending on any global companies for raw materials or equipment. Any dependency on foreign outsourcings may cause problems in the case of new fundamental changes. If the foreign companies decide to stop manufacturing and supplying chemicals or equipment in order to stay updated with the world and remain competitive, then this might coerce the dependent industries to confront the options of closing down or accepting the change. An industry can only stay away from responding to any change and potential control of global enterprises if it can produce and market its products locally.

Since the birth of the BFI, the BFDC and the exhibition firms have been dependent on foreign outsourcing for their raw materials (film negatives, positives and chemicals) and equipment (cameras, sound systems and projectors). This reliance on foreign vendors means that the BFI has fewer choices to make. One cannot discount the fact that for several reasons, such as business uncertainty, decline in demand and technology up-gradation the foreign vendors may stop or discontinue their manufacturing, and therefore supplies. However, because the BFI's source of supplies comes from various vendors, this process may be

gradual rather than instant. As difficulty in obtaining supplies of film raw materials and equipment increases, Bangladesh will sooner or later be forced to face up the difficulty of acquiring its supply requirements. Therefore, the situation encourages a sense that BFDC will either need to build up its own fully-fledged capacity in order to avoid resource dependency, or respond to technological change over time.

Currently in the BFDC, there is no indication of any initiative to alleviate the long-established resource dependency and become independent. Therefore, the alternative choice follows to adopt new technology for the film industry. The rationale of responding to the change would be to alleviate immediate uncertainties associated with the industry's dependency on obsolescent resources. Furthermore, the prime benefit of integrating DT would be ensuring a consistent supply of the most recent resources and staying competitive in film production. It is thus important to explore, through this study, why the BFI community is still unaware of their lack of choice in taking the option of integrating DT and how that consciousness can be created within it.

The potentiality of DT is altering the industrial nature of film production, distribution and exhibition traditions. Daly (2008) has outlined the features of how DT is changing 35mm celluloid film technology completely:

Cinema in digital form can be radically reproducible, manipulable, networked, interactive, hybrid, variable, and dispersive, thus differing greatly from traditional cinema and transforming into a new media. (Daly 2008; p 3)

Realising the potential, in 2003, the BFDC management started a project to integrate DT within the industry (BFDC, 2002[vii]). It has been pointed out from the project summary of the BFDC that integrating DT has become an essential requirement in order to remain competitive in the global market and develop operational responsiveness. Within the project proposal, the management further predicted that being operationally responsive will enable the industry to compete based on cost, quality, time to market, new distribution and exhibition options. However, since the start of the project, the BFDC has not yet been able to achieve its aims. Therefore, the question arises as to why those predictions failed to support the integration of the new technology.

Furthermore, no studies have been conducted to measure the influence of DT on the workforce prior to this integration process at BFDC. As a result, the adverse effect which is

occurring presently is also receiving little or no attention from the BFDC management. More importantly, there is still a lack of insight in understanding the expectations of the workforce and business community. Interestingly, apart from its partial adoption in the film production sector, distribution and exhibition have appeared to resist the adoption of new technology. It is therefore one of the most significant aspects of this study to discover the reasons behind the minimal effort in the BFI to integrate DT into the industry.

What are the barriers to implementation?

Any long-established, mature industry is at a disadvantage compared with a newly-established one in terms of integrating new technology, new knowledge and development new skills. Successful integration requires more positive motivation and added cumulative effort within the mature industry than any new ones. A mature industry has a higher probability of having a more grown-up or older workforce than a newly-launched organisation. It would therefore seem logical that, in a mature organisation such as BFDC, the readiness or un-readiness for accepting a new technology could be dominated by the fact that the older workforce might be less likely to accept or integrate new technological changes. Some people within the industry may not find it very easy to achieve and execute the courses of action required to attain designated types of skills or performances required by new technology. Warr and Birdi (1998) have supported this concept through their research:

Since some older individuals are nervous about becoming involved in new learning, they tend to avoid such activities when possible. Such preferred non-participation conforms to the stereotypes held by many managers, so that a self-fulfilling prophecy is sustained. Many managers expect older employees to be less active; as a result, non-participation at older ages can be widely accepted. (Warr and Birdi 1998; p202)

Warr and Birdi (1998) have identified particular steps to avoid such outcomes. Encouragement from other elderly role models and interventions of more explicit provision of information on personal benefits could increase participation of the older workforce. The vast experience of the older workforce is always valuable. Awareness is necessary in understanding the strengths of the entire workforce when integrating a new technology for organisational development. In such instances, it is not clear how the BFDC management addressed these issues and also why they did not persuade the distribution and exhibition firms to contribute to the integration process.

It is not clear under what circumstances the BFDC decided to integrate the new technology immediately on the basis only of some selective opinion. The BFDC management defended

their position, stating that with the support of some experienced film crew, producers and engineers, they evaluated the need for the project (BFDC 2002). The dramatic speed of implementing the new project suggests that some additional force has acted, in addition to the organisational initiative. Instead, a much clearer picture of this situation reveals that an external force might have contributed or forced the BFDC to initiate the project without any feasibility study. The project of integrating DT in the BFDC was supposed to have been completed by 2006. Unfortunately, the project has yet not been completed. Therefore, it could logically be assumed that the idea of integrating DT may not have been a brain child of the BFDC community; rather it might have been externally imposed. It is therefore important to identify whether any external force acted as a barrier to the proper completion of this project.

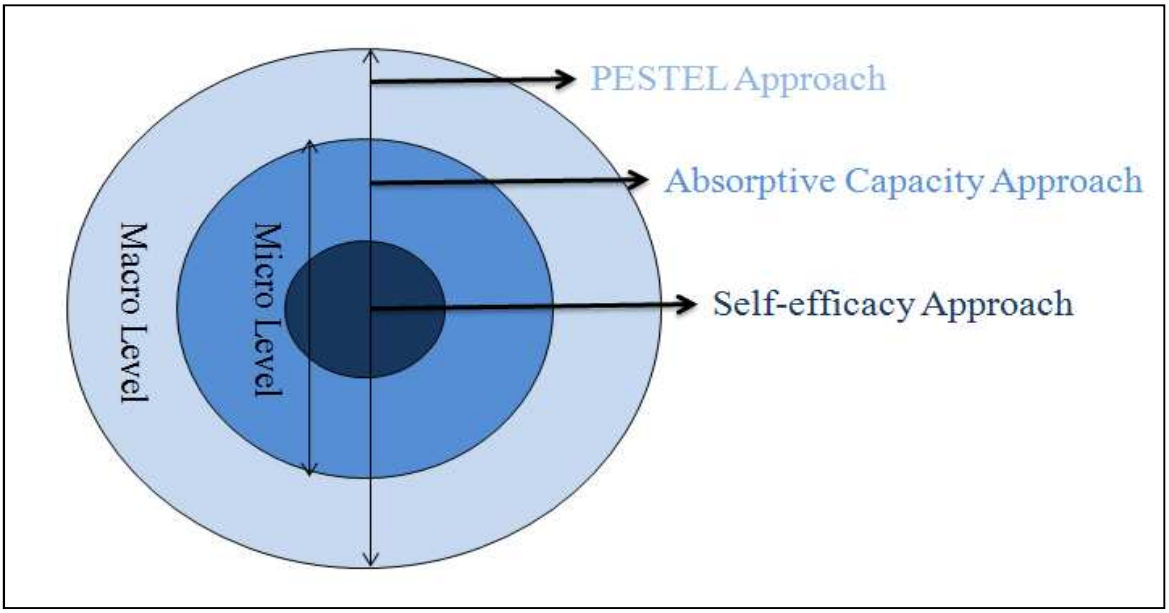
1.6 Theoretical Basis: Self-Efficacy, Absorptive Capacity and PESTEL Approaches

As a theoretical basis for this thesis, three major approaches of psychological and organisational studies will be used: self-efficacy analysis, absorptive capacity analysis and PESTEL analysis redundant. In the process of understanding the readiness of the industry workforce to integrate a new technology, 'self-efficacy' theory will help to address the problems of the workforce at an individual level. The notion of self-efficacy is imperative to predict the behaviour of the individuals in a prospective situation. In particular, self-efficacy analysis could be a useful tool to evaluate the individual members of the training workforce of the NIMC whilst they are preparing to integrate a new technology.

The absorptive capacity approach has much to add to understanding the integration process from an organisational perspective. In particular, the film industry is indeed more dependent on human capital than physical assets in adding value to its product. Unlike the automated factory, the film industry is more dependent on its creative workforce than machinery to produce its product. The vision of the film industry is not to produce lots of manufacturing goods but to produce an artefact which consists entirely of human performance-oriented activities, not merely a mechanical output. Therefore, it is crucial to appraise the skill and knowledge levels of individuals, and thus the accumulation of those individual capacities, which are integrated through organisational means into organisational level capacity.

The PESTEL approach contributes to understanding the external factors that work on any individual or organisational setting. As a well-known strategic theoretical model, the PESTEL framework was originally used in a macro-level business environment to identify the list of influences on the possible success or failure of particular strategies of a firm. Currently, this framework is widely used in the macro-level business or industry environment to analyse the six PESTEL factors - political, economic, social, technological, environmental and legal system - to explore the key drivers for changes in strategic formulations (Johnson et. al. 2008). The ground on which this thesis is based is the deeply-held belief that a macro-level analysis of the industry would be helpful to explore the research queries of this study. A diagram has been added to clarify how the theoretical framework will facilitate this study.

Diagram 2: Approach Analysis



1.7 Thesis Structure

The following section of this introductory chapter will outline the layout and chronology of this thesis structure.

The aim of chapter two is to intervene in the existing studies on DT integration. Initially, this chapter will investigate the extant literature on the multistage chain of the integration mechanism to explore a range of organisational capabilities (including R&D, manufacturing, marketing and management capabilities) to understand how the mechanism works in the More Economically Developed Countries (MEDCs) and how it can work in the LEDC context. The integration process cannot be successful without a skilled workforce which

indicates a need for understanding the issue of workforce training. Therefore, this section will also address the emerging research on the workforce development and training and consider the context of Bangladesh. This chapter will finally review the literature that addresses the applications of DT in the film production, distribution and exhibition areas.

The third chapter will discuss methodological approaches and acquire understanding of the proposed research project. Initially, this chapter will discuss how this research methodology was chosen and why it was chosen. The second phase of this chapter will emphasise the application process of the planned methodology and other specific problems acquired during the research field. The empirical analysis of the evolving research project will also be discussed in the third phase of this chapter. The chapter will conclude with a discussion on the insights of case studies, interviews (formal and informal) to establish the facts in the field and to validate the data collection procedure.

The main objective of the fourth chapter will be to identify the BFDC management's role prior to the decision to integrate DT into the industry. This chapter will be structured in accordance with the PESTEL model. In this regard, this chapter will also try to identify which PESTEL factor played the largest role in contributing to the limitations present prior to their attempt to integrate DT. Suggestions and possible solutions to the limitations will also be discussed in this chapter.

The fifth chapter will initially attempt to ascertain the actual size of the BFI, a task that, to this date, has not been attempted before. With this information, this chapter will then separate the workforce into vulnerability groups based on whether they would be able to adapt to the new technology. This chapter will also look into the NIMC in greater depth in terms of the organisation's role as a training institute, the efficacy level of the training staff and possible recommendations for the limitations faced by the overall organisational challenges with the help of the PESTEL model.

The sixth chapter will discuss the impacts of DT integration process on the production workforce. This chapter using the PESTEL model will particularly identify the existing problems and limitations that the production workforce is confronting. In line with assessing the obstacles in integrating DT, this chapter will make the suggestions to overcome the problems and to enable the production professionals to be ready to integrate DT for their future careers.

The seventh chapter will discuss the integration of DT in film distribution and exhibition. Furthermore, this chapter will examine the possibilities of various ancillary markets within Bangladesh and make suggestions on how they can be possibly exploited to increase the film audience capacity. This chapter will also place emphasis on the technology transfer in the distribution and exhibition units. Next to the negating factors of digital distribution and exhibition, this chapter will finally detail a systematic plan of action to overcome the hurdles.

Finally, chapter eight will summarise the objective recommendations for digital integration for each of the analysis chapters. It will also include the current research limitations as well as future research indications, and will present an overview of the entire research and suggest future indicators to develop the integration of DT into the BFI.

Chapter 2: Literature Review

2.1 Context

This literature review chapter has been designed to understand the existing paradigms in the academic study technology integration and examine the contemporary theoretical perspectives to comprehend the position of the BFI workforce in this regard. This chapter has five sub-sections. In the first section, a six-step integration model has been developed and discussed to understand how the technology integration process functions in a LEDC context. The objective of the second section is to explore workforce development and training-related studies to apply contemporary scholarly trends, in describing the current and prospective film workforce development ideas. The third, fourth and the final section will chronologically discuss the scholarly debates on the operational practice of film production, distribution and exhibition phases in assessing the implications of digital integration in those areas.

2.2 Technology Integration: the perspective of the LEDC

The existing literature on technology transfer contains two major issues through which organisations initiate and complete the transfer process: technology innovation and the diffusion of innovation (Bessant & Rush 2000; Rogers et.al. 2001). The process of technology transfer usually begins with the innovation of a new technology. With some exceptions, most of the innovations are incremental, and some of those are acknowledged as radical innovations (Dewar & Dutton 1986). Transferring the newly-innovated technology to other organisations for commercial purposes is considered as diffusion. This macro process of innovation diffusion can be considered as an extensive process, where the transfer of innovated technology from a transferor moves to outside organisations for a purposive use. Technology transfer cannot be completed unless the receiving organisation (transferee) integrates the foreign technology within their specific organisation (Li-Hua 2003). Previous experiences indicate that technology transfer mostly happens between organisations that are economically and technologically advanced and organisations that are relatively not so. Therefore, during cross-national events, the flow of technology transfer usually originates in MEDCs and is completed in LEDCs. It is thus important to examine how the technology transfer event happens between the MEDCs and LEDCs.

The study of technology transfer from MEDCs to LEDCs has received growing attention in recent years, both theoretically and empirically (for example, Young 1977; Mahdavi-Adeli 1982; Blakeney 1989; Bhagavan 1990; Ouma-Onyango 1997; Cohen 2004; Chen 2004). Technology transfer is usually concerned with taking basic scientific knowledge, devices, systems and influential practices from the points of discovery to places where their potential can be applied and exploited. The reason behind this transfer is that it brings economic benefits by increasing production and revenues for both technology innovators and receivers. Existing scholarship on technology transfer in developed countries has highlighted the technical, legal, strategic, economic and policy level issues. Apart from the individual research efforts, the United Nations (1985) has contributed to a series of research studies on the topic of 'Development and Transfer of Technology'. The UN has also carried out effective research projects, on a case study basis, in certain countries (for example, Nepal), but no research was evident in the technology transfer context of Bangladesh.

In recent years, a plethora of studies on integrating technology have addressed educational organisations and focused on the professional development of the teachers (Rogers 2000; Christensen 2002; Shuldman 2004; Lowther et.al. 2008). Interestingly, the study on technology integration within other organisational contexts is very limited. Moreover, there are a few other studies which have explored the transfer of technology in the digital fields, such as electronics industry, audio visual industry, broadband packet-switching technologies, computer industry, telecommunications equipment industry and information technology (Halas & Martin-Harris 1978; Chao & Lam 2001; Brunner 1995; Goransson 1993; Donnellan et. al. 2006). There have been no significant research efforts devoted to exploring the possibilities of integrating DT within the film industries.

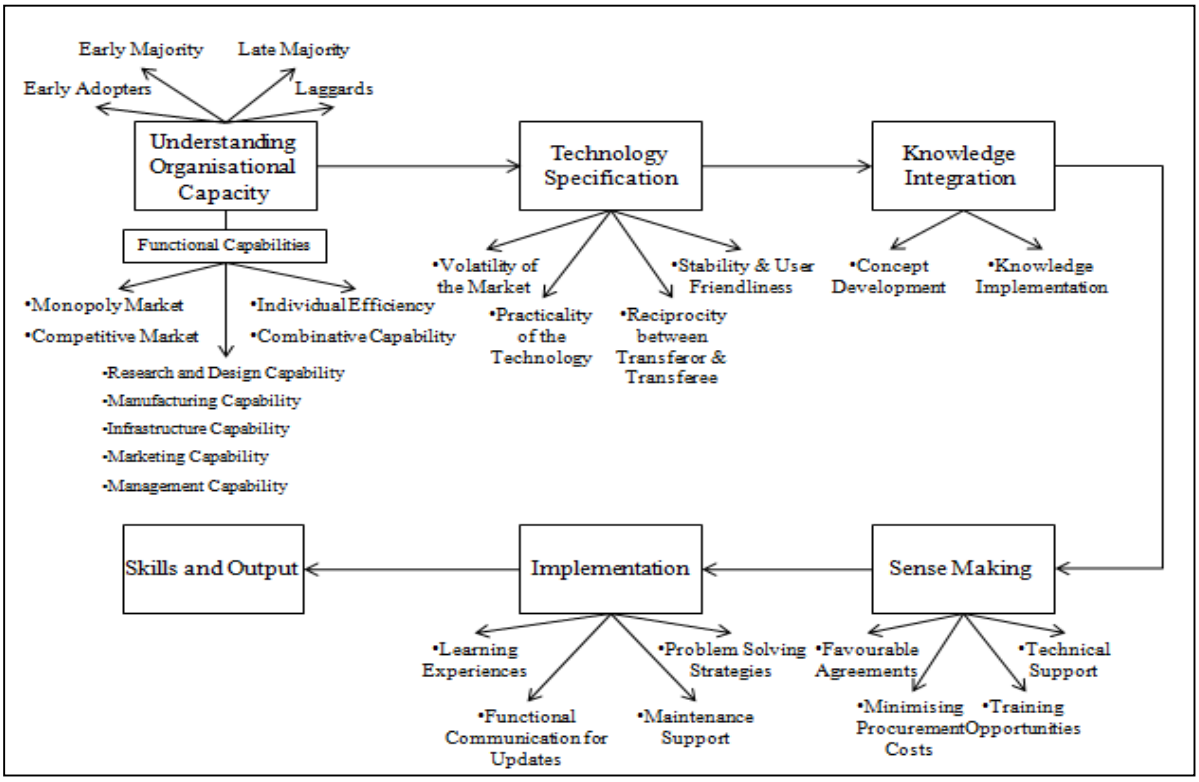
Integrating a technology always requires the involvement of two parties. It involves the organisation/country that originally produced the technology and the organisation/country that is receiving the technology. Therefore, there is a need, accepted by both sides, to support the process. Interestingly, the research on technology transfer generally emphasises the perspectives of the patron organisation. There are very few scholarly studies on 'technology transfer' which focus on the perspective of a receiver country. Current and existing research and analysis tends to focus more on the adoption of technology in MEDCs rather than LEDCs (for example, Enos & Park 1988; Cyhn 2002).

It is therefore important to be aware of the existing literature on technology transfer from the LEDC's perspective. Considering the literature on the transfer process from the LEDC's perspective will help us to understand the benchmark of the technology integration process. Much of the limited research has considered the complex processes of technology integration from the MEDC's perspective (for example, Iansiti 1998). Yet research approaches which have attempted to explore the integration process from the LEDC experience have been scarce (for example, Abubakar 1990).

2.3 Phases of Technology Integration

Many scholars have identified the issue of technology integration from different aspects. In fact, the scholarly efforts at linking up the various aspects of integration are still very limited. Marco Iansiti (1998) is one of the pioneers who attempted to describe the technology integration as a progression of interrelated phases. On the basis of Iansiti's popular text on integration and other literary sources on technology integration (Tornatzky & Fleischer 1990; Knol & Stroeken 2001; Rogers 2003) a diagram has been developed in order to understand the complex nature of the technology integration process.

Diagram 3: The Process of Technology Integration



Although the chronological order that was followed to design this diagram was not tested, it is fairly clear that the links in the diagram were used to navigate the way to understanding the diverse concepts and debates related to the integration process. It must be noted that the purpose of the diagram is not to prove any arguments, but to find debates and gaps within the existing literature.

On the whole, the inductive process of technology integration can be considered as a sequence of six interrelated phases. Understanding the organisational capacity of the receiver's organisation (transferee) is the first stage of the integration process. The second phase is to explicitly draw up a specification which provides a detailed description of the nature and use of the prospective technology that will eventually be integrated. Knowledge integration is the third phase where the actual integration process starts to take place. After the knowledge accumulation stage, a receiver's organisation (transferee) can then be aware of decisively making sense of the pros and cons of the prospective technology. Once the decisive phase of sense-making is over, a receiver's organisation (transferee) can carry out trialling the integration process. Finally, after the trial, the integration process becomes functional for a long-awaited output.

In the following section, the concepts and debates of technology integration will be discussed. In this respect it will identify and argue how the integration process can be different in a LEDC perspective.

2.3.1 Understanding Organisational Capabilities

Typically, the technology integration process begins with assessing the capabilities of the organisation that will receive the technology. Several studies in the field have identified the various levels of capability in an organisation, from different perspectives, which are somehow connected and have an effect upon the integration process. Discussions on organisational capabilities can be listed as functional capabilities, which include the R&D capability, manufacturing, marketing and managerial capabilities of the organisation.

2.3.1.1 Research and Development Capability

In order to remain competitive, most of the organisations of MEDCs invest in R&D activities to understand the direction of future technological and market features and the probable range of those features. Many scholars have contributed their research to understand what elements

or variables of the R&D leverage the organisation to success. For example, Szakonyi (1990) has identified the importance of long-range research contributions of the R&D unit, to the long-range business planning of US business organisations. How the R&D can specifically contribute in technologically-oriented companies through a technology plan has been discussed in detail. Robert Szakonyi asserts:

R&D managers will have to do a great deal of technology planning before they have a final technology plan. If R&D managers have not done thorough technology planning, they will not know the long-term implications of the new business opportunities that they are trying to generate (Szakonyi 1990; p 408).

A point that has also been discussed here is that the R&D staff must have liaison or communication with the business managers to understand the overall business perspective through data concerning the present and future requirements of the business. Lee and Allen (1982) elaborately discussed the consequences of various types of liaison/communication that R&D staffs carry out. Looking at the communication issues, the technical communication has been emphasised and analysed into three major types: Intra-laboratory communication, communication with corporate functions and external communication. In the outcome of their research, the authors claimed that the communication of the R&D staff with people (i.e, communication with vendors, customers, and with outside professionals, consultants, and academicians) outside the firm has significant positive correlations in project performance for development projects with a dynamic environment. In contrast, a negative correlation has been found for projects in a stable environment.

In identifying the key factors leading to the successful integration of new technology for project development, Marco Iansiti (1995) did not entirely emphasise the communication performance of the R&D professionals. He placed more importance on individual experience of the members within the organisation:

Ensuring good cross-functional communication is not enough for effective integration at such a microscopic level. In the words of a project manager in one of the most effective organizations, "...we no longer have the luxury to spend much time communicating - the problems are too complex and the time is too tight... To solve this problem we try to develop individuals with a T-shaped pattern of skill: deep in one area, broad in many..." (Iansiti 1995; p 536)

Iansiti implies that while an organisation needs to integrate new technology, a system-focused approach (i.e. focusing on the systemic impact of novel technical concepts) leads the individuals to become experienced in understanding and solving problems.

Although the above research studies have explored the importance of the R&D element from various perspectives, the common standpoint in every study is the use of R&D as an invariable factor. Moreover, these studies have predominantly used the MEDC's data. Interestingly, none of the writers have considered the possibility of the absence of the R&D division while theorising the organisational development. It is more likely that the organisations located in LEDCs will have zero R&D capability mostly because of their financial incapableness for development. This study therefore seeks to fill the gaps in the literature on the key factors such as: organisational priority, knowledge embeddedness, learning culture and appropriability conditions in understanding the organisational development where there is insignificant or no R&D capability.

2.3.1.2 Manufacturing Capability

Manufacturing capability can be viewed as individual capabilities that are combined sequentially in utilising the organisational capacity (physical plant, equipment or blueprints) efficiently for producing any intended service or product (Ward et.al. 1990; Lall 2000). The study of manufacturing has a rich history of research studies (Skinner 1969; Voss 1995; Li 2000; Corbett & Claridge 2002). Many studies have been conducted within various dimensions, such as manufacturing capability, manufacturing strategy, manufacturing performance and development of manufacturing capability through integration. However, the existing theoretical and empirical studies on manufacturing are by no means complete. Most of the research is developed from a MEDC perspective.

Whenever scholars discuss manufacturing capability, they subconsciously assume that the dynamic competitive market environment is the most important component. However, when a specific organisation like the BFDC is the only supplier of a particular kind of service and their monopoly is preventing new sources of competition, then the research approaches could be different. Such a static and monopolistic or non-competitive market environment is usually not uncommon within the LEDC perspective. For example, the severity of anti-competitive behaviour and monopolistic nature of many stated owned industries such as Bangladesh, are well identified by Rahman and Eusuf:

Natural monopolies exist in many sectors where government has an important role to play. However, in such sectors in Bangladesh, for example, railways, telephone, and other public utility services, anticompetitive structures have been in existence for so long, that they not only inhibit the modernisation of these services but also hinder private investments.[viii]

In a static market, the organisations of LEDCs only decide to renew their organisational manufacturing capability when the fundamental technologies that are being used become dubious in their continued use. Although Dosi and Marengo (1993) have focused attention on the importance of building and renewing capabilities over time, in reality the organisations of LEDCs cannot build up new capabilities; instead, they usually opt to renew their existing capabilities to continue to exist. Sanjaya Laal posits:

Developing countries are assumed to be technological followers, importing innovations from developed countries and using them passively (Laal 2000; p 338).

Renewing the existing capability of any organisation is always a challenging issue. Therefore, most of the organisations rely on technology integration. Zander & Kogut (1995, p 77) consider this integration primarily as a transfer of manufacturing know-how, which could be gained and implemented through a multifaceted process of knowledge transfer such as design, production, installation, sales and distribution, operation and maintenance, or management. As many researchers (Iansiti & Clark 1994; Leonard-Barton 1992) have emphasised, the importance of knowledge as the foundation of capability, as a problem-solving process and also the primary driver for the generation of new capability, is crucial to explore the challenges of gaining and implementing knowledge from a LEDC's perspective. Singley and Anderson (1989) split the knowledge into two groups: procedural knowledge (e.g. riding a bike) and declarative knowledge (e.g. facts or propositions). The interesting dilemma is that the manufacturing workforce needs to use and apply both kinds of knowledge. Therefore, building up or even renewing existing manufacturing capability is not a straightforward job. The critical nature of the learning process of these two knowledge categories has been identified by Zander & Kogut:

For learning radically new applications, declarative knowledge of theoretical nature proved more robust. .. The reason procedural knowledge is easily remembered and yet useful is probably due to the facility by which it can be stored in chunks. (Zander & Kogut 1995; p 78)

Zander & Kogut have pointed out this knowledge issue to reveal how knowledge learning can slow down the development of implementing new manufacturing capability. The complex nature of learning and applying both kinds of knowledge for gaining manufacturing capability was overlooked. The complex and prolonged process of integrating both kinds of knowledge can be more challenging for the organisations of LEDCs, as they are not used to building up or renewing their manufacturing capability as often as the MEDCs. Moreover,

how the LEDC's elements of manufacturing capability can be distinctly separated from the MEDCs was also not explored. For example, the global scholars Corbett & Claridge (2002) have mentioned quality, delivery, cost, flexibility and innovation as manufacturing capability elements. In reality, flexibility and innovation are the two elements which are not a pragmatic choice for the organisations of LEDCs. As Corbett & Claridge (2002, p 115) claims, 'the key to flexibility appears to be the ability to instigate rapid design changes and rapid volume changes', which is certainly not an achievable option for the organisations of LEDCs. Finally, no significant scholarly attempt has been found which addressed the manufacturing issue from a LEDC film industry perspective.

2.3.1.3 Infrastructure Capability

While integrating a new technology along with manufacturing capability, it is also crucial to focus on the role of infrastructure in facilitating organisational business transactions. Although internally, the production function-related infrastructure (manufacturing capacity) and its usability develop manufacturing capability, additional or associated infrastructure for distribution, sales or management is also fundamental. Walter Buhr (2003) has enumerated three categories of infrastructure: - institutional (state rules), personnel (human capital) and material (capital goods) infrastructure. The absence of adequate infrastructure is one of the main problems that may hamper the integration process of the new technology. Therefore, attaining a certain level of domestic infrastructure capability in the receiver's country (transferee) may be needed before or during integration. Although there is no particular research evidence to measure the minimal level of infrastructure required within the receiver's country (transferee) to start the integration, Martin and Rogers (1995) have argued that domestic infrastructural development is crucial for selling products to international markets. No significant study was found which estimated or calculated the minimal level of infrastructure needed to buy technology from the international market.

Despite the rapidly-growing literature exploring the various aspects of infrastructure (such as the significance of infrastructure, infrastructure policy, infrastructure investment), the debate is still mostly focused on the MEDC context and is far from the LEDC context (for example, Gramlich 1994). While discussing infrastructure, a number of scholars sporadically identified some issues which are also important in understanding the LEDCs perspective. In a recently-published book, Estache & Fay (2009) have described the development of a new infrastructure policy of public-private partnership:

The public sector is once again seen as the major player in financing many of these expansion needs and for developing countries. The emerging new vision is no longer a dichotomous choice between public and private on the full spectrum of dimensions associated with infrastructure service delivery. (Estache &Fay 2009; p 1-2)

In line with the World Bank prescribed policy, many LEDCs are now trying to overcome their infrastructure sector problems. For example, the present government of Bangladesh (since 2009) has allocated ৳[ix] 2100 crore[xi] (£[xii]181,983,621.48) in the national budget to promote and attract the public-private investment for infrastructural development in the country.[xiii] To date, no significant research has been conducted to explore the possibilities of public-private investment in the film industry.

With respect to the infrastructure policy, a number of research works suggested controlling the transaction cost while integrating infrastructure from other organisations. Specifically, Klein et. al. (1990) identified the transaction vulnerability of any organisation while dealing with international firms. How the channel members between the organisations may act differently has been described by the authors:

Channel members are assumed to be subject to bounded rationality. Furthermore, at least some actors are assumed to be opportunistic (i.e., having a tendency to cheat other parties) if given the chance. Imperfect, or asymmetric, information may give such actors an exploitable advantage in their dealings with other parties. (Klein et.al. 1990; p 197)

In the conclusion of their study, the scholars argued that further research is needed to examine the impacts of environmental volatility and diversity, as well as other dimensions of external uncertainty (e.g. volume uncertainty, technological uncertainty) on transaction costs in greater depth. Thus, examination of those aspects from a LEDC perspective might be useful to learn the strategy to control the transaction cost of infrastructure development.

2.3.1.4 Marketing Capability

Along with the other functional capabilities, evaluating marketing capability is vital for any organisation or industry, especially when the industry decides to integrate new technology to turn its adversity into advantage. Earlier studies in this regard were mostly focused on marketing strategy analysis, and particularly studied the competitive marketing indicators to explore better business performance. In general, within those studies, scholars have essentially provided strategic recommendations from a MEDC perspective, not considering whether this mechanism of strategic competitiveness would be suitable in a LEDC context.

For example, Nath et.al. (2010) have distinguished the different marketing capabilities of proactive and defender organisations, which potentially could have been developed as a global study effective for MEDC and LEDC organisational marketing strategy, but the discussion did not take this direction:

Firms with proactive market orientation have distinct competencies in market planning, marketing resource allocation and overall control than firms who prefer to wait and watch. Thus, innovative firms devote significant resources on its marketing activities whereas defender firms focus more on cost reduction rather than develop their critical innovative abilities (Nath et.al. 2010; p 319).

Traditional marketing literature has typically addressed the issue of achieving competitive advantage through enhanced marketing capability. Ensuring superior financial performance was the priority issue of the study on organisational marketing activities. However, none of these scholars have taken into account those organisations which might have financial problems and therefore be unable to meet the minimum marketing capability, such as consumer specification or product differentiation. In investigating the factors that influence marketing capability development, Vorhies (1998) has hypothesised five factors: environmental turbulence, business strategy, organisational structure, task technology and the information processing capabilities of the business unit. Interestingly, it was revealed from the aforementioned study that the five factors identified were not equally and significantly related to the development of marketing capability:

Of the five factors hypothesized to affect the development of marketing capabilities, business strategy and information-processing capabilities were significantly related to marketing capabilities in the predicted manner. Organizational structure was significantly related to marketing capabilities, but in a positive rather than negative way. Environmental turbulence and task routinization were not significantly related to marketing capabilities development (Vorhies 1998; p 14).

On one hand, this finding is consistent with the arguments by its proponents that the MEDCs have a long tradition of a steady socio-economical and political position and therefore the probability of environmental turbulence would be significantly less or nil. Moreover, the skilled manpower and advance systematic procedure within MEDC organisations might have facilitated a culture of task routinisation. On the other hand, where (such as LEDCs) the environmental turbulences such as political, economical, social, technological, environmental or legislative factors are not like the MEDCs, these factors can leverage the marketing capability differently. Thus, it is also reasonable to predict that in an organisational pattern where environmental turbulence exists throughout the time, an organisation routine may not

be an easy task to achieve. Therefore, it is evident from the above scenario that identifying marketing capability needs to be studied in a much wider perspective where the scholars can successfully accommodate the LEDCs.

2.3.1.5 Management Capability

Management capability has been described, by Martin (2002), as an aptitude for managing people which requires skills such as analysis of self and others, motivating teams to complete tasks, delegating and decision-making. Effective managers are required both to perform day-to-day administrative tasks and to lead the organisation, strategically, for further development (Sapru 2000; Mabey & Finch-Lee 2008). Among management scholars (mentioned below), there has been debate around the differences between management and leadership skills. Some of the scholars maintain that leadership and management are distinct and others feel that management and leadership are not distinct (Boyatzis 1993; Jokinen 2005). Bass and Avolio (1994) have considered the importance of both factors (management and leadership) and explored how leadership factors interact within an organisation and significantly stimulate the various organisational cultures to grow. They have found nine types of organisational cultures in terms of transactional to transformational qualities of the managers. The scholars further described:

Transactional leaders work within their organizational cultures following existing rules, procedures and norms; transformational leaders change their culture by first understanding it and then realigning the organization's culture with a new vision and a revision of its shared assumptions values and norms (Bass and Avolio 1994; p 542)

Although the scholars have specifically mentioned the prominent attributes of the nine different types of organisational cultures, it was not clear whether there were any socio-economical factors in shaping the cultures. Interestingly, one cannot fail to notice that the scholars mentioned ‘pedestrian and garbage can’ organisational culture, not uncommon in the LEDC context. For example, the characteristics of the garbage can organisation which is ‘anarchic without clear purposes, visions and values or clear rules and regulations to control activities’ (Bass and Avolio 1994; p 553) are more frequent in the LEDCs. Therefore, it is crucial to fully explore the core cultures of the organisations located within LEDCs and the capabilities of the managers serving those organisations. Specifically, it is necessary to understand the overall environment which contributes to growing a competitive management

capability to know why an organisation located within the LEDCs needs to integrate foreign technology.

2.3.2 Technology Specification

Choosing the suitable technology from the international market is always a challenging job for a receiver's organisation (transferee). The major challenging issues which are identified by the scholars Klein et. al. (1990) are the volatility of the market, learning practicality of the technology, establishing reciprocity between the transferor and transferee, ensuring stability and user-friendliness of technology.

Growing awareness about the international technology market may play a crucial role in tracking the technology and development of the market. Mark Iansiti (1998) has highlighted the needs accordingly:

Selecting and refining technologies is very difficult when the options available are many and change rapidly and when the complexity of their context implies an array of subtle interactions between each decision (Iansiti 1998; p 2)

Due to the organisational bottlenecks (logistics infrastructure, insufficient knowledge and skills) and information asymmetry, it might not be an easy job for organisations in LEDCs to overcome the volatility problem and interact immediately. Some of the scholars have therefore focused on learning about the technology, which may be also counted as another challenge. Au and Kauffman (2003) have emphasised developing the network externalities with other organisations in order to learn about the technology. The scholars have argued that:

In IT adoption [where] the potential technology adopters need to continuously learn about newly-introduced technology and other relevant developments, and the technology supplier must continuously adjust its selling strategies based on the feedback that it gathers from its potential market (Au and Kauffman 2003; p 22).

Learning continuously about the newly-introduced technology may not always be feasible. Specifically, the limitation of such learning was identified by another scholar. Sanjaya Laal (2000) observed:

Firms in developing countries operate with imperfect knowledge of technological alternatives. Finding technologies is a difficult, often costly, process (Laal 2000; p 339).

Developing an inter-organisational relationship might be an option which may eradicate some of the problems mentioned above. Christine Oliver (1990) has identified six types of inter-organisational relations which are useful to predict different types of relation: necessity, asymmetry, reciprocity, efficiency, stability, and legitimacy. Bearing in mind the relationship between the transferor and transferee, reciprocity and stability seem to be decisive aspects to consider. Oliver described reciprocity:

Motives of reciprocity emphasize cooperation, collaboration, and coordination among organizations, rather than domination, power, and control. According to this perspective, IOR (inter-organisational relationships) occur for the purpose of pursuing common or mutually beneficial goals or interests (Oliver 1990; p 244).

It was not clear from Oliver's study how the relationship between the organisations can be free from asymmetrical relationship if one organisation becomes the donor and the other becomes the receiver of a technology. Although both organisations may have some financial gain through building up such a relationship, the probability of exercising power or control by transferor over the transferee organisation cannot be ignored.

Despite the aforementioned peril of inter-organisational relationships, one cannot disregard the benefits of the inter-organisational relationships. Ensuring the stability of technology in terms of its performance and user friendliness is a vital challenge which could be achieved through the relationship. The positive aspects of inter-organisational relationships have been identified by Oliver. She claimed:

Uncertainty prompts organizations to establish and manage relationships in order to achieve stability, predictability, and dependability in their relations with others (Oliver 1990; p 246).

However, the above scholarly approaches are by no means complete, as they were not originally developed for the analysis of the technology integration context. Moreover, the discussions are enmeshed with many others that need to be identified to understand how best to implement these technologies in the film industry and in a LEDC's context.

2.3.3 Knowledge Integration

Knowledge integration is one of the key prerequisites for capability development in a receiver's organisation (transferee). Iansiti and Clark (1994) have described the capability of knowledge development as a two step process: concept development and implementation. They state:

In concept development, the organization moves beyond what it knows how to do and frames capability-building activities that are needed to respond to new external contingencies. In contrast, the capacity to implement will be linked to integration activities that are largely internal to the firm, involving the integration of existing specialized skills, knowledge bases and technical and managerial systems (Iansiti and Clark 1994; p 565).

The aforementioned scholars therefore divided the knowledge integration process into two stages: external integration and internal integration. In external integration, they emphasised the capacity to tap into relevant sources of new information. Accessing information is always a critical task which could be more critical for the organisations of LEDCs, as several limitations (such as skill and resource shortage) hinder the acquisition and processing of information for application.

Unfortunately, most of the studies that have been carried out about information skill gaps are notably one-sided. They have been written from the perspective of an MEDC (Compaine 1986; Bonfadelli 2002). Very few scholars such as Burkett (2000) have discussed the information gap between the rich and poor communities of the world. These scholars have indentified information as an 'intangible' product which is very much related to psycho-social, emotional and cultural dimensions of a community. Although Bruce has explored the various dimensions related to information, the variations in those dimensions were not discussed accordingly. Zulu (1994) has acknowledged the impacts of a number of socio-cultural dimensions which hamper the information acquisition in the LEDCs. Zulu claims that lack of proper infrastructural systems (such as electricity, telecommunication, conducive computer environment, adequate financial and policy support and a literate population) compounded by the low status of information intermediaries, hamper information and thus knowledge integration externally. Conversion of information into knowledge is another challenging task. Nonaka et.al. (2000) identify the following:

Information becomes knowledge when it is interpreted by individuals and given a context and anchored in the beliefs and commitments of individuals. (Nonaka 2000; p 7)

Although Nonaka and associated scholars have identified the variety of knowledge (tacit and codified) and the process of knowledge creation through interaction, their study did not fully discuss how the interaction process may become successful in the context where linguistic, cultural and geographical disparities exist. Achieving a common knowledge base and

reasonable cognitive proximity for implementing the learned knowledge within the communities of transferor and transferee organisations still needs to be studied.

2.3.4 Sense Making

In a free market economy, the practice of integrating technology from various foreign sources cannot be fully controlled. Creating a general consciousness of using homogeneous technology between various similar organisations therefore could be complicated. Difference in the clauses of agreements of integrating technology, dissimilarity in costs of technology procurement, variation in training and technical support and other internal factors of individual organisations might hinder organisational involvement in making a common attribute that must be met or complied with. A number of scholars have explored the above stated criteria as essential in understanding the potentialities of technology integration.

Indian scholar Nagesh Kumar (1985) has pointed out how the patterns of different agreements, such as formal (foreign direct investment-FDI; licensing basis) and informal contracts may impede the progress of organisation's receiving technology. For example, any organisational transferee would expect to include a clause of performance guarantee from the technology transferor. In practice, this clause may cause an unexpected dependency - not only on the capital equipment but also on the raw materials and components. With the advent of the performance guarantee, the technology transferor may force the transferee to purchase raw materials or components directly from them or from their chosen associate suppliers. Moreover, the clause 'barring any change in the designs and original specifications provided by the technology suppliers' (Kumar 1985; p 105) may severely hamper developing intra-industry or inter-organisational relationships.

K. K. Subrahmanian (1986) has therefore proposed a policy to address regulatory issues and to execute a better agreement. Although the scholar describes the policy in an Indian national perspective, it might also be useful in understanding the perspective of the LEDCs:

A nation's technology import policy is informed mainly by three principles namely, (a) the cost of imports should be minimised, (b) importers should be prevented from paying too much and their bargaining power vis-a-vis their technology supplier should be strengthened, and (c) importers should be encouraged to be technologically independent. (Subrahmanian 1986; p 1413)

Minimising the cost of technology integration is not a straight-forward job. As Kumar (1985) has reported, the indirect or social costs of technology integration are higher than the direct

costs. Ensuring extended technical support from the transferor organisation and receiving proper training incurs huge financial costs. This indirect cost may be higher when the 'know how transfer' becomes crucial within an organisation which has linguistic, cultural and geographic disparities. Therefore, cost reduction needs to be accorded greater importance.

The issue of 'cost minimisation' needs careful understanding, which most organisations in LEDCs fail to take into account. Some multinational companies are aware of this issue and therefore handle the organisations of LEDCs strategically. This hidden strategy has been identified by many scholars. For example, Glass and Saggi (1998) have recognised the strategy as follows:

Multinationals often transfer older technologies to safeguard themselves against future competition. While strategic considerations play a role in determining the quality of technology transferred by multinationals in some situations, the limited absorptive capacity of such countries must act as a constraint on the ability of foreign firms to transfer state-of-the-art technologies in other situations (Glass and Saggi 1998; p 370).

Therefore, integrating 'a state-of-the-art technology' requires building up a distinctive ability within the organisations of LEDCs to comply with the standards of the MEDCs. Until now, no significant attempt has yet been made to explore LEDC organisational involvement in making a common attribute to be met or complied with which could therefore compete with the MEDCs.

2.3.5 Implementation

Implementing a technology successfully in a transferee organisation requires multiphase internal and external initiatives and interactions. A significant amount of literature (described below) has directed itself to discovering areas of intra-organisational initiatives such as organisational learning, problem-solving strategies and interactions with the transferor organisation for corrective maintenance and technology updates.

Developing a learning experience through external training and workplace learning with an aim of adapting workforce perceptions and motivations and actions to grow new skills is not a straight-forward job. Aiman-Smith and Green (2002) have argued that the characteristics of technology have a greater impact on learning:

Difficult technologies present challenges for users in their work, and they also present challenges when organizations attempt to design beneficial learning activities for users. (Aiman-Smith & Green 2002; p 427)

In order to overcome these challenges, Green has suggested developing well-designed learning activities, which eventually provide a positive countervailing force during technology implementation. As most of the literature on organisational learning experience was developed from the MEDC perspective, the LEDC organisational experience has not been properly represented. Song and Chermack (2008) have recently used the 'Watkins and Marsick' proposed integrated model to evaluate organisational learning in the Korean context and reported that this model is 'is appropriate in the Korean cultural context' (Song and Chermack 2008; p 95). Developing an effective organisational learning experience through a home-grown problem-solving strategy is therefore crucial in this regard.

Learning foreign technology through training and workplace learning may not be sufficient in every aspect. For example, through using problem-solving strategies it might be easy to execute proactive maintenance to run the technology, but the situation could be critical when the technology fails to function. In order to overcome this problem, Zhang et. al. (2003) have suggested integrating an e-maintenance system:

E-maintenance is a concept for all individual departments to work together in realising both predictive and corrective maintenance (Zhang et.al. 2003; p 426)

According to the authors, E-maintenance will require an active network (data acquisition system, expert system and business management system) system and information flow between the internal and external agents. Due to the complex nature of E-maintenance, this might not be an easy option for the organisations of LEDCs, and therefore alternative maintenance and easy functional communication might be considered. It appears obvious that more research is needed to find easy solutions to overcome the functional communication and maintenance problems between the transferee and transferor.

2.3.6 Skills and Output

Accomplishing all the aforementioned phases can potentially produce a skilled workforce capable of managing new skills and ready to contribute to their organisations with an expected output.

Much of the above discussion sought to highlight the gaps in literature in identifying the process of the technology integration from an LEDC perspective. Although this discussion sheds light on understanding the integration process from an LEDC context, the focus was to discover the pattern of technology integration in general. Therefore, examining the

perceptions in a more particular context, specifically in the context of a film organisation, is vital. Understanding the practice of workforce development specifically and training issues related to the film industry is therefore similarly crucial. The following part of this chapter will address this issue.

2.4 Trends of Workforce Development and Training of the Film Professionals

Workforce Education and Development (WED) is an increasingly popular research topic. A number of scholarly approaches such as books, monographs, articles, journal series and magazines are extending the horizons of the subject. Existing literature tends to consider this subject from various academic perspectives-except for that of media. The majority of the research is contributed by scholars of medicine, engineering, computer science, nursing, health professions, biological sciences, economics, finance, business, management, accounting and social sciences. It is remarkable that there is an acute lack of theoretical and empirical research relating WED knowledge to an understanding of the media world. Moreover, the centralised approaches of the scholastic endeavours are typically more focused on exploring the MEDC context. Contributions of the scholars in identifying the workforce development of the media professionals from the LEDC perspective are slight. It is therefore important to identify the knowledge gaps which are preventing the exploitation of the media workforce development in the LEDC context.

2.4.1 Media WED within the MEDCs

Gray and Herr (1997) have drawn a clear demarcation between workforce education and formal education in specifying the difference of its approach:

Workforce education is that form of pedagogy that is provided at the pre-baccalaureate level by educational institutions, by private business and industry, or by government-sponsored, community-based organizations where the objectives is to increase individual opportunity in the labour market or to solve human performance problems in the workplace(Gray and Herr 1997; p 4).

Although workforce education starts parallel to formal education, it is interesting to notice that the scope of workforce education for a media career is more prevalent in MEDCs than in LEDCs. For example, in the UK, a number of qualifications such as NVQs (National Vocational Qualifications), and BTECs (Business and Technical Education Council) offer a variety of subjects related to traditional and digital Media Production from entry level to

diplomas to prepare the people to work in the media industry. Moreover, extant literature on media education demonstrates that the importance of the media education, in terms of curriculum development, resource development and layout development for training and skills development has been noticed by the scholars of the MEDCs since 1950 (for example Greiner 1955).

Parenthetically, consistent evidence has been found for the generalisation that a large number of intellectual supports were created in the MEDCs to train up their teachers to teach media at school, college and university level (Whannel 1992; Murdock & Phelps 1992; Buscombe 1992; Cook & Hiller 1992). For the most part, the current research based on media education is narrowly limited to supporting teachers within academic institutes - not the teachers teaching outside the academy.

As research continues to disregard the industry-level conditions, it also takes only a little notice of identifying the workplace learning environment, instructor quality, better knowledge management, and policy initiatives for effective learning methods and skills development of the media workforce. Very few books and articles have been written on the media workforce. Among those, most of the books were aimed at the new entrants in the media industry (Hurwitz & Hurwitz 1996; Angell 1999; Gordon 2002; Yager & Yager 2003; Vogt 2007; Dzyak 2010). Although the lack of research focused on the media industry was partially filled by the media institutes, such as BBC, Australian Film Institute and other national media institutes of different countries around the world, this effort is still very limited (Alvarado & Bradshaw 1992; Tunstall 2001; Christopherson 2002).

2.4.2 Media WED within the LEDCs

This scenario of WED for the media professionals is different in the LEDC context. For example, in Bangladesh the inclusion of workforce education into the curricula of general education at secondary or higher secondary level is still very limited. In 1995, the Bangladesh government introduced a 2-year vocational qualification for the Secondary School Certificate (SSC-Vocational) and in 1997 they introduced the Higher Secondary Certificate (HSC-Vocational) qualification in different trades (Ali 2009). Although the SSC (Vocational) and HSC (Vocational) are equivalent to the formal schools qualification of SSC and HSC, a difference between the formal and vocational school still exists. The stream of the Technical

and Vocational Education (TVE) is still taught separately and detached from the formal schools. The general impacts of this endeavour have been identified by Alam (2008):

Bangladesh has taken the decision to build more traditional educational institutions rather than TVE institutions, which has resulted in producing graduates rather than skilled person power.

Alam (2008) also reveals the limitations of the TVE in terms of WED:

The present TVE system does not provide any in-service training for workers. So secondary school-leaver workers have little chance to undertake professional training in their lifetime, and instead gain experience from work.

It is interesting to notice that failing to relate TVE with the workplace is limiting the students' learning potential. The effect of off-the-job training alone cannot help the student in achieving the standard of performance required in employment. Work-based training programs or apprenticeships therefore improve the student potentiality. Ali (2009, p47) has identified the root of the limitations of WED in Bangladesh:

The Polytechnic Evaluation Report, 2003 also mentions that of these teachers about 38 percent received some form of training in the country or overseas. Almost none had industrial experience though they are required to transfer skills and knowledge to their students on industrial processes and techniques. Only about 23 percent received an industrial attachment of 8 weeks' duration.

It is obvious from the current scenario in Bangladesh that both students and teachers need to have workplace experience in fulfilling the aim of Workforce Education in Bangladesh. A feature to be noted here is that until now within the existing trades of TVE, Media was not included in Bangladesh. Since 1967, a separate body, the Bangladesh Technical Education Board, has been established to develop skilled workers and manpower. Interestingly, according to Oxtoby (1997), although there were 61 vocational institutes in Bangladesh, none contributed to the provision of training on industry-oriented media vocations.

The NIMC is the only government institute which provides vocational training for the new and existing media workforce. Several public and private universities in Bangladesh are offering Graduate and Post graduate courses in Media as a part of formal education. However, media courses in the school and college level curricula are still not being included within vocational and formal education. Research on designing a Media curriculum for school and college levels have been neglected in Bangladesh. Moreover, identifying the learning needs, developing resources, planning instruction system, extending various career

options for media students and associating the plausible vocational and formal routes with higher levels have also not been critically addressed.

The concept of recently-developed DT has created a new ground within media education. Knowing the applications and impact of the new technology is therefore essential to understand both from industry and academic perspectives. Scholarly approaches so far on the integration process of DT have been more focused in exploring the impact of DT rather than discussing its applications. Considering the hands-on applications of DT is very important in terms of developing the new and existing media workforce. Consequently, it is also noticeable that there is an acute need for scholarly guidance or contribution to integrate the new DT from both MEDCs and LEDCs.

2.5 Operational Practice of Film Production

The issues mentioned earlier within the film industry of Bangladesh, and their impacts, have not been treated extensively in empirical research. The literature review that has been discussed at the beginning of this chapter suggests that no systematic study has been carried out to identify the cause and effects of the problems of integrating DT at each stage of the film-making process.

The making of a film involves three distinct stages: Pre-production, Production and Post-production. The pre-production stage(s) is/are basically concerned with idea/concept development and production planning and preparation. Research proves that no previous research has concentrated on storyboarding, scheduling, cross-plot creation and budgeting or even exploring the opportunity of introducing digitally-managed pre-production phases within a Bangladesh context.

The shift from the 35mm celluloid production /shooting technology to digital tools has been a matter of heated debate for many. Ascher & Pincus (1999) identified the compatibility of new DT and established the strength of High Definition Television (HDTV) compared with to 35mm film format:

HDTV represents a quantum leap in resolution over traditional, analogue systems and results in an image that rivals 35 mm in clarity. (Ascher & Pincus 1999; p 26-27)

HDTV is an advanced format of DT. This technology has a better resolution than the standard digital format. Therefore, the above scholars claimed that this format will be able to compete

with the 35mm celluloid film format. The common notion of scholars is that, once a new DT becomes a consumption norm, it will dramatically reduce the production time as well as production costs. A digital camera can record an image in a low lit situation. Therefore, in digital shooting, it generally requires less light to illuminate the shooting location. This reduces the handling time needed to set-up all the lighting equipment for the different scenes. Tucker (2003) asserts that a professional filmmaker can shoot up to 2 minutes of final film production in a single day's shooting. However, a single camera in a digital production unit can shoot 6-7 minutes of footage in the same period. Hence, it could be assumed that DT will be able to reduce the shooting time of a 35 mm film production schedule by a third. A comparative analysis of the production costs between the 35mm celluloid and digital production processes would give a detailed account of the viability of this claim.

Some doubts have been raised as to whether this new technology can be replaced as the professional version of the 35mm. John Belton (2002) addressed the innovation of DT as a 'false revolution'. Belton stated that DT would not be able to function on its own as it is dependent on a number of factors. For example, he noted that in order to create a print with a digital sound track, there always has to be an analogue backup. He highlights that DT has not properly been diffused around the world. Belton also claimed that the percentage of digital sound readers in theatres worldwide is less than 50%.

Overall, DT has had a fairly mixed reception worldwide. Apart from the practical difficulties (such as installation costs, learning new skills to operate software and hardware), DT is acknowledged to be a very cheap technology. Therefore, this technology could become more popular for LEDCs. Many scholars assert that acquiring DT is not only a cost-effective strategy, but also a universal need to meet audience demands and expectations. Sawney (2003) discussed the need to make technology relevant to customers and vice versa:

Widespread adoption of a new technology is not a product solely of choices made by free-willed consumers but also of the pressures exerted by the system. We should therefore not view the "majority decision" as a mandate of sorts for universalizing a new product or service…Majoritarian thinking simplifies it to the majority choice of the subscriber as expressed in the market place. A more tempered view would see it as a composite of not only subscriber needs but also system needs, since the system-induced adoption of a new technology also shows up as a purchase decision by subscribers (Sawney 2003; p 330).

In a sense, subscribers have free will as to what they choose to use. However, their range of choices is limited. With some exceptions, MEDCs are usually the ones who innovate and

diffuse the technology. When a technology is innovated, the company uses their marketing strategies to convince their potential customers by constantly providing vast quantities of information to sell their product. Because of the vast amount of data flowing through electronic networks, the consumers or buyers find it difficult to choose the right one out of the vast numbers of products available in the global market. Specifically, the businesses located in the LEDCs typically lack the capability to do justice to vast collections of products, and therefore the capability of making an informed choice for the most appropriate technologies or processes.

Generally, in the context of such global commercial complexity, LEDC businesses rely on the decisions of the vast majority. When a group of businesses accept the technology, the rest of the groups usually follow them emphatically. On the other hand, whilst the number of consumers becomes very large, the innovating company assesses this as the majority decision, irrespective of the efficiency and standard of the chosen technology. As a result, most consumers usually accept the product uncritically as “cutting edge” technology, and therefore seriously limit their technology options in the process.

In order to keep up with the market, the LEDCs are somewhat forced to accept the new technology. The old technology is becoming extinct and this is why LEDCs have no choice but to accept the technology. As mentioned much earlier in the first chapter of this thesis, most materials and equipment in LEDCs are imported from foreign countries and therefore the LEDCs cannot freely make purchase decisions. These aspects apply to the perspective of the BFI as Bangladesh is an LEDC. However, this factor needs to be studied in more depth.

When the move from the 35mm celluloid technology to DT is obvious in many countries, then it is crucial to consider the probable output or impacts of the succeeding technology. It has not yet been examined how the integration of a new technology will affect the commercial film industry.

The publication of *Cholochchitrer Somoy Somoyer Cholochchitro* (Time of the Film and Film of the Time) can be seen as an important contribution to film study (Haq and Moon 2006). The edited collection of sixteen articles discusses the weakness of commercial films, and provides new concepts of alternative means for protecting the film product from commercial decline. The authors have expressed much more interest in exploiting ways of improvement and alternative styles and formats of film business. Amongst the contributors,

Manjar Hasin Murad and Tareq Masud have specifically mentioned the use of the digital format in production, and devised an alternative policy of film distribution and exhibition. Murad has suggested ways to develop an alternative endeavour for the future of Bangladeshi film, other than the problematic mainstream industry. Murad has suggested ways to develop which is for the future of Bangladeshi film, other than the problematic mainstream industry.

In 2008 Haq, as a co-author with Nasreen, published a book to find out the strengths and weaknesses of the mainstream industry. The scholars called for both public and private initiatives for developing digital projection capacity and using computer graphics, special effects and digital format for the development of film products in the BFI. Nasreen & Haq (2008) suggested establishing a film institute to develop the future workforce of the BFDC. However, these suggestions are very brief, and therefore more research is required to explore the potentialities of DT in the BFI context.

In 2011, Fahmidul Haq, a faculty member of Dhaka University, published his book, 'Digital Film in Bangladesh: Call for a New Cinema?' in order to investigate the potentials trends and challenges of digital films in Bangladesh. This qualitative study is noteworthy for several reasons. In outlining the Bangladesh perspective, this study attempts to address a historical account of the digital film productions since 2006. Whilst there are several books and studies on Bangladesh film history, this book briefly and notably emphasises the endeavours of the Independent filmmakers. Among the Independent filmmakers, Haq broadly discussed four filmmakers, and critically focused on their digital films in relation to the findings through questionnaires, observations and case studies. Haq concluded his book by mentioning the potential and challenges of the digital film in distribution and exhibition. This is a welcome approach to the study of Digital Film in Bangladesh. However, this study critically overlooks the contribution of the mainstream film industry in the country. As the discussion is largely confined to the independent filmmakers' context, the problems and prospects of the digital distribution and exhibition in the mainstream industry is therefore critically missing.

Globally, it seems that the film industry is giving the new digital technologies a mixed reception. Most of the industries are trying to find answers to the following questions. Will there be any job losses within the existing workforce? Will production roles change? Can the present operators adapt quickly to the new technologies?

The apparent inevitability and consequent dominance of the new digital technologies in media production generally means that the film industry cannot ignore them. Therefore, judging the readiness of the film industry on the new digital frontiers is really important. Extensive research is also required to identify the policy, budgetary and functional forces that are integral components for the provision of a climate of "readiness" in the film distribution and exhibition arms of the BFI.

2.6 Operational Practice of Film Distribution

Raju (2006) identifies the limitations of distribution and exhibition through his recent scholarly work. Here, Raju concerns himself with examining how contemporary government flexible taxation (from pay-per-view to lower rate of capacity based tax) system, was misused by the exhibitors:

Recently the government has lowered the rate of the capacity-based tax from previous 125 percent to 50 percent of the entry price in the 2002/03 annual budget. In a call for industry reform, film journalist Manik Khondokar complained that film exhibitors had still not lowered the price of the movie tickets. This adjustment of the government tax in 2002 also can be seen as a new incentive provided by the State to the film producers and exhibitors to battle the new giant of satellite television that serves up anti- Bangladeshi visual entertainment (Raju 2006; p 126).

There have been no studies to identify why film exhibitors have not reduced the price of films even after the tax exemption. Taxation on cinemagoers usually depends on the basis of location of cinemas, age of cinemas since construction or major renovations, type of movies it generally exhibits (local or international), release schedules (newly-released or repeat run) and in-house facilities (air conditioning, seating-arrangements, sanitation, parking and lobby). However, whether any of these factors really had no influence on the possibility of reducing the admission fees was not clear. Until recently such attempts had been critically absent from the literature (Kabir 1969; Raju 2006), and no-one has yet attempted to identify the cause of the decline of film audiences and related revenues. Scholars Nasreen & Haq (2008) did not see the expansion of satellite television as a major cause of audience decline:

The fact that the expansion of satellite television is not the reason behind the audience decreasing can be easily inferred from Hollywood or Bollywood's film expansion. This is because India and U.S.A have in no way got any less number of satellite television channels than Bangladesh. However, the cinema audience number in India and U.S.A still remains high compared to the number of films shown on television. (Nasreen & Haq 2008; p 160-161)

Although the scholars' arguments regarding the audience representation in the US and India might have some factual basis, there has not been rigorous validation of the argument in the Bangladeshi context. No scholarly analysis has aimed to demonstrate how the BFI can face or overcome the piracy and the penetration problems of the TV companies that are broadcasting Indian and Hollywood films to the Bangladeshi audience. Therefore, a strategic distribution approach is essential in overcoming the piracy and penetration problems and increasing the audience participation of the BFI.

DT is currently being pioneered within the global industry. Worldwide, many countries already have proven expertise in managing complex technology transformations. The BFI still does not wholly prioritise accumulation of DT or even initiate any research on the issue. Moreover, television with technological convergence is enabling media to cross national boundaries, which may also affect the notion of State capacity to prevent film media from acquiring other media powers.

Many scholars have examined the concept of cross-national boundaries of film products. Elasmar and Bennett (2003) have identified the act of crossing the national boundary and exporting the media products to another country as a process of social and cultural influence. Therefore, generally, the cultural products are exported from MEDCs to LEDCs. Although Elasmar and Bennett have identified cross-national issues from the paradigm of cultural imperialism from a MEDC's point of view, they have critically missed the point that LEDCs like Bangladesh can also contribute to this business by exporting films for the transnational diasporic citizens in the MEDCs. In order to freely cross the border, many films need to be produced for a multinational audience.

Moreover, negotiating and implementing effective business deals with other countries is also a crucial phenomenon in exporting the products. Whilst exporting the film products, it is also important for LEDCs such as Bangladesh to devise a strategy on the import of film products. If the volume of films imported exceeds that of films exported, it may create a pressure on the country's foreign reserves. Therefore, this issue raises another challenge as to how Bangladesh can actually strike a balance between cross-national imports and cross-national exports in the era of cross-national film development.

2.7 Operational Practice of Film Exhibition

The pattern of poorly-balanced research efforts of MEDCs is not only limited to the information access topic but is also inadequate in addressing other empirical issues like knowledge and technology implications. For example, rapid changes in DT in film distribution and exhibition have not yet been explored from a LEDC's perspective. A number of scholars (Chang et.al. 2003) have discussed the new horizon of distribution system in the film industry. They have emphasised how the newly-developed digital distribution formats induced change in US film distribution channels. The revenue dynamics of ancillary markets such as TV/Internet pay-per-view, VOD (video on demand) and rental or sale of home video products (VCD, DVD, XVD), and television release (cable and terrestrial) was also examined.

Film distribution is inextricably connected to film exhibition. If digitally-managed distribution methods are generally adopted, exhibitors will have to convert their present projection systems to digital projection systems, which will need a large capital investment. Therefore, it would be beneficial to do further research to identify the feasibility of introducing digital exhibition. A cost-benefit analysis (CBA) could be a useful technique in this regard to determine whether such a project would be really viable or not. The CBA is a complex calculation tool that is popular with researchers in forecasting the profitability or loss of a prospective project (Nas 1996). Through calculating the difference between the total amount of the expenditures or investment for a particular project and the total amount of expected benefits in a given period time, the worthiness of an investment can usually be predicted. If the total benefits balance the costs or generate excess revenue over investment, then the project makes sense. Eventually, the result of this kind of cost-benefit analysis could be seen as both essential and beneficial groundwork for the growth and expansion of the DT project in the BFI.

2.8 Summary

With the elaboration of the 'technology transfer' concepts, this section has represented an overview of how the integration process of a new technology might be understood in a LEDC context. The discussion on technology integration indicates that the contexts that are already being accepted, mostly as a common experience by many scholars, are not very common contexts in many countries around the world. The contexts of R&D capability, skilled

manufacturing capability, marketing capability for competitive market environment, leadership capability within the managers, adequate infrastructure and reasonable knowledge capability have been specifically found absent or incongruous in the LEDCs.

In order to build up the required capabilities, the development of the workforce is therefore required. Furthermore, how the prospective technology can work in the operational areas within the industry also needed to be examined. Thus, further reviews of existing literature in this section were carried out to explore the challenges of workforce development and training, operational circumstances in production, distribution and exhibition stages in the context of a film industry in Bangladesh. It has been highlighted through this review that globally there are fundamental knowledge gaps prevailing to upgrade the curriculum, teaching patterns and training policies in accommodating DT for readying the digital workforce. Furthermore, the knowledge gaps in implementing the new DT within the film industry context have also been identified. That being the case, this section has identified the knowledge areas which need to be addressed in future.

Chapter 3: Methodology

3.1 Context

This chapter initially describes the appropriateness of the devised research design. It includes the overview of the research design, the selection of methodology and time-line used to complete the research project. It also describes the rationales for selecting participants, formulation of research questions and development of theoretical frameworks to address the research field. Finally, this chapter describes the procedures followed within the research field, such as data collection and data analysis. It also discusses the validity and reliability of the data collection and analysis process, ethical considerations and the limitations of the research design.

3.2 Design of the Study

A design method consisting of qualitative and quantitative approaches was chosen for this work. Within the two major approaches to research, qualitative research involves an in-depth understanding of the human behaviour. Quantitative research, on the other hand, intends to see the world from an objective perspective (Cooper and Schindler 2003). Quantitative research method provides precise and accurate views of the data due to the use of numbers and figures. Both the qualitative and quantitative methodologies have their strengths and weaknesses. The context and research area play a vital role in selecting a method.

3.3 Appropriateness of the Design

The choice of an appropriate research methodology mainly depends on the purpose of the study and the nature of the research questions. In order to understand the background of research questions in greater depth, a thorough analysis of the workforces' readiness and response in terms of integrating a new technology needs to be addressed.

The success of any project is highly dependent on the past, present and future performance of the workforce. The performance is also largely dependent on motivation, capacity and other external issues such as political, economical, social, technological, legislative and environmental factors (Buytendijk et.al. 2010). As demonstrated by Oswald Jones (2006), past experience such as working environment, skills, knowledge and efficiency have a great impact on present performance. Moreover, when there is a departure from the traditional

approach to a new technology, the present performance scenario can then be affected very dramatically. A workforce needs to learn new knowledge and integrate that knowledge into a transferable efficiency for future performances (Iansiti 1998). Therefore, it is vital to understand how the workforce is individually and institutionally approaching the new technology. The individual engagement and collective performance of the BFI workforce will therefore help to gain a better understanding about their readiness and response towards the new technology.

Subjective experience and opinions therefore signal a requirement for the qualitative method, as this method is more suitable to address the subjective views of the size of the workforce of BFI size of the industry investment costs and expected return are also needed. Thus a quantitative methodological requirement cannot be ignored either. A mixed method is therefore an ideal approach to accommodate various types of information and data for a rigorous examination of the research questions.

Since there has been no prior research on the BFI workforce using a mixed method, a quantitative research methodology was firstly used to calculate the number of different workgroups associated with the film production, distribution and exhibition processes. Before carrying out this research, there was an uncertain speculation about the number of the BFI workforce but no specific figures of each group were available. More specifically, the total numbers of the entire workforce of the BFI was not identified. Therefore, the intention of using the quantitative approach was not only to disclose the size of the BFI workforce, but also to specify the groups and the magnitude of the groups in the workforce who would be affected by the integration of the new technology.

A quantitative methodology was also required to ascertain the accuracy of some commonly-cited assumptions by film scholars. An example was provided by Ascher and Pincus (1999), who claimed that DT was a less cost-effective technology for film production, distribution and exhibition than existing 35 celluloid technology. However, despite considerable research in the area of DT (Swami et.al. 1999; Ganz & Khatib 2006; Mak 2007), the assumption still suffers from a number of weaknesses: for example, there has been (a) no study recognised by any scholars to investigate a cost comparison between production methods of the digital and celluloid film within the production, distribution and exhibition stages and (b) no research has been carried out to examine the figures from an LEDC perspective. A comprehensive account

of the cost comparison for such a transition within the BFI can be obtained by including quantitative methodologies within this research.

Finally, the quantitative methodology was designed to gather some information about the income of the workgroups of the BFI, in order to obtain a clear picture of the range between the highest and lowest income figures. The intention of working out the numerical figures of the income of each group was not only to denote the economic conditions of the current workforce, but also to find out how the workforce may suffer or gain economically from the new technology integration.

Unlike quantitative methodology, qualitative methodology is not functional enough in acquiring factual data. Qualitative methodology may also produce numerical data, but due to subjective speculations of the respondents, this data might become unreliable for statistical analysis. Qualitative data cannot usually give causal explanations, or provide any demographic information accurately.

One of the methodological challenges of the qualitative research was to determine the right method from a range of categories of qualitative methodology. Creswell (1994) classified four major categories of qualitative methodology: ethnography, grounded theory, phenomenological study, and case study methods**.**

During ethnographic research, I had to live amongst the population to collect information. The long-term commitment of an ethnographic approach would have required a long-term involvement with an objective standpoint. Serving as a faculty member in the Drama Department of Jahangirnagar University, and currently being on study leave to pursue this Ph.D, it was not legally possible for me to have any job placements in the BFI. Because working closely as a participant observer was not a feasible option, this study could not consider ethnography in the research work.

Strauss & Corbin (1998, p 12) described Grounded Theory as one kind of qualitative research. They define Grounded Theory as ‘derived from data, systematically gathered and analysed through research process.’ The grounded theory process requires multiple stages of data collection with a focus on exploration of different people at different points of time and in different categories. This approach applies a simultaneous course of action of data collection, and analysis followed by a mechanical coding process to categorise the thoughts to generate a theory. The Grounded Theory does not admit any incorporation of prior

knowledge or theory to address and define the research area. As the Grounded Theory is not good for hypothesis testing or confirming research assumptions, this bottom-up process was thus not used for this research.

A phenomenological approach is based on the idea of exploring human experience subjectively rather than objectively. The phenomenologist is concerned with understanding human behaviour also from the respondent's internal views. The phenomenologists consider human behaviour and what people say as a product of how people interpret their world (Bogdan & Taylor 1975). However, despite considerable strengths of capturing all or more phases of the experience of the respondent's life, this approach still suffers from a number of weaknesses. Like ethnographic research, this approach also calls for an extensive and prolonged engagement from me for each respondent. Some further limitations were identified by Sheree Dukes (1984) who explained that, because the phenomenological research rigorously excludes factual particulars, a researcher cannot make any factual statements at all. As a result, phenomenological study cannot reveal any future perspectives, thus also making the use of phenomenology unsuitable for this research.

Finding a way to avoid the limitations of the above three approaches, (ethnography, grounded theory and phenomenological study) was to detect a research approach which was free from those limitations. In analysing the strengths of the case study approach, it emerged that an approach was comparatively free from the weaknesses of the previously described approaches. Unlike the other three approaches, the case study approach does not generally stipulate a prolonged engagement of a researcher in the field. Phenomenological studies of human learning specify exploring only the human experiences, not the facts. In contrast, 'a case study is normally a description of a situation, which may be factually based or fictional' (Lancaster & Massingham 2001, p 486). However, the fact or context-dependent knowledge and experience of the case study approach is also found in the ethnographic and grounded theory approaches, but the features of those approaches are not identical with the case study approach. In practice, grounded theory researchers never use a theory to explore the research field, since generating a theory from the context is a common function in grounded theory.

Exploring the field and analysing the data via the case study approach by and large defines and depends on relevant hypotheses or theories. Although the practices of using a hypothesis or theory in the case study research spawn the idea that the case study method suffers from an over-dependency, and is therefore unable to generate any new theories, this conception is a

misunderstanding. Andrew Bennett (2004) described the comparative advantage of case study as 'the ability to identify new hypotheses, which case studies can do through a combination of deduction and induction.' Bent Flyvbjerg further examined the misunderstandings about case-study researches:

'The case study is useful for both generating and testing of hypotheses but is not limited to these research activities alone' (Flyvbjerg 2006; p 229).

Therefore, the identification of the vital strengths possessed by the case study method was prioritised in making a judgment for the methodology of this thesis.

As has just been stated, these significant features of the case study approach tempted me to pay less attention to the limitations of this approach. Commonly-cited limitations of the case study are a bias towards verification, unsuitability for generalisation and preparing theoretical knowledge (Flyvbjerg 2006). However, no universal methodological approach has yet been identified which is free from any limitation. Therefore, it was important to value the practicality of using the case study in this research.

3.4 Selection of Cases

Case selection is often a challenging job for any researcher. The primordial task of case study research begins with determining the case/s that will produce the range of information and required answers. Selecting the right case is always a process of trial and error. Seawright and Gerring (2008) have identified four legitimate factors crucial for this process. According to them, representation of the broader population, variation on relevant dimensions, consideration of background cases and theoretical prominence are the legitimate factors in case selection. In view of their research, those four factors have been used to complete the case selection process.

3.4.1 Representation of Broader Population

In this study, an understanding of the views of the entire workforce of the BFI on the question of the integration process was needed to ensure the representative view of the total workforce. This was quite a difficult issue, as there are many professional groups associated with the BFI. Therefore, instead of intrinsic (primary interest/context dominant) or instrumental (issue/cause & effect dominant) cases, a collective type of case study was chosen for this research.

Robert E Stake (1995) outlined the scope and limitation of collective case study:

A collective case study may be designed with more concern for representation but, again, the representation of a small sample is difficult to defend. (Stake 1995; p 5)

The advantage of a collective type of case study is that it represents a varied range of people who are pooled under a group for a particular trade. At the same time, the limitation of a collective case is that in capacity, it is counted as a single case. Hence, a single case is less effective in achieving the variation on relevant dimensions of a given research study. Therefore, at this point attention was given to the second factor of case selection which was ensuring the variation on relevant dimensions. In order to increase the validity and patent the variation of the case, a plan to use two collective cases was therefore devised. This multiple choice of cases also provided a sounder basis for the research. The potentiality and challenges of multiple case designs has been identified by Robert K Yin (1989):

Multiple-case designs have distinct advantages and disadvantages in comparison to single- case designs. The evidence from multiple-cases is often considered more compelling, and the overall study is therefore regarded as being more robust. … Moreover, the conduct of a multiple-case study can require extensive resources and time beyond the means of single student or independent research investigator. (Yin 1989; p 52-53)

The relative advantage of multiple-case over a single case indicates more representation of the broader population than single case study. As a result, it requires more resources and time to conduct this research. This limitation of the multiple-case approach can be resolved by reducing the number of respondents. A small number of diverse respondents not only reduces the time and effort from me significantly, but also retains the representation of the wider population of the research. This realisation precedes the idea of developing a multiple-case with a small number of respondents, so in the later stages, the research engagement would be likely to become short.

3.4.2 Variation on Relevant Dimensions

The strategic option for selecting a small number of respondents was to identify the key people involved in a common film production unit. Out of the large workforces involved in production, distribution and exhibition units, it was quite hard choosing a diverse range of respondents from the three various units. The critical structure of a film production unit comprises Producer, Director, Screenwriter, Production Manager, Cameraman, Sound Designer, Editor, Distributor and Exhibitor and many more professionals. Many other

professionals were purposely excluded in a bid to choose these eight irreplaceable professionals in a case setting. The major argument in favour of this selection was that their representations covered every aspect of the industry, including financial, creative, technical and marketing perspectives. Moreover, although they belonged to a homogeneous work group, there were significant and substantial differences between their job nature, age, education, and socio-economic background.

During the case selection, two main teams who were involved in the film industry from production to exhibition process were chosen. The first case was a group of individuals who worked collectively in producing, distributing and exhibiting a 35mm celluloid film. The second case was another group of individuals who worked together in a film which was produced, distributed and exhibited digitally. As the two chosen films used two different technologies, the primary benefits of using these two cases was to have a wide range of similar and divergent viewpoints. The secondary benefit was to gain answers from respondents of two cases in a sequence from quite exploratory to confirmatory. Finally, the purposive choice of selecting two different cases was to know about the prototypes of the 35mm celluloid and digital film product, with an emphasis on discovering the thinking, misunderstandings, prejudices and limitations of the people associated with the films.

The decisive factor in selecting the two cases was to understand the problems of digital integration in terms of their participating and non-participating experience. The first case study was a group of individuals who worked for the 35mm format film called *Rakhkhushi*, who did not partake in DT, and who therefore were the non-participant faction. The second case study was a group of individuals who worked for the digital format film called *Priotomeshu*, who had integrated DT, and were therefore the participant faction.

The motive behind selecting a set of the two case studies was not only to support the replication approach of multiple-case studies, but also to create an opportunity to understand the equality of each case. Robert E Stake clearly articulated the importance of equality in collective case studies:

Even for collective case studies, selection by sampling of attributes should not be the highest priority. Balance and variety are important; opportunity to learn is of primary importance. (Stake 1995; p 6)

During the case selections, neither were chosen at random and nor did I individually choose them in a purposive way; the cases were chosen under the guidance of a senior employee of

the BFDC. Knowing the dangers of bias, the cases were initially planned to be done randomly. With the help of the guide, a vast range of productions was approached, which would have made it easier to randomly choose the case studies. However, not wanting to take part in such a huge commitment, most productions turned the approach down, which finally left the study with very little choice but to carry out a purposive selection, which perhaps reduced the chances of the research being more diverse and unbiased.

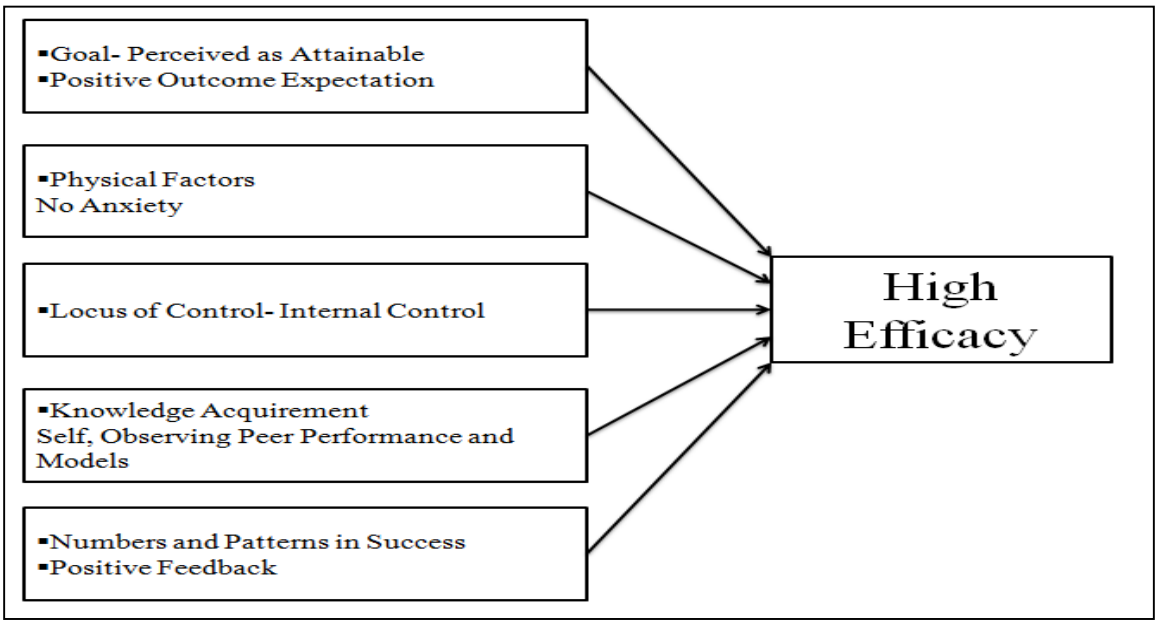
3.4.3 Consideration of Background Cases

As discussed earlier (in chapter 2), most of the local scholars studying the Bangladeshi film tended to focus their research on the historical and social reading of the film content, rather than studying the film industry and its multi-stage processes such as production, distribution and exhibition. Most recently, a few local scholars such as Raju (2006), and Nasreen & Haq (2008) and global scholar Hoek (2010) have researched in these three areas. However, within their research, methodologically no one has utilised a case study approach. Although Fahmidul Haq's recent book, "Digital Film in Bangladesh: Call for a New Cinema?" (2011) has also used the case study method, his book is confined to the 'independent filmmakers' perspective as opposed to the wider commercial film industry which is the subject of this research.

3.4.4 Theoretical Prominence

From the three types of case studies- exploratory, descriptive and explanatory-identified by Yin (1993), this research adopted the explanatory case study. Explanatory case studies require a theoretical framework during data collection in order to gather and explain research data. As stated earlier (in chapter 1 and 2), the theoretical framework consists of three theories (self-efficacy, absorptive capacity and PESTEL), which have been used in this design to explain the integration process within the BFI. The few studies that have used the self-efficacy theory have tended to focus on the readings of the individuals' motivational issues within the boundaries of an educational or clinical setting (for example, Turner 2007). To my knowledge, this efficacy theory has not been used in identifying the individuals' motivation in a creative industry background. Moreover, in exploiting the individuals' motivational standing with regards to the integration process, no survey method or different range of Likert scale were applied to collect quantitative data (as Turner 2007 used).

Diagram 4: Major Features of High Efficacy[xiv]



This study has only used the two major features of the 'self-efficacy' theory: whether as an individual they think that the goal of integrating DT is attainable or not, and whether they are expecting any positive outcomes from the integration process.

Apart from the individuals' perception towards integration, it is also crucial to understand the organisational views of the workforce. Within the research methodology, the complex features of 'absorptive theory' (as discussed in chapter 1 and 2) were used to identify the collective level of knowledge, skills and understanding of the workforce within the organisations in BFI. This theory helped the comprehension of the organisational readiness in the pre-integration phase and responses towards new technology in the post-integration phase.

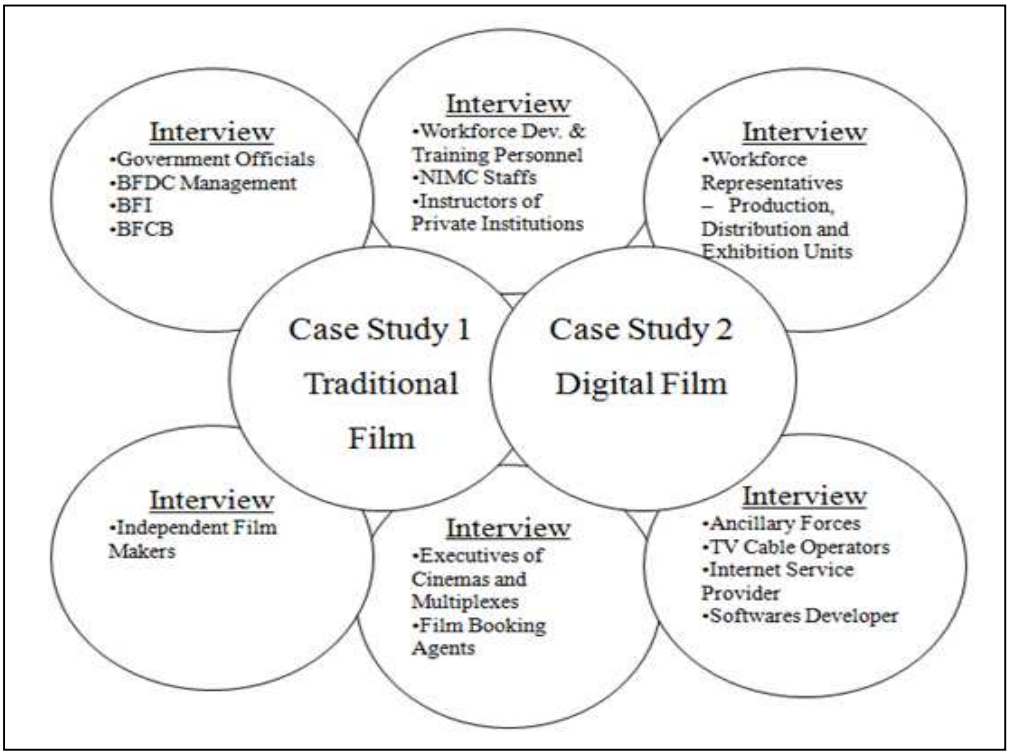
Although many studies (Grant 1996; Liao et.al. 2007; Godkin 2008) have used the 'absorptive capacity' theory in understanding the organisational impacts, and some studies have used the 'self-efficacy' theory in identifying the individuals' concern, very few have focused on the external factors whilst integrating new technology. The PESTEL model in the business industry setting has received considerable attention (for example, Kothari & Handscombe 2007; Zinkeviciute 2009). Therefore, a plan to discover the PESTEL factors in understanding the BFI scenarios was also devised; specifically to denote which PESTEL factors were acting as barriers and which PESTEL factors could potentially enable this integration to be a success.

Evidently, there has been no research in the film industry context where these three theories have been applied collectively. Therefore, the uniqueness of using these three theories in a single theoretical framework provides the opportunity to explore the field more critically.

Although the limitation of this theoretical framework in a case study setting was also indentified, the respondents within the two cases only revealed the operational process of the film product; non-operational issues did not appear during their discussion. Therefore, with the aim of knowing the views of the population functioning inside and outside the film industry and contributing to the industry directly or indirectly, an interview technique was also chosen.

Two logical purposes guided this study to include a semi-structured interview technique in the research design. Firstly, the interview technique enhanced the validity of the research through wider representation and cross-argumentation. Secondly, this technique methodologically also allowed me to fill the knowledge gaps in response to the research questions and assumptions. To fulfil the purposes stated above, I sought to interview 12 respondents in four categories: government officials, workforce development and training personnel, independent filmmakers, and workforce representatives.

Diagram 5: Methodological Mapping



3.5 Time Line

With respect to this study, data collection was initially designed to be completed in one single field trip. Accordingly, the field work took place from 13th April 2008 to 29th May 2008. During this time, only 13 of the 18 respondents of multiple cases were interviewed. Moreover, 12 respondents beyond the case study setting were also interviewed. It became clear that the initial engagement of 49 days in the research field was not enough to explore the relevance of the research queries. In order to complete the underpinning research questions and to gain a conceptual clarification for the thesis, a careful consideration for accommodating more time and inclusion of more participants was considered vital. Therefore, a second field trip was planned to fulfil the requirement.

With reference to the gaps and experience of the first field work, it was established that in addition to the four categories of respondents, the executives of the distribution and exhibition units and manpower working as an ancillary force should also be interviewed in the second phase. In view of that, the second field work took place from 8th March, 2009 to 30th April, 2009. Finally, within the two phases of data collection, a total of 38 interviews were conducted and 14 case study respondents were addressed. During the data collection period in 2009, the case film *Priotomeshu* was not ready for release; therefore it was not possible to interview the distributor of the film. As the director of *Priotomeshu* performed the editors' job, no interview of the editor was conducted separately. Moreover, no exhibitor was interviewed either.

3.6 Research Questions

The aim of designing the questionnaire for the case study respondents was to build up a total scenario about the BFI. The groundwork for undertaking a case study usually begins with designing a set of clearly-defined questions. Generally, the set of questions are broadly divided into two categories, which are the issue-based and topic-based questions. Robert E Stake defined the nature of the issue questions:

Issues draw us towards observing, even teasing out, the problem of the case, the conflictual outpourings, and the complex background of human concern. Issues help us expand upon the moment, help us see the instance in a more historical light; help us recognize the pervasive problems in human interaction. Issue questions or issue statements provide a powerful conceptual structure for organizing the study of case. (Stake 1995; p 17)

In addition to developing Issue questions, it was also necessary to develop Topical Information questions. Issue questions are usually seen as macro-level queries. Therefore, in order to move to the micro-level queries, the topical questions help researchers, in general, to get further information in addition to issue questions. Sometimes the researchers primarily depend on topical questions instead of the issue ones.

3.6.1 Issue Questions

Issue questions addressed to respondents are vital in order to gain an overall perspective and chart the research area. Therefore, three main questions were designed (please see Introductory Chapter for detail).

It was important to know how they perceived the integration process. Hence, the first question asked film crew members, distribution agents and exhibitors to articulate their initial responses in facing the forthcoming challenges of digital integration. The answer to this question could be evaluated as positive or negative. Therefore, the question was designed to clarify whether the workforce saw these changes in a positive way or negative way.

The second question was designed to learn the effectiveness of DT within the BFI. It was important to understand and know the impact that DT has had and how much an impact it has had both prior to and after the beginning of the integration in 2003. The effectiveness of the influence of DT could help to create future conclusions about necessary improvements, so this question subsequently and importantly sought the opinion of each member of the workforce in order to compare the results and find similarities as well as differences. Since motivational factors have a major impact on the efficacy of the workforce, the second question also asked the workers to elaborate on identifying those factors which motivated them in order to bring efficiency to the integration process.

The third question asked the workforce to describe what they perceived were the barriers to them embracing DT integration and their limitations in terms of how much they could do, thereby obtaining an overall summary of the integration process. This question was mainly designed to explore the negative factors (if any) in regards to integration, as well as trying also to identify the demotivating factors within the integration process.

3.6.2 Topic-Based Information Questions

The topic-based questions have been separated into three sections: production, distribution and exhibition. The production section has been further separated into another three sub-sections: pre-production, production and post-production. The pre-production stage has then again further been separated into another 3 parts (please see Appendix 2 for detail):

3.6.2.1 Pre-production topic

The pre-production questions have mainly been designed to address the screenwriters and production managers for both of the case studies. The issue questions were asked to every respondent in a bid to understand an overall perspective. Besides that, every respondent was also asked particular topical questions to understand their motivational factors, skill, knowledge and job responsibilities. I intended to modify the topic questions as I proceeded with the interview addressing the respondent in particular.

The screenwriter of the case study 1 (Screenwriter 1) worked with the 35mm celluloid film format whereas the screenwriter of the case study 2 (Screenwriter 2) worked with the digital film format. Hence, their opinions and ways of thinking were different and therefore the questions asked were slightly altered for each respondent to identify their insights. For example, Screenwriter 1 was asked about his opinion on digital integration and specifically about the prospects of software use in screenwriting.

The questions planned for the production manager of the case study 1 (PM 1), and the production manager of the case study 2 (PM 2), were initially designed to discover their background experience of the 35mm celluloid and digital film format. The questions mainly focused on collecting quantitative data on production expenses, to estimate whether there was any difference of costs existing between the two production formats. Conventionally, MEDCs have a separate crew who specialise in location hunting. Therefore, it was of utmost interest to discover the Bangladeshi perspective. I intended to discover if there was a separate crew member or PM who carried out the job of location hunting.

Furthermore, scheduling also acted as a big factor because it was important to know the total shift engagement of the artists and crew members. I had an assumption which concluded that the 35mm celluloid format would have a higher number of shifts than the digital formats. Hence, a number of questions were designed to test whether this prediction was correct or

not. Regarding the budget of both films, emphasis was put on identifying quantitative data such as artist payments, crew payments, equipment hiring costs, location booking costs, props and materials costs, other production facility costs and printout costs. It was important to see a clear comparison between the two films in order to reflect upon the assumption that digital films are cheaper to produce than celluloid ones. Finally, whether the respondents had gained any experience of using digital software (e.g. Gorilla, Easy Budget, Reel Production Calendar or EP Scheduling) or used the MS Excel programme during their job was also asked.

3.6.2.2 Production Topic

The production questions were mainly designed to be addressed to the Director, Producer and Cameraman for both of the case studies. Because the Director and Producer are such vital members of the production crew, I had to be very cautious when asking and designing questions. Initially, six questions were designed for the Director and Producer of both films. I also intended to ask them the Issue questions because they were the vital questions to retrieve their ideological view of the new technology. However, in order to have a greater understanding of the entire BFI, I later changed the decision and decided to add another 32 questions which included the topics of Post-production and Distribution.

The first sets of questions were framed to elicit a clear understanding the capability of the current film production and therefore it was necessary to know the number of production units in Bangladesh. The following set of questions was intended to ascertain the Producer and Director's personal relative position in the competitive world of film production. An important phenomenon of the relative position is business marketing and skills. Therefore, the third set of questions asked for the marketing position of their current film production unit. Furthermore, again relating to the factor of skills, the fourth set of questions was designed to ask the Producers and Directors to evaluate their skill level. It was my assumption that the industry currently had some deficiencies and drawbacks which may have affected the Producers and Directors. Hence, the final sets of questions were designed to identify these deficiencies (lack of entrepreneurial skills) and the reasons (ideological reasons, if any) behind them.

A wide range of topic questions were designed for the camera persons of both films in order to know the substantial differences between shooting in 35mm celluloid and digital format. The initial questions asked the camera persons about the beginning of their career and

therefore were intended to reveal if they had received any formal training for this technical job. The primary questions were also designed to discover their job specification. Furthermore, much emphasis was placed on identifying the camera persons' relationship with the Directors such as knowledge, skills and aesthetic understanding. A number of questions had been designed to ascertain the operational functions and experiences of the camera persons, such as uses of filters, adapters and mounting devices. In addition to the common questions, which were addressed to both camera persons, a number of technical questions were specifically asked to the cameraman working with the digital format.

3.6.2.3 Post- Production Topic

The production questions were mainly designed to be addressed to the editors of both of the films. The primary question was once again designed to learn about the beginning of their career and identify their job specification. Recently, the BFI had established a non-linear editing set-up in the post production unit of BFDC. Therefore, it was of great interest to discover the impact it had on the editors. Furthermore, it was important to discover the potential and limitations of DT in editing. Finally, the last question was designed to gain an overall summary of the editors' perspective of DT integration in the editing process.

3.6.3 Distribution and Exhibition Topic

Three factors have been emphasised whilst designing the distribution and exhibition related questions: market, prospects of DT in distribution and the limitations of integrating DT. In order to grasp the current set-up of film distribution, it was important to know about the market size and the nature of the ancillary markets, as well as the strategic practices of the current distributors for business optimisation. The following questions were developed to know about the current limitations such as: piracy, cinema hall standards and other social problems. Finally, the last set of questions was developed to gain an understanding of the perception of the distributors about the future prospects of the industry in terms of digital integration.

I was aware that a film could have a number of exhibitors who might have to exhibit a particular film. Therefore, because there were many exhibitors exhibiting the case study films, a plan to talk to an executive member of the BFEA was devised to get an overall opinion. Questions were designed to retrieve some general information about the system of revenue generation, the number of cinema halls, and their views about possible digital

integration and to identify current limitations for such integration. Specifically, questions on 'revenue generation' were designed to understand the existing types of financial agreements between the distributors and exhibitors and revenues it provided. Moreover, a question was also designed to elicit information about a detailed and itemised disclosure of expenses shared between the two entities. While looking for the quantitative data on the number of existing cinema halls in Bangladesh, many statistics were found from many different sources (for example, daily newspapers) about the number of cinema halls which seemed to be contradictory. Therefore, it was crucial to establish an accurate number of cinemas in Bangladesh. Finally, it was also important to know the views of the distributors and exhibitors about the probable impact of DT on their businesses - in particular, its impact on employees and on small businessmen who could be threatened by redundancy if DT was to be integrated successfully.

3.6.4 Open Ended Questions: Interview Groups - Government Officials

A set of open ended questions was devised to discover the insights of the government officials who are in some way associated with the BFI. The questions were designed to elicit current government policies regarding technology transfer, training of the film workforce to improve the workforce skills into a homogenous level and film policy for further development. In particular, questions were aimed to discover the extent of the recent and prospective integration process of DT into the film industry. Therefore, the questions were designed to ascertain whether the BFDC had any plans to increase the existing production systems and develop a unit to strengthen the research capability. Furthermore, some questions were also devised to examine the government's plan about online distribution and its scope or threat to the BFI and the BFA (please see Appendix 3 for detail).

3.6.5 Open Ended Questions: Interview Groups – Film Professionals

The questions designed for the film professionals were set to reveal their perceptions about the future prospects of digital integration into various fields of film production. One of the aspects of digital integration in film media is developing the connectivity and capability of the E-cinema, E-ticketing and digital promotional activities prospects. In this connection, another question was designed to investigate how the film professionals were going to face the threats of globalisation. Furthermore, it was important to understand the role of the academicians associated with media knowledge and training within the BFI. Therefore, the

final question was designed to discover how the academicians could contribute towards developing the workforce and overcoming the current problems.

3.7 Engagement within the Field

When starting fieldwork in an industry, some sort of initial communications are needed to get entrée to that industry. In this case, the help of a government official was taken to introduce me to my respondents.

3.7.1 Data Collection Procedure

After designing the questionnaire, it is always important to design a good research plan in order to accomplish the data-gathering tasks. Data-gathering traditionally begins with the procedures of gaining access the research field. To work with a 'Production Unit', a researcher always needs to have prior permission from the head of the unit. My previous experience of working as a Chief Assistant Director with a production unit helped to provide a link with the target case study units and therefore permission was given from the Producer and the Director of the target units. Having consent from the producer and director eventually permitted me to work with the rest of the members of the target units. Having permission and engaging in the real field are always two distinct phenomena. Robert E Stake has stated the practicality of engagement in the field:

The researcher should not expect people to admire the work of researchers and should seldom lay out the request for access and permissions on the grounds that the study will solve a problem or advance social well-being. (Stake 1995; p 58)

Therefore, a significant amount of time was spent with the target respondents prior to preparing the questionnaire to start the observation in the studio and at various locations. Observation is the real engagement of a researcher in the field. I followed a direct observation method rather than participant observation technique. This approach to research raised many questions about its limitations. Jan Irgens Karlsen (1991) has identified the pitfalls of action research:

In both the research process and the action process, there is a need for time to reflect on what is taking place… The involved researcher can often be so tapped by the situation and his or her role in that it may be difficult to get an adequate perspective on what is happening (Karlsen1991; p 156)

In order to apprehend the plan of action, I worked with two different production units which have been mentioned earlier in this chapter. Meeting every single crew member from both of the teams was not an easy task. The members of the target units may have remained in the same unit or may not have had any job at that moment or may have continued working with another production unit. Hence, the main challenge was to reach them in order to observe them and listen to their stories and to preserve them in tapes and transcripts with interpretations.

After categorising the observation data, the issue was now to make queries about the research questions. The main problem of this interview phase was to remain unbiased while trying to obtain information from the respondents. Tom Wengraf (2006) identified the problem:

Most informants feel somewhat vulnerable in 'opening up' to informant: if you let them know in any way that you have a preferred response to one of your questions, they are more likely to 'tailor' their response to what you seem to be hoping for. A few will go the other way, and be determined to give you what you seem to be hoping not to hear. Either way, you contaminate the responses. (Wengraf 2006; p 163)

3.7.2 Validity, Reliability and Ethical Consideration

During the interviews, it was important not to reveal my social status as a University teacher to the respondents, as it might have caused them to feel uneasy in many ways and not be very open and insightful when answering the questions. However, during the process of trying to get appointments with certain respondents, I sometimes had to use my identity as a University teacher to confirm my access to them. With the intention of avoiding social prejudices, which may have hampered or caused an impact in the interview sessions, a double standard was deliberately maintained during the field work. Personally, I believed that consciousness about bias could be a potential technique to capture the spontaneous answers and therefore the double act was a strategy only to avoid biased answers.

Almost every respondent was interviewed according to the plan. After receiving consent from the respondents, a video camera was used to record the interviews. The willingness of the respondents to talk in front of a camera avoided the need to complete separate written consent form for each respondent whilst recording. Additionally, the mechanical recording process allowed this study unbiased and indisputably accurate documentation. Moreover, video recording techniques helped to work more reliably as a researcher. As the camera also acted as an actor during the data collection process, the behaviour and observation of the

respondent could therefore have occurred in both directions - in front of and behind the camera. Shrum (2005) explained how the camera acts for creating validity and reliability:

The camera can take on the identity of the researcher or that of the subject, and in the next instant be a third party observer, a meta-subject occupying the focus of the video-active context or meta-researcher hovering inconspicuously over the research scene. (Shrum 2005; p 8)

Therefore, the video camera was used during the data collection process. However, some of the respondents refused to be filmed and therefore their interviews were subsequently written down as an alternative.

In addition to interviews and observations, the newspapers, magazines, posters, still photographs, research reports, film texts, analogue or digital audio or video tapes or CD's of films or film related topics, biographies, books, web sites or documents of government legislation were also expected sources of gathering data.

Because of the chosen methodology, it was not possible to obtain all the required information from the targeted respondents. Furthermore, because the field work was particularly time-bound, the information outside that time was difficult to retrieve. Therefore, the above-mentioned secondary sources of gathering data have helped to achieve the information that the time-bound field work did not allow.

3.7.3 Analysis and Interpretation

The final stage of the case study research was to analyse and interpret the data. By looking through the data from two distinct sources and synthesising them, a general understanding of the topic was formulated. Triangulation of two data sources and additional information records allowed this study to be more confident about the methodological triangulation. In order to complete the analysis, the following procedure was followed -

Coding
Theme
Argument
Language and Discourse Analysis
Textual Analysis- Setting

With the purpose of categorising the qualitative data, coding was needed. Payne and Payne (2004) therefore emphasised the importance of coding:

Data collection, its coding and analysis often go on simultaneously. The text of each interview or observation is read (and annotated) as a whole to get an overall impression. This involves summarizing the text, making notes in the margin, adding reflexive accounts, and identifying significant words, phrases or passages that might be used in more detailed analysis or for illustrative quotations. (Payne and Payne 2004; p 36-37)

Coding generally allows a researcher to go further with thematic analysis of the themes/ major ideas derived from the coding phase. Additionally, it was good practice to consider all the factors prior to building up my own argumentation in favour of the research. In many respects, language and discourse analysis provide an opportunity to examine the psychological issues and perspectives of the respondents, which ultimately sharpens the analysis. Because I was analysing the data from micro level to macro level, individual emphasis on psychological aspects was not a priority as this study was working across a range. Therefore, the discourse analysis technique was not used.

The overall view retrieved and analysed from the case study respondents are that they are relatively well-acquainted within the BFI premises and perspective. This almost seems to be an inductive or bottom-up view of the entire industry. Therefore, it was necessary to link up the bottom-up opinions with the top-down thoughts. Hence, the views of the government officials, academicians and other film professionals were crucial in this regard, because the respondents outside the industry substantially contribute to formulating useful recommendations for the development of the industry.

However, because the research process of a Ph.D only allows a limited schedule of time, a detailed and explorative data collection is not always possible. And it is possibly this factor that has acted as one of the main limitations of the methodology.

3.8 Summary

Selecting the right methodology and implementing the research in a manner which was consistent with its purpose or design was always considered as a challenging task. The mixed-method approach that was used for this study was found to be an effective tool, encompassing a range of various approaches - such as the case study, interview techniques and quantitative data-collecting in understanding the quest of DT integration. The two cases (Digital film and 35mm Celluloid production teams) which were worked out for this research were able to represent the wider population associated with the production, distribution and exhibition units of the industry. Moreover, the interview technique was also found relevant

in coming to understand the views of the individuals contributing to the film industry from various non-operational backgrounds (such as academic and administrative standpoints). Accumulating the diverse opinions from these two sources has certainly enhanced the relevance of this mixed-method methodology. Additionally, using the quantitative data-collecting method together with the qualitative method was particularly helpful in comprehending the data in greater depth. For example, when an Independent filmmaker claimed that shooting in DT was cheaper than shooting in 35mm, the quantitative data helped me to cross check the claim and to prove the validity of the research. Finally, it has been proven that, through triangulating the information and gaining a wider understanding of the entire BFI, this mixed-method was very successful. Specifically, the application of the three theories has also allowed me to understand micro-level as well as macro-level impacts which are happening or may happen inside and outside the industry in response to the new technology.

In the light of the findings through the mixed design, the following chapter (chapter 4) will analyse the effects of technology integration in the context of the BFI.

Chapter 4: Technology Integration: Readiness and Response Functions

4.1 Context

An organisation's internal capability usually plays a vital role in technology integration. Apart from the internal capability of an organisation, external capabilities (such as political, economical, social, technological, environmental and legislative factors) also prove to be crucial in the integration process. An integration process is only successful when the functions of a management are able to consolidate both the internal and external capabilities of an organisation. Where the management is unable to maintain the balance between its internal and external capabilities, an unsatisfactory situation might take place, so where such an accumulation is not present - such as the BFDC - needs to be discussed in greater depth. It is evident from the project proposal of the BFDC that, whilst integrating the new technology, the BFDC management failed to consider the internal capability of its organisation. The management placed more emphasis on the external capabilities - in particular, political factors. This chapter will therefore attempt to identify how the BFDC management interacted in terms of external factors which helped to shape the integration of DT in the BFDC.

4.2 PESTEL Factors

It is necessary to understand how the BFDC management implemented and discussed the integration process prior to and after the actual integration in order to understand the involvement of the PESTEL factors.

4.3 Political Factors: Impacts upon the Integration Process

The political culture of a country usually plays a vital role in developing its organisational culture. The relationship between the political culture and organisation culture, in depth, might be difficult to define within the scope of this study. In general, knowledge and values that help to create a more open, transparent, equitable and accountable organisational culture can be considered as the positive elements of a political culture. Opposite values such as political patronage, obsequiousness, unjust and unsound appraisals could be perceived as the negative impacts of a political culture on organisations. In examining the degree of influence of a political culture on organisations, it is therefore crucial to recognise the nature of the

organisation, and specifically the country context where it operates. Recognising the nature of the organisation and evaluating the impacts of political culture on it can therefore be identified with regard to the organisation culture of the BFDC.

It has been mentioned earlier (chapter 1), that in 2003, the BFDC decided to integrate DT in its post-production unit. Therefore, it is important to identify which elements of the political culture acted more on this organisation in determining this decision. Whether the positive or the negative elements of the political culture were dominant is a significant issue in fully realising the organisational culture of the BFDC.

In the earlier discussions of the literature review, it was mentioned that integration of new technology is highly dependent on recognising the potentials of the five capabilities - R&D, manufacturing, infrastructure, marketing and management capabilities - of an organisation. Amongst the five capabilities, in the event of organisational decision-making, the management capability has the most decisive influence. Examining the management capability of the BFDC is therefore crucial in understanding the true impacts of political culture.

The BFDC is a government-controlled organisation headed by a Managing Director (MD). The apparent culture of engaging the MDs and other managerial workforce in the BFDC has two conventional customs The Bangladeshi government either employs a government official, usually an Additional Secretary of the Ministry of Information, on an adhoc basis as the MD or it selects a politically-dependable person to lead the BFDC for a limited period. The MD runs the BFDC with the support of managerial colleagues, who are also appointed either from bureaucratic or political backgrounds. It is useful to consider the fact that, in both cases, the government’s consideration is decisive and the political connotation of the government cannot be ignored. Although some arguments can be raised that the selection of the MD of the BFDC may be inspired by an open, transparent, equitable and accountable political culture, in other ways the probability of political patronage, obsequiousness, unjust and unsound appraisals cannot also be ignored.

It can be logically assumed that bureaucratic MD will have less or no political involvement than an MD appointed on the basis of political consideration. The empirical data acquired through interviewing the several bureaucrats revealed that many dimensions of their behaviour were influenced by politics.

Within a politically-driven government system, the bureaucrats seem somehow motivated to act as politicians. Two similar reactions have been noted whilst putting questions to the two government officials to understand the status and the importance of the film media within government sectors. Interestingly, both of the respondents expressed identical views. For example, when political personas are questioned on any issue, they usually relate their answers to national-level issues by describing the macro effects. Similarly, when these two respondents were asked to comment on their organisation, they mirrored typical politicians by concentrating on national issues rather than their own micro subjects. The following two quotes would be helpful in understanding the pattern of the political orientation of the bureaucrats:

First of all, film media is not a productive sector. Our prime motto in this country is to eliminate poverty. It is not a programme related to the government's poverty alleviation; it is purely an entertainment sector. There are lots of other sectors which the government are more concerned about. The government prioritises sectors such as education, health, power and communication more than any other sectors. (CC, Government Official, BFDC, Dhaka, 2008[xv])

Film Media does not count as a basic need. Therefore, the government does not necessarily address it with as much priority. That's why, in this regard, we have to understand the reality of a third world country. (AAR, Government Official, BFCB, Dhaka, 2008)

In identifying the significance of the Film Media in Bangladesh, such responses from the bureaucrats are quite foreign to organisational culture, as they highlight the national issues and push aside their own organisational importance. From the above account, one claim beyond contention is that whoever becomes the MD of the BFDC has a political affiliation. In the BFDC, when the Head (MD) of the organisation cannot ignore political influence, it is easy to understand how it could affect the managerial workforce and thus the organisation.

An organisation with a political connotation has a high chance of political manipulation. In organisational settings, when the political factors play a vital role in managerial decisions, many organisational requirements, including strategic decisions, may be disregarded. Rather than identifying and emphasising the organisational needs, the politically-biased management want to prioritise their political interests. In particular, the decision of integrating DT in the BFDC could be a testimony of political bias. One of the sources from the BFDC revealed the truth:

It was the political decision of the Khaleda government (2001-2006) to initiate this project. The 21.5 crore project was initiated by a former MD who was appointed on the basis of political identity rather than his professional credibility. (ABA, Government Official, BFDC, Dhaka, 2008)

The first line *of ABA*'s response can be interpreted as a substantial contribution of the management in ensuring political support of the government for integrating the new technology. In the second line, when *ABA* mentioned the professional credibility of the MD, that generally devalues the management's contribution: this factor demanded more clarification.

'Professional credibility' can normally be understood as the quality of being believable or trustworthy in professional activities, and thus among colleagues of the work community. The overview of professional credibility among MDs (either from bureaucratic background or political background) has been seen as inadequate. One of the high officials of the BFDC management has recognised the problem of a professional skills gap:

Our job nature in the Civil Services is such that we have to work in different organisations time to time. Some of these organisations are technical or administrative and some of the job natures are semi-technical or semi-administrative. In a level where technical ability is more demanding, such extra training is surely needed. (CC, Dhaka, 2008)

The BFDC is a technology-intensive organisation. Therefore, the management needs to be well informed about the basic technology in order to manage their own technical and non-technical workforce, meet the buyers' (producers') expectations of quality service and ensure competitive advantage to control the market. Thus, *CC*'s opinion for training in the BFDC context is essential. Without such training, attaining the professional credibility will not be easy for any MD or his managerial colleagues. Although this training problem can be solved by providing training, there are at least four reasons why it may not be easy to solve it. *CC* has identified the reasons through some questions:

Questions arise as to what kind of training will be given; where will such training take place; how long the training will last and more importantly if there are people who will be able offer such training? (CC, Dhaka, 2008)

There are many factors associated with ensuring the 'Professional Credibility' of the management workforce. Until now, the management has attempted to overcome these skill gaps through visiting the different units of the organisation and attending their briefings of Unit Heads. The output of this kind of practice not only has a positive aspect, in which the

MD can quickly become familiar with the organisation, but also a negative impact, where the subordinates who are briefing about their units may not present the true scenario. It is not impossible to predict that, in such a situation, the opportunistic behaviour of the workforce may rise whereas the creditability of the entire workforce may instead be hampered. For example, in 2002, prior to implementing DT project in the BFDC, 21% of the equipment included in the proposed equipment procurement list, was not directly essential for DT integration.[xvi] Whatever the reasons were to include that non-digital equipment, it is obvious that, owing to the lack of strong professional credibility, the management was not able to prevent these activities. The misjudgement of using the incorrect equipment to implement the digital system has also been reported by a Daily Bangladeshi Newspaper in a blog *"Raajnoitik Durbrittayon"* (Political Corruption).

In 2004, the then Director (Production) of BFDC, Rabiul Islam Khan, informed the Information Ministry of Bangladesh that the equipment that had been proposed to be imported in order to introduce the new digital system had mostly nothing to do with digital technology. However, neither the BFDC nor the Information Ministry took notice of this opinion. (The Daily Prothom Alo, Bangladeshi Newspaper[xvii])

According to the news report published in the national daily, it is evident that even though one BFDC member managed to notice this problem, the rest of the management ignored this issue. (The Daily *Prothom Alo*, Bangladeshi Newspaper[xviii]).

This pattern of the BFDC management raises a number of questions. Why should there be such a relationship between the members of the BFDC management? How can these relationships between the management - and thus of the workforce community - be developed to motivate the entire BFDC workforce to complete tasks, delegate and make decisions?

As Bass and Avolio (1994) have mentioned, along with the management skills, leadership skills are also vital. According to them, both the management and leadership factors within an organisation can significantly stimulate the various organisational cultures to grow. The overview highlighted in the newspaper discloses the pattern of the relationship between the BFDC members. Using this source, it could therefore be claimed that the BFDC managers have not yet achieved such leadership skills through which they can 'stir' the organisation and motivate the workforce to complete tasks.

A clear implication of all these points can be understood by the output of digital production since the beginning of DT project. Since 2006, only 0.84% (3) of the total production has been made using DT in the BFDC. 99.16% (351) of BFDC-based producers are still

producing their films using the 35 celluloid technology. Minimal participation of the workforce in using DT indicates that BFDC managers have failed to lead their organisation in integrating DT in the BFDC.

Considering the minimum level of BFDC workforce participation in DT, it could be claimed that the failure of the management to stir the organisation into integrating DT is closely linked with lack of professional credibility. In line with this argument, it also could be argued that the deep-rooted cause behind the shortage of professional credibility was actually the government's appointment of the MD, and thus it was a political decision. The government's political judgement in this aspect may originally have been positive but later became negative owing to its failure to implement the government's project.

There has also been a growing opinion in favour of setting up an organisational culture within the BFDC where government control, and thus political effects, would be less. One of the High Officials of the BFDC uttered his strong opinion in favour of privatising the industry. He said:

Personally, I think it was expected that the BFDC could go under privatisation even before our Independence. If that had happened, then the industry could have increased far above their current level. (CC, Government Official, BFDC, Dhaka, 2008)

Another respondent elucidated the necessities of getting rid of the bureaucratic culture of the film industry. He hoped that if DT was adapted, Bangladeshi films would automatically be liberated from their "political, economical and technological shackles" (*AAL*, Dhaka, 2008)

Currently, the attraction of privatisation is in its promise of dynamic management. Dynamic management can help its human resource to be trained in the new skills for the digital age and also create a healthy establishment to work in - where the organisational culture of the BFDC would be more open, transparent, equitable and accountable rather than having political patronage, obsequiousness, unjust and unsound appraisals. A fuller understanding of the other macro factors - economic, social, technological, environmental and legislative - will therefore require discussion to further identify the organisation culture in relating to integrating DT within the BFDC.

4.4 Economic Factors: Benefits of Integrating DT

The management required during the introduction of new projects associated with technology integration is a serious and challenging issue in most organisations. Specifically, noticing and revealing the economic benefits of the technology integration is usually a widely-accepted method, preferred by management for gaining confidence about the project, both internally and externally. Realising the overall dynamic of the economic benefit, allows the management freedom from their doubts about accepting liability which may result from technology integration. However, this may not work in cases when the political considerations play a vital role. In such cases, how the integration process acts in a different way can be understood by examining the context of the BFDC.

In understanding the role of the BFDC's management of its economy, it is imperative to consider the background of the project on DT integration in the BFDC. In 2002, the BFDC management proposed a new DT project to the government. During that period the BFDC's financial condition was not healthy enough, as instalments were due to be paid for an earlier ongoing project. Logically, the question may hence rise as to why, before completing a ৳260 million BMRE (Balancing, Modernisation, Renovation and Expansion) project (which was estimated to end in December 2003), another project of the same kind -which also aimed to modernise the BFDC - was needed? To assess the full extent of this issue, it is important to quote directly from DT project proposal:

The reason for accepting the new DT integrating project is to withstand the cinema industry in our competitive market. Even though this project might not directly enhance our income, it will surely benefit our country's image and play a role in the poverty elimination. In addition, the BMRE project has already been fulfilled in the BFDC. Current debts of the BMRE project and cinema decays leave the BFDC unable to make any new loans for this DT project. In order to fulfil DT project, we are proposing the government to allocate the finance as a grant. (BFDC 2002)

The central concern of the arguments for the project was that no valid clarifications were provided by the management regarding how social benefits, such as image improvement and poverty reduction, would emerge. Moreover, the basis of the prediction of the expected future income without any calculation seemed unconventional. While assessing the possibilities of the future cash flows on the basis of the data revealed from the research field, a different economic scenario was discovered. The management did not consider the economic potential

of the new project specifically as to how DT might help free the BFDC from financial crisis and liability.

Historically, the BFDC has had a long tradition of providing credit services to the film producers. As the majority of the film producers both support and demand this credit facility, no management can ignore them. During the production phases, the producers have always enjoyed the facility of deferred payment for film footage, materials and other services from the BFDC. These kinds of credit facilities were introduced to encourage filmmaking. Most of the producers were supposed to submit only 5% to 10 % security money to have the remaining 95% to 90% services as a loan for filmmaking.

Although the BFDC's laws demand that the producer pay up all the debt before receiving the final prints for exhibition, most of the producers actually do not pay the money in full. The same producer usually applies for credit facilities for several productions one after the other. Therefore, the producer tries to avoid paying the full amount of money for any individual production, which eventually allows them to overdraw their account.

It is the responsibility of the BFDC management to realise and maintain the loan they have offered for each production. However, because some producers produce more than one film at the same time, and can manage to persuade some of the BFDC management officials to create a joint account that accumulates their entire loan into one large one, the delinquent acts of those producers cannot thus be controlled. The spiralling effects of the accumulation of all those large unrealised loans have strongly impacted upon the BFDC - causing them to face a considerable financial crisis. Interestingly, the BFDC management does not want to disclose the total figure of its unrealised amounts of credit services. Although the BFDC's website denotes their profit and loss account information and the balance sheet figures prove that the corporation has been in continuous profit for the last five years, this does not reflect the true state of the BFDC economy. One of the respondents doubted the Net Profit (NP) information of the BFDC. He indicated that the BFDC did not disclose the true information. He explained his experience:

If there are 80 movies in production a year, out of them a minimum of 75 are super flop. Now the question is: which economy really helps the same moviemakers to run their business throughout the year? Is it a false economy? There is no investigation on how much money is overdue. If there were any investigations, it would only show couple of crore taka. Rest of the arrears would remain hidden. Due to the false accounting economy, there is no evidence of incentives. (AAL, Dhaka, 2008)

This opinion highlights a number of points. First, a false economy is prevalent within the BFDC. Second, there are no evident investigations evident of actual the losses due to the false economy. Whilst trying to gain a better understanding of how the BFDC economy really runs, one answer was available from the BFDC managerial body. One of the officials revealed their strategy as follows:

If the produced film does not get a censor certificate or if the director becomes sick or unable to complete the film for any reason, the loans for several services they have already taken might become a bad investment for BFDC. Usually after completing the entire activities of film production, within one year to two years, the producers pay back the loans to the BFDC. (CC, Dhaka, 2008)

It is worth considering here that, besides the bad investment, the BFDC can still recover some of its paid loans. As there is no access to the data to calculate the accounts of the bad investments, it is not possible to figure out the amount of the recovered loans of the BFDC. Despite the lack of evidence, it is not difficult to assume that the average amount of the loan recovery is still higher than the bad investments of BFDC; otherwise the BFDC economy would have collapsed already.

The interesting question that emerges from this situation is, 'How can the total amount of the BFDC's loan be brought down to a much lower level?' A particularly easy strategy is to integrate DT in BFDC's production, process which seems to have the potential to minimise the production cost and thus reduce the amount of loan that BFDC offers to the film producers. As DT uses digital tapes or chips instead of celluloid stock, the production cost for shooting, editing and printing out would therefore be much less. This will eventually assist the producers to take fewer amounts of loans and hence allow the BFDC to provide credit services of lower amounts than they currently do. It is therefore vital to examine whether a DT-based production is really cheaper than a 35mm celluloid-based production and, if cheaper, then how much cheaper it is.

The current research confirms that most traditional filmmakers are not aware of the inexpensive features of digital movie making. Digital tapes are relatively low in price compared with the 35mm celluloid film stock. Most of the filmmakers working in the BFDC do not have any direct experience of the low-cost features of a digital film production. One of the Directors, who produced a commercial film using the digital format, has illustrated the difference of shooting costs in figures:

It took 40 shifts to complete the shooting of Captain Maruf. Although the digital tape we have used for shooting would've cost us ৳ 5,000(£ 43.33) per piece locally, I purchased a dozen of the tapes from Singapore which only cost me 12 Singapore Dollar (£5.97) altogether.[xix] ***However, while shooting our recently finished film, we used 33000 feet celluloid footage, which was indeed very expensive. (OO, Director, Captain Maruf, Dhaka, 2008)***

In practice, the BFDC sells the 400 feet celluloid film stock to the production firms at a rate of ৳13,600 (£117.86). Therefore, in the case of the aforementioned film, made in the 35mm celluloid format, the Director had to spend a total of ৳1,122,000 (£1,057.24). How the shooting costs may vary due to different formats is only noticeable whenever anyone applies them to producing a film. Those who have not experienced making films using the digital format cannot be aware of the cost difference in shooting. Although the film production cost is not only dependent on the shooting cost, other associated costs must be considered to understand whether the digital film is cheap or not.

Usually a 35mm movie takes 60 shifts of shooting time in the production phase and another 60 shifts for post production. The Case Study 1 film *Rakhkhushi* (a 35mm celluloid film) was filmed in 60 shifts and edited in 60 shifts as well. In contrast, *Priotomeshu* (digital film) was filmed in 44 shifts and edited in 40 shifts. Ideally, the director of a film always needs to shoot three times more than the actual movie length. For example in order to produce a 15000 feet movie, the director will usually shoot 45000 feet footage. During the editing phase he will leave out the remaining 30000 feet. In the digital movie making process the shifts are counted in a different way.

Generally, as a film director shoots three times the length of the finished product, if a film is a 150 minutes production, the director should shoot 450 minutes of film. Interestingly the director of *Priotomeshu* completed his shooting with 21,120 minutes. The director was very careful in the way he was shooting his film in order to make it seamless and capture every intricate and sensitive detail for the film and thus took a rather larger shooting period than average. Even with the abnormal shooting ratio of 1:10 (Standard is 1:3), digital filmmaking would not approximate the production cost of a 35mm celluloid-based movie. Here the study is enclosing a comparative chart to show the cost difference between the two types of films.

Table 1: Programme Budget and Cost Summary: 35mm Celluloid and Digital Film Production

Programme Budget And Cost Summary: 35mm Celluloid & Digital Film Production					
No	Subject	Celluloid		Digital	
		BDT (৳)	GBP (£)	BDT (৳)	GBP(£)
1	Format and scripts	50,000.00	433.29	125,000.00	1,083.24
2	Producer/director	500,000.00	4,332.94	500,000.00	4,332.94
3	Artists	935,000.00	8,102.60	400,000.00	3,466.35
4	Production Unit Salaries	95,000.00	823.26	35,200.00	305.04
5	Assistant Directors/Continuity	40,000.00	346.64	25,000.00	216.65
6	Crew-Camera	102,000.00	883.92	50,000.00	433.29
7	Crew-Sound	25,000.00	216.65	155,000.00	1,343.21
8	Crew-Lighting	100,000.00	866.59	22,000.00	190.65
9	Crew-Art dept	250,000.00	2,166.47	15,000.00	129.99
10	Crew-Costume/Makeup	60,000.00	519.95	26,400.00	228.78
11	Crew-Editing	91,000.00	788.60	50,000.00	433.29
12	Crew-Others	100,000.00	866.59	25,000.00	216.65
13	Materials-Art	200,000.00	1,733.18	70,000.00	606.61
14	Materials-Costume/Makeup/Wigs	30,000.00	259.98	26,400.00	228.78
15	Production Equipment	588,900.00	5,103.34	107,000.00	927.25
16	Facility Packages	209,220.00	1,813.08	20,000.00	173.32
17	Studio/ Outdoor Locations	385,000.00	3,336.37	78,000.00	675.94
18	Other production facilities	50,000.00	433.29	50,000.00	433.29
19	Celluloid/Tapes/Stocks	911,250.00	7,896.79	13,000.00	112.66
20	Film Post production	500,000.00	4,332.94	70,000.00	606.61
21	Non-linear Post production	0.00	0.00	5,600.00	48.53
22	Archive Material	0.00	0.00	0.00	0.00
23	Rostrum/Graphics/Ad	250,000.00	2,166.47	250,000.00	2,166.47
24	Music copyright/Performance	245,000.00	2,123.14	90,000.00	779.93
25	Travel/Transport	300,000.00	2,599.77	80,000.00	693.27

26	Hotel/Living	0.00	0.00	9,000.00	77.99
27	Other production costs	100,000.00	866.59	0.00	0.00
28	Insurance/Finance/Legal Costs	0.00	0.00	0.00	0.00
29	Production Overheads	0.00	0.00	0.00	0.00
30	DV to Celluloid Print	0.00	0.00	2,000,000.00	17,331.77
	Total Expenses	6,117,370.00	53,012.44	4,297,600.00	37,242.51

Table 1 provides a comparative picture of the overall production costs between the two different film formats: 35mm celluloid and digital. As mentioned earlier, it was only evident that shooting films digitally was cheaper than celluloid shooting, as the digital tapes are less expensive. The data derived from the two Cases in BFDC clearly proves that the total production cost of a digital film is 30% cheaper than a 35mm film.

Without some minor spending heads, the major amounts paid for hiring equipment/studios/location or engaging artists/crew and using services were also relatively less expensive in the digital production than the 35mm celluloid film production. Illuminating the shooting zone for a digital set-up requires less lighting energy, thus implying that the lighting cost of the digital production would be less than the 35mm celluloid set up.

Interestingly, the data does not, however, reveal why the digital format was less expensive in the other areas. Whilst asking this question to the PM of the digital format film, he revealed that most of the crew and artists treated the digital film as a digital video production. Hence, the artists and crew asked for a lesser remuneration and the other costs relatively became cheaper. In the future, whether the cost of the digital production will increase or decrease if the films become more popular than now, has not yet been identified. An attempt to develop industry-level participation and offer the service users a low-cost service for using DT might become useful for BFDC in gaining more control over their financial crisis and liability.

Although while discussing the potential of DT project the BFDC management ignored the possibilities of internal economic potential, external economic dynamics such as competitive advantages were mentioned. Understanding the effect of the competitive advantage of the BFDC requires identifying the competitors or competitive strengths, if any, in the monopolistic competition context. In the project proposal, no argument was found about how competitive advantage would be achieved with the new technological set up. Whether price discrimination, product diversity or excess capacity of the production quantity would be the

basis of the competition was not mentioned by the BFDC management. Moreover, the market situation was not considered by the management. Specifically, when DT becomes integrated, as this technology is somehow identical with TV industry, the inter-industry competitive effect should also be evaluated.

It was not clear, without assessing the strengths of the competitive advantage(s), how and why the BFDC management beforehand claimed that new technology would provide them the competitive advantage. However, granting the previous experience such as political patronage and lack of professional credibility, it can be said that the combination of those two factors might have dominated and thus prevented the BFDC management from identifying the potential of external economic benefits from the proposed project.

4.5 Social Factors: Motivation for Adapting New Technologies

The integration of any new technology cannot be successful without social participation. In an organisational setting, the management usually takes responsibility for the motivation of the various groups for a successful integration. While integrating the new DT, it seems that the BFDC management was not careful to ensure enough social participation from the entire workforce. Not all, but many, of the respondents have expressed their frustration about the contribution of the BFDC management in phasing in the digital era. It is therefore important to identify the weaknesses of the BFDC management through their social communications.

The apparent neglect of social commitments is a common problem in most Bangladeshi organisations, and the BFDC is not free from this problem. Over the decades, the late or incomplete consequences of several projects such as BMRI project of BFDC highlight the severity of this problem. Specifically, when the bureaucrats run an organisation, they prefer to usually continue the daily routine job rather than leading an organisation towards a goal. This kind of apathetic attitude can severely damage the progression of any organisation. One of the respondents revealed the reasons behind this poorly-motivated organisational culture from a bureaucratic view:

The reason behind this less active government organisation is firstly the lack of gallantry and secondly the dearth of knowledgeable workforce. Finally and most importantly, the disowning mentality of the employee is also a vital reason behind this less active government. No one really wants to consider any work as their own liability. None of the government officers really possess their office. They always think of themselves as a tenant- not as a landlord. Therefore, they do not take any initiative to flourish themselves or the organisation. (NN, Government Official, NIMC, Dhaka, 2008)

The bureaucratic nature of the BFDC management also has marked some similarities to this. Two particularly interesting perspectives were revealed through field observation. First, the common custom within the BFDC is that the MD is usually appointed for only three years on deputation or temporary basis. It is useful to consider here that these three years are not sufficient to understand an organisational culture and then lead it towards achieving a goal. Specifically, when an MD knows that he will eventually be transferred to another organisation, or lose his position, he might thus become hesitant to reveal his position and act with utmost responsibility. Secondly, although no one admitted as much, the anxiety of political revenge was seen as a hidden factor among the management which was actually preventing them from acting freely. In particular, due to the political patronage, when the management somehow becomes involved with obsequiousness, unjust and unsound appraisals, that anxiety cannot be ignored. Activities of these kinds have been reported by a Daily Bangladeshi Online Newspaper in a blog "Hawker.com.bd":

Recent investigations prove that the current MD, Momtaz Ala Shakur Ahmed, has been taking advantage of his junior staff and then given them promotions. He has been transferring senior workers into the posts of juniors and technicians into the posts of non-technicians. In addition, he has also been suing against some of his other staffs, calling for unnecessary explanation hearings and most importantly, temporary dismissals. Workers are becoming isolated by the regimes of the MD's loyal staffs and relatives. A number of allegations have been placed to the parliamentary committee against this kind of activity. (The Daily Bangladesh Protidin, Bangladeshi Online Newspaper[xx])

Even though the validity of this report above cannot be specified in the case of this study, the impacts of this report are certainly negative. Whether this report has been published to gain revenge against the MD of the BFDC is also not clear. On the other hand, if these are truly the activities carried out by the MD, the severity of these actions could very easily hinder the healthy social interaction between the members of the workforce and the management.

The working environment is an influential factor for social motivation. To increase motivation within an organisational setting, it is important to provide a congenial working atmosphere. A friendly, cohesive and interactive environment creates a space to welcome new initiatives to ensure creativity and further professional development. The idea, information and its aspirations should no longer be a barrier for people of different poles to understand.

One of the respondents (the Director of *Rakhkhushi*) of Case Study 1 suggested that either the BFDC management or the progressive media professionals should indeed motivate the

respective groups in participating with the new technology. Generally, people's activities in the work environment are strongly affected by their surrounding experiences, especially by the accumulation of knowledge or skills of their fellow co-workers. As the team members of case study 2 have mostly worked outside of the BFDC, the workforce that usually works within the BFDC premises could not experience them by observing the digital film production activities of the case study 2. Hence, the BFDC workforce has remained almost isolated from understanding the new development of DT. No initiatives were visible from the BFDC management to invite the independent filmmakers, who were using DT and working outside the BFDC, to work and collaborate with the mainstream workforce of the BFDC. The consequence of this was a digital division between the BFDC-based film workforce and the Independent film workforce.

Moreover, whilst integrating the new technology, the BFDC management cannot ignore their social responsibility to popularise DT among their producers, distributors and thus the exhibitors. In implementing DT successfully in BFDC, the management is supposed to interact with both the local and overseas stakeholders. A significant amount of literature (described earlier in chapter 2) has directed itself towards discovering areas of local initiatives such as organisational learning, problem-solving strategies and interactions with the overseas' organisation for corrective maintenance and technology updates.

Some of the respondents identified that the most important factor for wider participation of the local stakeholders in DT could be achieved through organisational learning. Learning thorough training, workshops, observations and firsthand job experience are crucial in this aspect. It is evident that the BFDC management did not take any social initiatives to popularise DT within the BFDC workforce. One of the high officials of BFDC management argued against their social responsibility in this regard. As a bureaucrat, he believes that it is the responsibility of the BFDC management to train up only the government employees of the BFDC workforce:

When we are switching from analogue technology to digital technology, we encounter a problem. Our people (the government workforce) do not have the basic knowledge of the hardware and software of the digital technology. Now we are thinking about chalking out a training programme to train them up. During the installation of digital technology in the BFDC, the one month training which they get is not sufficient. (CC, BFDC, Dhaka, 2008)

Although the members of the BFDC management recognised the importance of training up the government employees, historically it appeared that they were not very successful in achieving that goal. One of the respondents of the case study 1 has shared his life-time experience as a government employee and uttered his displeasure about the organisational learning culture:

When I joined in 10th March 1969 at BFDC, I got a three weeks training. After that, the next training I received was 17 years later, when BFDC installed a new sound mixture machine in 1986. (AAA, Case Study 1, 35mm Celluloid Film, Production Unit, Dhaka, 2008)

There is a serious gap between the possibilities as opposed to actual, utilisation of DT in filmmaking both in the public and private workforce in Bangladesh. While asking about the importance of training up the private workforce of the BFDC, the same respondent denied this as their responsibility and pointed out his own logic:

Everyone in our country thinks that government will do everything. The Government will provide training, import technology, and ensure raw films… the government has to do everything! In my opinion: when you are working as a freelancer cinematographer, it is your duty to enrich your knowledge. When I will bring an upgraded camera, as a crew member it is your obligation to upgrade your own knowledge. Why shall I will be liable to upgrade your knowledge? (CC, BFDC, Dhaka, 2008)

Although Walter Buhr (2003) has enumerated three categories of infrastructure- institutional, personnel and material infrastructure (discussed earlier in chapter 2)-as the basics of infrastructure capability of an organisation, the head of management of the BFDC has ignored the 'personnel' (human capital) aspect. He thinks that there are several associations for crew members and therefore it is the duty of the different associations to ensure the well being of their members. If the associations ask for any logistic help or any assistance to arrange any training for integration, then the BFDC management will provide support for a minimum charge.

The above situation proves that the managerial policy of segregation in training up the workforce has seriously hampered the wider social participation in integrating the new technology and the creation of a new skilled workforce for the future.

There is a good deal of evidence which suggest that, not only is the unskilled nature of the workforce hindering the integration process, but the non-participation of the stakeholders is also preventing DT integration from being successful. In 2003, when the BFDC proposed to adapt a Telecine Machine (capable of transferring the celluloid visuals into digital

information) and also a Reverse Telecine (capable of converting the digital information into 35mm celluloid format) machine, this implied that the distribution and exhibition systems needed to be upgraded accordingly. The BFDC management would not be able to sell their digital service unless the digital distribution and exhibition capability grew simultaneously. Between 2003 to 2011, there has been no evidence which suggests that any distributors have developed a digital distribution capability or that any exhibitors have adopted a digital screening capability in their cinemas. This evidence from the field clearly indicates that the BFDC management has also failed to market their technology. One of the respondents revealed the situation:

Basically, a product is manufactured with the intention of marketing. However, when we will make a digital film, where will we sell it? To facilitate the marketing of that digital product, we need to go to the cinema halls. Have we ever thought about whether the cinema halls in Bangladesh are equipped with digital technology? Will we be able to listen to the digital sound output? If we cannot, then why are we are excited? In Bangladesh we only have a very few cinema halls in Dhaka or outside which are capable to project digital film. The rest of the cinema halls do not have the technology. So what will I do after making the digital movies? (AAU, Case Study 1, 35mm Celluloid Film, Member of all the Units, Dhaka, 2008)

It may be inferred from the preceding discussion that either lack of collaboration with the local stakeholders or failure to identify the stakeholder's problems by the BFDC management has thus resulted in this failure. In order to complete the digitisation process within the industry, the BFDC management needs to motivate the distributors and exhibitors and assist them to solve their problems.

In reviewing the social interactions with the overseas' organisation for integrating DT, it has been noticed that the BFDC management has failed to understand the challenges of the integration process or to devise a policy to overcome them. The failure of BFDC management has been reported by a Bangladeshi weekly Online News magazine:

Till date, the BFDC has failed to start the digital theatre system. They are blaming the company which supplied the equipment, saying that they had not supplied the goods properly. The machinery had been purchased from the US Company Magnatech Electronics. The company's local agent in Bangladesh was Faith International. BFDC even filed a case against Magnatech and its local agent Faith International. (Probe Magazine[xxi])

During technology integration, if the equipment needed to implement this integration is not functional or operational, corrective maintenance and technology updates after the integration cannot be expected to be withheld. In the lawsuit, if the BFDC wins, they might be able to

receive some compensation which might support their finance. However, this financial compensation will not cover the damage that has been done to the integration project and the BFDC management will not be able to ignore this circumstance. Henceforth, a good socially interactive relationship within and outside the organisation is therefore necessary in order to be able to overcome such situations.

4.6 Technological Factors: Knowing the Technology

Scholars have devoted much time and effort to understanding how technology integration becomes successful. In fact, how the integration may fail due to organisational bottlenecks such as the absence of R&D, information asymmetry and thus linguistic, cultural and geographical disparities in sharing information and finally developing declarative knowledge into procedural knowledge is ignored. It is therefore crucial to examine the sources of the failure, which will eventually help the organisation like BFDC to overcome these limitations in the near future.

From the earlier discussions (in chapter 2) it was noted that the R&D units of an organisation usually assist that organisation in leading it to a commercially-successful innovation. The importance of liaison or communication between the R&D staff and the business managers to understand the overall business perspective through data concerning the present and future requirements of the business were emphasised by scholars like Szakonyi (1990). Organisations such as BFDC that find they have no R&D unit, might critically fail to achieve any innovation capability or misread their present and future requirements. Moreover, when R&D units are not present, the business managers either need to perform both of the responsibilities or engage someone else for this job.

It has been noted from the BFDC context, that while integrating DT, the BFDC management engaged one of its Engineers as the project director (PD). Like any other government organisation in Bangladesh, the conventional expectation of the BFDC management was that the PD would be able to complete the R&D tasks and make the project successful. Under the circumstances of technology integration, the PD's primary job was obtaining specialised information about the new material (equipment) and personnel (human skills) infrastructure, manufacturing plant (blueprints) and marketing prospects.

It is evident from the field data that the PD was not successful in acquiring any of that information. One of the respondents of the BFDC management reported some practical

examples of how they had suffered from not having the specialised information which was crucial for this project. During the equipment selection process, the Management authority imported a sound technology called the Digital Theatre System (DTS). Ideally, only industries which have a high standard of workforce with digital technical capability, and where theatre structures enable DTS sound outputs, can adopt this type of technology. The respondent expressed his disapproval and he stressed the unfeasibility of DTS in the present condition of the industry:

In order to start with DTS we need to have a close link with the company. We also need an association with the famous film director Steven Spielberg to get a license to run the system in Bangladesh. (ABA, Dhaka, 2008)

Not only was there an information disparity about the material infrastructure but also lack of information about the personnel infrastructure eventually hampered the complex process of DT integration. The integration of new technology means the integration and understanding of new knowledge and tools from different fields, and combining them to create a design for a new manufacturing layout. The technical incapability of the PD as well as the BFDC management has caused them to fail to understand the basic chronology of DT. For instance, the standard manufacturing layout of the digital film production chain in a film industry could be represented as follows.

Diagram 6: A Diagrammatic Presentation of Standard Digital Film Production Chain

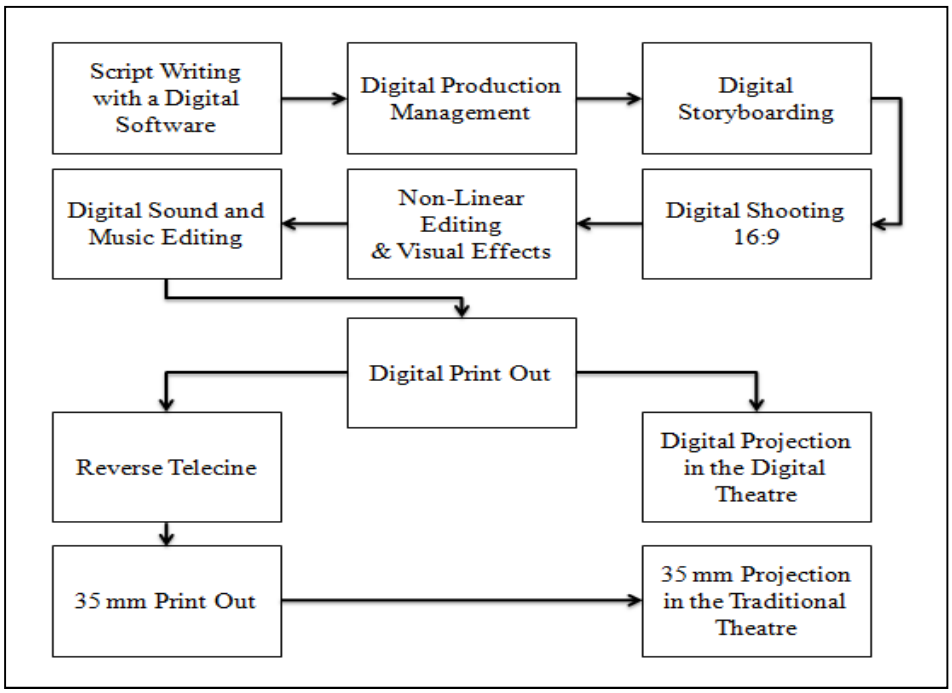


Diagram 6 represents the model of a manufacturing layout of a digital film production chain. Digital capabilities begin with scriptwriting. In the digital age, screenwriters generally use script-writing software in addition to their own creativity. When the script is ready, the second phase takes place, where it is the production manager's responsibility to prepare a schedule, budget and artists cross plot and script breakdown by using MS Excel or a similar computer programme. In the 3rd phase, instead of a manual sketch, digital filmmakers prefer using software for developing a digital storyboard. The 4th phase of film production is shooting through compatible digital cameras. After the shooting, the post-production phase begins. Fully-fledged manufacturing layouts usually allow the filmmakers to have either a digital or 35mm celluloid print of the film in the post-production phase.

It is evident from the attempts of the BFDC management that, while integrating DT, they did not consider following the standard manufacturing layout. Rather than implementing the fully-fledged DT capability, the BFDC decided to adopt partial DT. It was not clear what caused them to go for a partial integration. It might be lack of sufficient funding or information disparity. It was apparent from the project proposal that the prospects of marketing the technology were not ignored. According to the proposed equipment list, the segmented manufacturing layout for post-production phase is illustrated in Diagram 7.

Diagram 7: A Diagrammatic Presentation of a Standard Post Production Chain

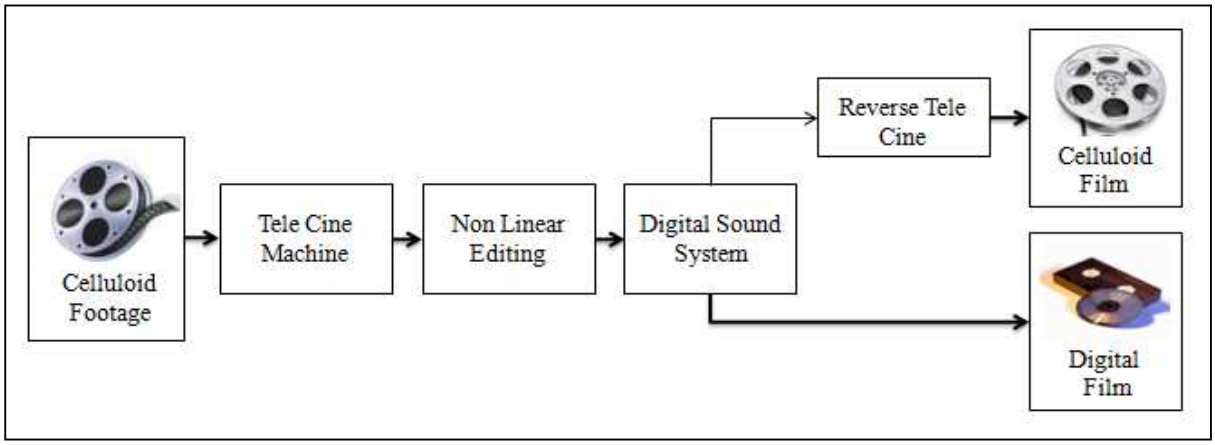


Diagram 7 shows that after receiving the 35mm celluloid footage, the Telecine Machine converts the images into digital data. Later, this digital data can be edited through the Non-Linear Editing (NLE) system with graphics and visual effects. Meanwhile through incorporating the audio, effects and music, this digital data becomes instantly ready as a digital film to release or alternatively is converted through a reverse Telecine Machine to exhibit as a 35mm celluloid film.

Typically, the industry which needs to release their movies both in a digital and 35mm celluloid format chooses this kind of manufacturing chain. The marketing advantage of this chain is that it not only enables the industry to accommodate the new technological variation, but also helps the industry to retain the old technology simultaneously. It is perhaps worth mentioning here that, despite the initial plan of procuring all the equipment required for the Post-production unit, the BFDC management finally failed to fulfil their partial integration process successfully. Unfortunately, lack of procedural and declarative knowledge caused them to import the equipment in the wrong order.

Diagram 8: A Diagrammatic Presentation of the Post Production Chain in the BFDC as per Import Chronology

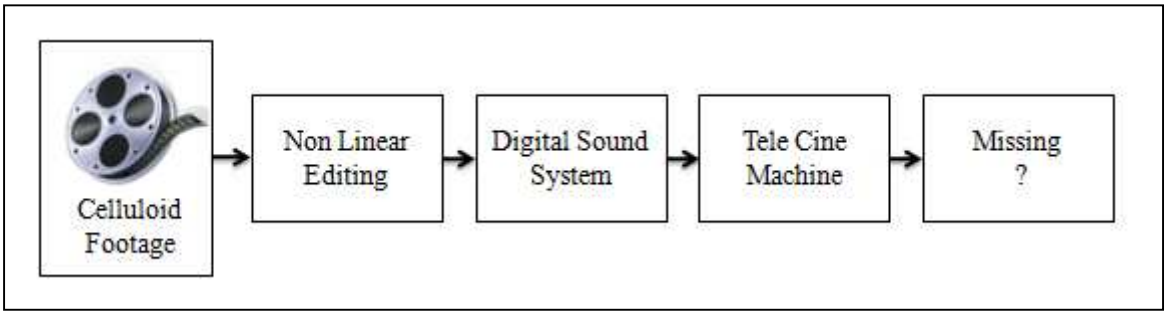


Diagram 8 shows that the BFDC management first imported the NLE set up from UK instead of the Telecine Machine. They even imported DTS system earlier than the Telecine Machine. One of the Government Officials of the BFDC narrated how the wrong sequential imports affected the industry's integration process:

After importing the Light works editing set up, everyone in the industry offensively asked me why the digital editing machine was waiting idle. I replied, 'without the Telecine Machine it would not be possible to launch the system'. Later on, the BFDC imported DTS and the Telecine Machine. We are still waiting for them to import the Reverse Telecine Machine as its priority has not been realised yet. (ABA, Dhaka, 2008)

The complex situation of the new project narrated here clearly indicates that even after two years of the project completion period, the BFDC could not complete their integration project. It was discussed earlier that the BFDC management failed to arrange any dynamic learning environment for skills development necessary for adopting the new technology. Moreover, it is obvious that the BFDC had also failed to arrange requisite equipment for the new technology. The adverse effect of incomplete and also partial integration of DT was reported by a weekly online news magazine:

From the start, 15 films were digitally edited from which FDC earned about 16 lakh taka. In other words, the corporation earned 16 lakh taka in eight years from machines they bought for 22 crore taka. (Probe Magazine)[xxii]

It is evident here that since 2006 only 4.21% films of the film producers have used this incomplete service of DT in the BFDC. The 96% non-participations therefore, indicate that the task of project director in the BFDC was not a suitable alternative to a permanent R&D unit. If it is not possible to establish a R&D unit, the assigned job of the R&D unit must be to at least consider how to be successful in any project which is potentially technological in its nature.

4.7 Environmental Factors: Positive Impacts of Integrating DT

While implementing the new technology, the organisational trends nowadays actively consider the environmental issues. In particular, the potential environmental advantages of new technology, such as energy, transportation and waste disposal systems, are regarded as essential appraisals of environmentally-friendly technology.

It is worth noting here that while discussing the role of the new technology integration, the BFDC management did not explore the potential environmental impacts of DT. Although the new DT can potentially be viable to reduce energy consumption, decrease transportation requirements and minimise waste, these positive aspects of DT were not addressed in the project proposal. In the earlier discussion (Chapter 4.4), it was discussed that the new DT consumed less energy during film shooting. Furthermore, as DT follows digital distribution of films thorough online connectivity, minimum transportation services will thus be required for film distribution.

Finally, DT uses tape or chip-set for filming and edits their footage through using the NLE system, where no 35mm celluloid print is necessary, as the editing is done digitally using software. The final product is therefore sent to the cinemas digitally where no 35mm celluloid prints are involved. In DT, data can be used over and over again and the slightest of mistakes can be corrected by going back to the editing software. However, if a mistake occurs in the 35mm celluloid footage, hundreds of feet of tape are then wasted. The 35mm celluloid technology requires the production of the entire footage all over again. It is therefore not re-usable and would thus produce more waste products than DT.

4.8 Legislative Factors: Controls over Integration

Without a technological policy, no one can identify the technological sourcing, technological risk and homogeneous strategies for acquisitions and utilisation procedures. However, research indicates that no technology integration policy was evident when DT integration process within the BFI began. In the case of the BFDC, it has been noted that the rules that are followed for procuring materials or equipment from local sources are the same as the rules followed for procuring equipment from international sources. Moreover, no proof was recorded which states whether the prospects and limitations of the formal contracts (such as FDI; licensing basis) or performance guarantee was carried out purposefully while the BFDC was integrating technology from foreign sources.

When asked about their experience of adopting the new technology, the respondents identified different kinds of problems and suggested different solutions as well. The first respondent went to visit the UK to gain some firsthand knowledge on how to use the editing software. After returning home, when he tried to run the software by himself, he found it very frustrating. Therefore, he suggested that it was better to engage a foreign consultant who could identify the problems of the technology adoption in the local context. After judging the local socio-cultural pattern and physical attributes, only then would they know what could really help them to provide a better solution for the foreign technology in a local arena.

The second respondent raised a question about the feasibility of the above solution. He pointed out that the foreign consultant could show bias for a particular technology and could also act as a double agent. Therefore, a company which imports the technology on the basis of the consultant's report may not obtain a user-friendly or viable technology for their company. He suggested that engaging more than one consultant and combining their advice would provide a better solution.

In this respect, with the purpose of ensuring the synchronisation of the total digital mechanism, introducing a policy related to technology integration in the film media of Bangladesh is recommended. When asked about the contemporary policy relating to technology integration, the respective respondent answered that the BFDC did not have any specialised policy on digital integration. (*CC*, BFDC, Dhaka, 2008)

A well-formulated technology integration policy not only helps to secure distinctive technological competence, but it also spins off many new capabilities. Therefore, some of the

respondents formulated their ideas in favour of a policy development. One of the respondents recommended assigning a consultant who can really help in technological sourcing, technological risk, homogeneous strategies and acclimatising to the new technology. He elaborated the current experience of the recent adaptation procedures:

Prior to our acquisition of the new technology, the BFDC sent some of its employees to visit the foreign industries. Suppose I do not understand paintings at all, and if you send me to the Paris Art Gallery, in reality I will not comprehend anything. During the purchase of DTS the BFDC team went to visit abroad but could not grasp anything. Personally I do not think that there is any need to visit a foreign country. We can hire a consultant from neighbouring countries like India. A foreign consultant who is really involved with the new technologies will be able to offer their recommendation. Hiring a single consultant will eventually save our money for more trips to abroad. (ABA, Dhaka, 2008)

Another respondent did not accept the formula. He identified the limitations of the proposed idea to design a policy by foreign consultants:

First of all, engaging consultants is always a lengthy and complicated process. If you select consultants, no matter who they are, they will somehow represent a particular company. Therefore, more often than not, they will articulate their preferences in favour of the company and recommend you to buy the equipment from the said company. (CC, BFDC, 2008)

The above remarks indicate the wide differences in opinion between stakeholders in the digital integration project. Therefore, in order to create a solution to the problem, a well-formulated policy needs to be developed carefully.

4.9 Summary

In order to understand the technology integration of Bangladesh in greater depth, this chapter has emphasised the PESTEL factors in its structure. It is clear from the discussions in this chapter that the political factors of integrating DT have very much placed a great deal of control over the rest of the PESTEL factors. Due to the political consideration, the overall economic prospects of the project were not properly evaluated. Therefore, the positive impact of integrating DT, which had been proven to boost up the production economy, was not fully considered by the BFDC management. Furthermore, the ability to read out the external market has also failed, thus also failing to value the external economy. The negative effects of the political overload was most felt by the social aspects of DT integration, as the BFDC management failed to understand the multi-dynamics of social interaction within the industry. It was also evident that in understanding the absorptive capacity of the BFDC, the knowledge

and skills of the workforce were very low - which the management once again clearly failed to notice. The environmental friendly nature of using DT has also proven itself over 35mm celluloid technology, but once again failed to attract the eyes of the management. Finally, the vulnerability of implementing the integration of a new technology without a technology integration policy has also been discussed in this chapter. Following the summary above, it is clear that management in the BFDC is inefficient and incompetent.

Chapter 5: Workforce Development for Film Media

5.1 Context

The notion of workforce development is now a complex issue in the film media of Bangladesh. The recent escalation of integrating DT into the film industry potentially leads to confusion regarding how the workforce can acquire the necessary digital skills. Uncertainties about the development process began with failing to identify the right workforce which will be needed to be trained as the digital workforce. There are a range of arguments, both in favour of and against training up the existing workforce or developing a new workforce. The debate is not only confined to deciding who needs the training, but also to deciding who will provide the training and how the procedure can be planned and materialised.

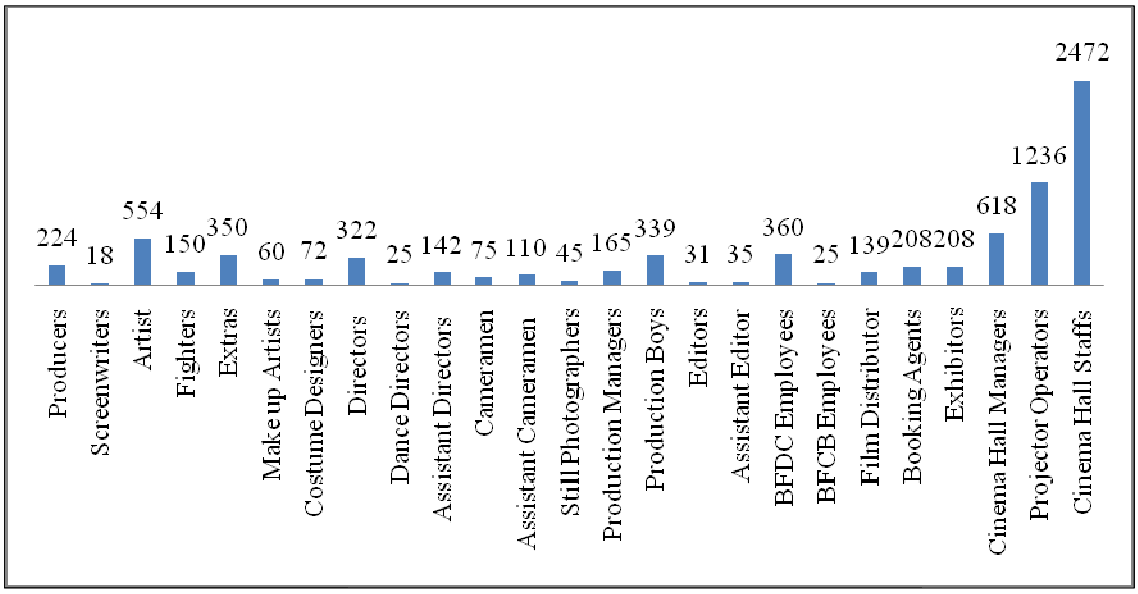
This chapter is initially aiming to discuss the current state of the film workforce in Bangladesh. It will examine the size and nature of the current workforce, especially their orientation and vulnerability related to the digital work environment. Findings about the performance of the existing organisations that provide training and support for workforce development in the film sector will also be discussed here. The main thrust of the research in this chapter will be to identify the PESTEL hurdles of developing the professional film workforce in Bangladesh. Besides that, this chapter will also outline useful recommendations in aligning media education and professional training with the new digital needs. Some of the respondents (case study and interviewees) have made demands to establish and build an open and collaborative working relationship in and outside the industry, to develop a digital film workforce through multiple processes, such as regulatory, policy and institutional reformation. With regards, to their recommendation of strategic reforming, this chapter will finally indicate the transformations of the current workforce during the digital revolution and potential ways in which the industry can change.

5.2 Current Workforce in the BFI

Since the birth of the industry, the size of the workforce of the industry has increased gradually. There is no previous data available to accurately determine the growth of the industry workforce, but a list of the current workforce is available to foresee the growth.

According to recent fieldwork data, the regular employees of the BFDC and BFCB are now 360 and 25 respectively. In addition to the BFDC's public employees, a large number of private workers are also employed in the various firms within the BFI. Moreover, on top of the regular public and private workforce, a significant number of self-employed personnel are also working under temporary contract arrangements. The most unstable stratum of the workforce is the day-labour workers who secure their jobs through ancillary relationships with the regular workforce. Most of the segments of the total film workforce have formed associations to protect their rights while working. The full size of the workforce of the BFI can be well understood by listing the different workers' associations. The recent data reveals that currently 25 different work groups are directly associated with the film industry.

Diagram 9: The Total Number of the BFI Workforce



5.2.5 Workforce Analysis

The above 25 segments of the BFI workforce it was revealed that the total number of the BFI workforce is approximately 7973. The estimation of the total number of the BFI workforce is mainly based on the member lists collected during field work and through the interviews over the phone. The total number of the BFI workforce may not actually be as accurate as it seems. The true figure of the total BFI workforce might be higher than the current approximation. For example, during the calculation, it was considered that every cinema hall had at least 1 salesman, 1 cashier, 1 security guard and 1 cleaner, therefore, in the 618 cinema halls, the total staff of the Cinemas could be 2472. Moreover, if every Cinema required at

least 2 projector Operators for 16 hour opening (9.00 to 24.00) hours, the total operators would be 1236. As it was beyond the capacity of this research to collect the individual data for each cinema hall staff, this estimation may therefore have some deviation.

Among the total workforce, it is also crucial to identify which professional groups would be more vulnerable if the integration of DT became immediately operational and which group would be able to work in the new DT with little or no training. Finally, it is also vital to identify which groups within the entire workforce would not be affected at all. Therefore it is important to have a holistic overview of the BFI workforce to identify the vulnerability status of each professional group.

Table 2: Vulnerability of the BFI Workforce against Integrating DT

Not Vulnerable	Slightly Vulnerable	Vulnerable
Producers	Screenwriters	Cameramen
Artists	Makeup Artists	Assistant Cameramen
Fighters	Directors	Editors
Extras	Assistant Directors	Assistant Editors
Costume Designers	Dance Directors	Sound & Dubbing Crew
Production Boys	Still Photographers	Laboratory Crew
BFDC& BFCB Employees	Production Managers	Booking Agents
Cinema Hall Staff	Distribution Managers	Projector Operators
Cinema Hall Managers		Exhibitors

The data on Table 2 broke down further 25 segments of the BFI workforce into 26 segments where the non-vulnerable government BFDC and BFCB employees were placed in one group and the 35 Lab Crew and 41 Sound and Dubbing Crew of the BFDC were placed in the vulnerable group. The left segment of the table shows that 9 groups of the BFI will not be affected at all by the integration of DT, thus ensuring that 9 segments of the BFI workforce are completely safe. DT will not create any negative effects in the career of the performers (such as Artists, Fighters, Dancers and Extras) and prevent them from remaining competitive

in their enduring jobs, although working in digital films, the Artists' remuneration might be less than their current remuneration. However, as the numbers of productions are very likely to increase, the Artists' opportunity to act in more productions will raise their earnings and create a balance. Moreover, the responsibilities of the Producer, Dress person, Cinema Hall Managers and Production Boys will not be affected significantly as their job is not technical in nature.

Table 2 shows that 8 segments are rendered slightly vulnerable by the integration of DT. The problems affecting slightly vulnerable segments are all mostly concerned with learning to adapt to the new technology. Segments such as the screenwriters may choose to use the new technology, but not doing so will not necessarily cost them their job at this stage. Even though the Screenwriters, Makeup Artists, Directors, Assistant Directors, Dance Directors, Still Photographers, Production Managers and Distribution Managers are all dubbed as being slightly vulnerable to the integration of DT, the range of vulnerability within these 8 segments is very wide. The Directors, for example, will require immediate adaptation to the new technology because of the technological demands in their job. On a scale of vulnerability, the Directors are closer to the most vulnerable side rather than, for example, Makeup Artists who perhaps only need to adjust the skill of creating greater tonal variations for digital production than in their 35mm celluloid experience.

Finally, table 2 also shows that 9 of the 26 segments are most vulnerable to the integration of DT, meaning that they will be immediately affected. However, the severity of the range is much more explicit. The range of most vulnerable segments have been classified down further to two groups: groups that will be affected if they cannot immediately learn the new technology and groups that will lose their job simply because their job does not exist in the digital industry. The Sound and Dubbing Crew, Assistant Editors, Booking Agents and the Lab Crew will lose their job immediately because their roles will no longer be required. For example, when 35mm celluloid-based sound negatives are no longer produced, and the manual editing jobs (e.g. cutting the 35mm celluloid footage with scissors) no longer exist, the Sound Crew or the Lab Crew will no longer be required. Projector Operators, Editors, Cameramen and Assistant Cameramen will be given less than overnight to learn how to use digital machines. Otherwise they will also lose their jobs and be replaced by a digital crew. As the 35mm projectors will be replaced with digital projectors, knowledge and skills about the digital projector and digital camera operations and performing the NLE system will

therefore be enforced. In a digital environment, when distribution incorporates the online-delivery system, the role of the Booking Agents as an intermediary force will no longer be required.

If the BFI fully adopts the new DT, then eventually there will be no need to have any prints in the 35mm celluloid format. As a result, there will be no need to retain the employees of the BFDC who are currently working in the sound and printing laboratory. Therefore, 21.11% of the total BFDC staff will be redundant. In the BFI context, the effects of integrating the new technology would be higher than the BFDC figures. That means that if the data includes the private technical crew such as the camera crew, editing crew, sound crew, the booking agents and projector operators, then the extent of probable redundancy would increase up to 24.80%.

Diagram 10: Impact of integrating DT within the BFI Workforce

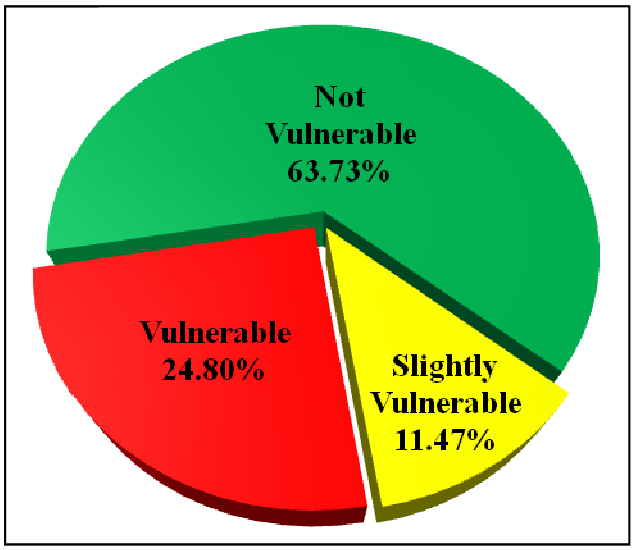


Diagram 10 above shows the figure of the workforce that could be affected by the adoption of the new technology. It also shows the data of the workforce (63.73%) that are in a relatively safe situation. Apart from the lab crew, booking agents, cameramen, editors and sound crew and projector operators, the remaining 17 segments within the workforce will not be immediately affected by the integration process. For example, a Still Photographer, Dance Director or a PM will still be able to continue their job without using any software. However, in the essence of DT, if they use software, their pace of work might increase. The chart proves that adopting DT can seriously influence the career of the core technical crews and other members of the industry workforce.

In order to overcome this occupational vulnerability, it is therefore crucial for the affected workforce to adapt to the new technology. Whilst interviewing the members of the workforce, most of them expressed their interest in having training to learn the new technology. It is therefore important to understand the media training facilities at the national level for the workforce.

As mentioned before, the NIMC is the only major organisation that provides media training for the media workforce. Therefore, it is important to identify the micro and macro-level scenarios of NIMC. Data acquired from the fieldwork reveals that the number of the vulnerable workforce resides at 1,975 members. The NIMC cannot immediately afford to train this huge workforce, meaning a preference should be created within this group. Owing to the fact that the BFDC is a mature industry, a large number of this group will be aged, with some nearing their retirement. So, when training facilities and programmes are provided for such a workforce, the output of this training will be much less efficient than similar training programmes targeting a younger workforce capable, by definition, of repaying such skills investment over a much longer period. Therefore, the NIMC should much rather place priority upon the younger part of the vulnerable group rather than the older sector. Given that, workers within the younger part of the workforce who show more enthusiasm or skills may be given priority in accessing training opportunities

Apart from the efficacy issues of the trainees, the efficacies of the trainers are also important to consider. The individuals associated with the NIMC for training purposes and their cumulative efforts need to be appraised in order to discover whether the training needs of the workforce are really being met or not. The following section of this chapter will illustrate a micro-level analysis based on the self-efficacy approach to understand the training issues in greater depth.

5.3 The Self-efficacy Scenario

The collective results of the individuals' efficacy (capability or control in producing a desired effect) ultimately create an impact on the overall training output that the NIMC provides. Therefore, in order to understand the efficacy level within the organisation, it is vital to consider each individual person who is involved in providing training within the NIMC.

Bandura (1977) has outlined the scenario of self-efficacy. According to his theory, in order to achieve a high efficacy amongst individuals working within the organisation, it is important

to perceive one's goal as attainable, and be positive about the expected outcome. High efficacy also includes physical matters such as having no anxiety. Furthermore, individuals that have a higher efficacy usually have more internal control rather than being dependent on luck, fate or chance. They have a common eagerness for knowledge acquisition by observing the peer performances, models and self-attainment. Finally, the individuals with a higher efficacy also show a pattern leading to constant success. Therefore, the overall outcome results in positive feedback.

The aforementioned scenario illustrating the methods of achieving high efficacy needs to be discussed from a NIMC individual perspective. One of the respondents who had worked in NIMC for 8 years pointed out his own insight on this aspect:

The first limitation of staffs working in NIMC is their lack of self-esteem. The lack of adequate knowledge acts as the second limitation. Furthermore, lack of commitment to an individual's duty acts as the final but most crucial barrier. (NN, Dhaka, 2008)

Another respondent from the same organisation also identified two problems associated with efficacy issues:

Most of the projects taking place in our country are currently failing. Why? When someone is preparing a project proposal, there are many faults remaining. Lack of technical know-how causes problems. Furthermore, I, myself, don't understand what I want; what my department needs or whether this project fulfills my ultimate goal? (AAH, Government Official, NIMC, Dhaka, 2008)

It is easy to see that the two views are in fact similar in some ways and different in others. The primary limitation identified by the earlier respondent is a critical problem which needs to be addressed urgently. The first respondent has also explained the background of why such a demotivated state is still prevailing within an individual. He clarified that an excessive trait of being cautious, trying not to make any mistakes during any job was causing the drawback. The second limitation, which is commonly mentioned as an efficacy crisis by both respondents, rationally contradicts the first one. Logically, if someone is very careful to avoid any faults, then they should have acquired a sound level of knowledge to continue their job flawlessly. Therefore, lack of knowledge or technical knowledge should not be a problem. In reality, within the individual level in NIMC, the third issue – lack of confidence - is blocking the individual's drive to acquire the knowledge. The factors of low efficacy have a never-ending cyclic effect. Anyone lacking self-esteem may repeatedly try to avoid mistakes, which will eventually make them try to avoid any responsibility and hence make them less

confident. Furthermore, when they are less confident, they will finally not be able to attain the required knowledge.

Diagram 11: Major Features of Low Efficacy

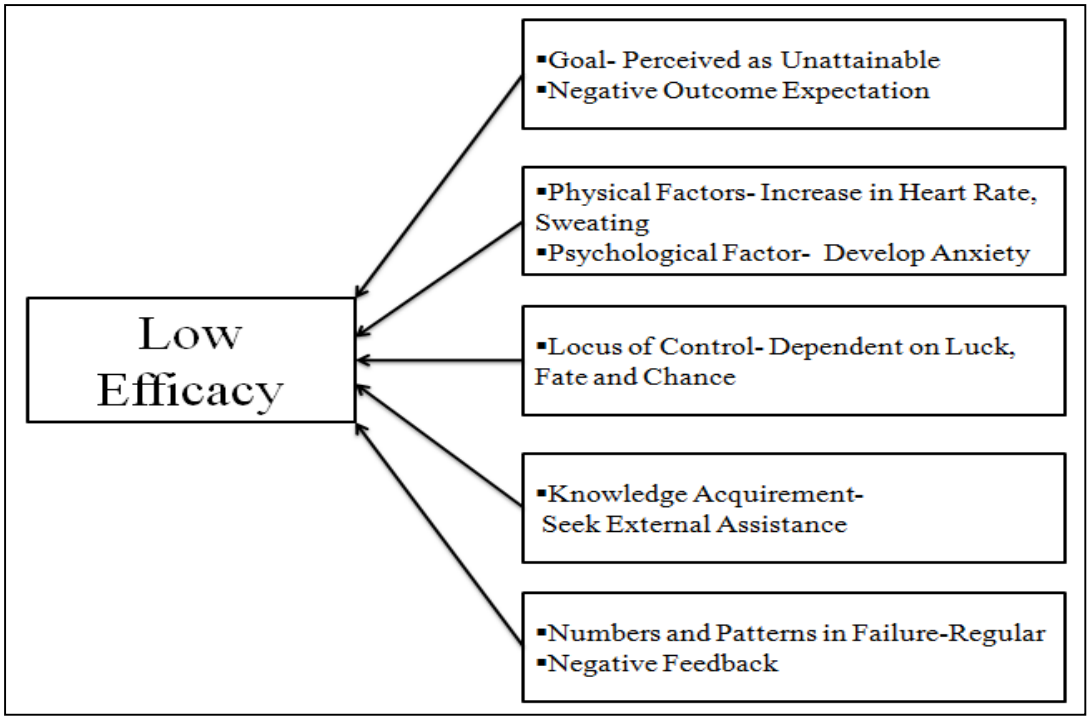


Diagram 11[xxiii] demonstrates a series of negative consequences which begins from the moment when anyone perceives any given task as unattainable. In order to get rid of this never-ending cycle, there should be a positive intervention. The most practical intervention to convert low efficacy into high efficacy is Knowledge Acquisition. The aspect of Knowledge Acquisition is closely associated with two factors. The first factor includes being able to set a goal. The second factor includes striving to expect a positive outcome and perceiving the goal as if it were achievable. The second respondent (*AAH*) has given an example of these factors and concludes that there is a co-relation between the individual efficacy goal and the collective efficacy of an organisation:

MSA: Even though they work here day and night, some employees of NIMC do not like to think of the workplace as their own office. What is your thought to that?

AAH: I agree. There are some reasons behind this matter. Everyone has their own expectations when starting a job. I had some expectations when starting my job but in order to work sincerely and dedicatedly, you need a pleasant working environment.

MSA: Can you please explain your point or give me an example?

AAH: When I joined the NIMC, I was given the responsibility to carry out some researches. However, to my surprise, after 6 months, my research work was given to someone else. Maybe the organisation had some reason behind this but the fact that I had worked very hard for 6 months was sort of neglected. How do you think I felt? (AAH, Dhaka, 2008)

How a very highly-efficacious employee can become a low-efficacious employee due to the organisational decision is clearly illustrated in *AAH*'s disappointing situation. In the above situation, if the organisations do not step in and motivate their employees to increase their efficacy in terms of knowledge acquisition, it is not single-handedly possible for individuals to achieve their goal and become highly efficacious. Therefore, the relation between the individual efficacy goal and the collective efficacy of an organisation is clearly illustrated in the above mentioned scenario. Hence, it is important to understand organisational efficacy. An issue that has addressed the issue of organisational efficacy in great depth is Absorptive Capacity.

5.4 The Absorptive Capacity Scenario

Cohen and Levinthal (1990) have developed the concept of 'absorptive capacity', which offers a succinct guide in understanding the organisational capacity. Specifically ahead of assimilating and using a new kind of knowledge, it is important to indentify the existing knowledge level of a particular organisation. Understanding the existing knowledge of each individuals working within a particular organisation and thus the cumulative knowledge capacity of those individual workers are therefore decisive. Cohen and Levinthal have made a very crucial observation which states that there is no use in having individual or cumulative knowledge within the workforce if the organisation does not know how to exploit their knowledge.

With the purpose of understanding the NIMC workforce in greater depth, the size and nature of the cumulative workforce needs to be known. The strengths and weaknesses of the NIMC workforce and an overall judgment of the knowledge level which will act as the base for accumulating the new knowledge also needs to be identified.

5.4.1 Impacts of Quantitative Factors on Absorptive Capacity

NIMC is a Directorate under the Ministry of Information. With a total workforce of 91, a Director General (DG) is the Chief of the Institute.[xxiv] The DG is assisted by an Additional DG and 3 Directors. Of the three Directors, two of them are the Training Directors

(Engineering, Program) and the other officer is a Director (Administration and Development). Each Director also gets support from several Deputy Directors. Deputy Directors supervise the jobs of the Assistant Directors under their direct communication. Along with the administrative staff, there are technical staffs to help them in this regard. Recently the government of Bangladesh has increased the number of authorised posts for NIMC from 91 to 117 in total. Unfortunately, the 26 posts that have been newly authorised are still vacant.

Table 3: NIMC Employees

No.	Classification of Posts	Sanctioned Posts	Existing Post Employed	Vacant Posts
1	First Class	34	20	14
2	Second Class	14	10	04
3	Third Class	43	35	08
4	Fourth Class	26	26	00
Total		117	91	26

According to the data table, it can be seen that 77.78% of the authorised workforce is employed in the NIMC and 22.22% employees still need to be employed. Out of the 22.22% of total workforce, 41.18% of the first class posts are still empty. Within the NIMC, only the First class employees work as trainers as well and administrators. The current number of First class employees is 21.98% of the total workforce. Nevertheless, 21.98% is hardly a healthy ratio of teaching staff. However, in the future, even if the first class posts are filled to the maximum level of 34 posts, the percentage of teaching staff will only increase by 7% and become 29.06% of the total allocated posts.

The quantitative data revealed from the above scenario suggests that there are still a lot of vital positions vacant which could help to run the institution smoothly. So it can be inferred that the overall performance will be lower than the expected performance standard unless the vacant NIMC posts are filled. The above scenarios summarise the quantitative factors of a training-based institute that have a greater impact on the absorptive capacity of that organisation. For a complete account of the features of the absorptive capacity, it is also vital to consider the qualitative factors prevailing in the NIMC.

5.4.2 Impacts of Qualitative Factors on Absorptive Capacity

Whist defining the concept of absorptive capacity, Cohen and Levinthal (1990) emphasised the fact that prior knowledge plays a major part in the total workforce. However, how this prior knowledge of an organisation can be judged has not been mentioned by the authors. As a government organisation, the NIMC has set some requisite and specific qualifications for each post (e.g. SSC, HSC, Undergraduate or Masters for various entry level positions) within their organisation. In particular, the 1st class employees should have at least a Masters degree, whereas for the administrative/clerical level jobs, a graduation or HSC degree would be required. People working in technical posts are required to have an engineering diploma or equivalent level, specialising in their vocation. Hence, there is variety as well as specificity within their respective knowledge levels.

Most of the current first class employees working in the NIMC did not originally begin their career in the NIMC. A majority of the First class employees are on deputation and their posting in the NIMC varies from 1 to 3 years. Usually the government officials of the Ministry of Information and the Producers of Bangladesh Television (BTV) are the ones appointed on deputation.[xxv] Amongst them, Producers are generally more enriched with practical knowledge required to provide training in the NIMC. However, because these producers have no experience in providing training, working in this field acts as a barrier and limits their performance. Government Officials, on the other hand, are neither equipped with practical skills nor the ability to provide training. Because a lot of the first class employees of the NIMC are not advanced in their knowledge related to media training, the weakness of this part of the organisation is evident. One of the respondents from NIMC has identified the weakness of the workforce:

NIMC should build up their own professional team. Currently, the new employees that have been transferred to NIMC from other organisations have not been able to get oriented with NIMC. (NN, Dhaka, 2008)

Orienting the employees of the NIMC into a fixed position seems to be a problem for the organisation. The transferred employees know that eventually they are going to go back to their previous organisation. This constant reminder therefore prompts the employees to become unable to be mentally associated with the NIMC. It is not as if they find it hard to fit in, but almost as if they do not want to fit in. Lack of dedication towards the new organisation is restraining these transferred employees from involving themselves with the new organisation. However, assuming that all the transferred employees are necessarily going to

feel disoriented is not appropriate or true. The respondent is quick to also express a different view:

Whilst working in NIMC, I can remember one of the DGs who got recently transferred but he was such a good team leader. He would always depend and encourage his colleagues and in case someone came up with bright idea, he would appreciate them out of any personal interests. (NN, Dhaka, 2008)

It is evident from the two different perspectives of the same respondent that the aspect of orientation could vary according to the individuals. However, it is safe to assume that when two different workforces from two different backgrounds join in an attempt to work cumulatively as one workforce, there are likely to be some hidden conflicts. One of the outputs of these kinds of conflicts can be understood by judging the difference in expectations within the two workforces.

The expectations of a transferred employee will be different to an individual who has originally been working for the NIMC, as the transferred employee's primary expectation will always be to go back to their original organisation. A practice that has already been established as an organisational political culture in Bangladesh is that whenever the government changes, the new government usually transfers the employees who are not of their liking to a different organisation. This is usually a political decision. The extent of this practice has not been identified but it has been noted that the transferred employees feel less powerful within their new organisation. This system makes a very distinctive contribution to their low efficacy even though the NIMC has not given any clear reviews on this issue.

Transferred employees find it hard to fit in as they are out of the comfort zone which initially gave them some power. Their expectation is to revive that power and control. One of the respondents of NIMC has mentioned her expectation of organisational support from NIMC for her professional development.

The trainings we are providing in the NIMC are mainly short courses. I think no one can become an expert through these short courses. If anybody wants to be an expert in a particular field, they should have a degree on that particular subject, which is relatively longer in duration. (AAH, Dhaka, 2008)

The insight of the respondent can be analysed as a positive expectation of an employee for her own professional development and for the development of her organisation, which also expresses a desire to remain longer in the organisation, thus showing the importance of having a steady ground. Interestingly, information retrieved from the data collection process

confirmed that up to 2008, the NIMC had only supported one Assistant Director out of the entire workforce to acquire a MA degree in their chosen area. It has been noted that personal expectations should not be seen as being similar to organisational expectations. An individual will be much more willing and dedicated to perform a task where they have something to gain from the experience for themselves, but when it comes to larger issues including the society or organisation, the individual is more likely to be reluctant. However, if the organisational development expectation is aligned with personal development expectations, then the organisation can build up a new capability. In order to build up this new capability, the R&D wing could perform a very vital role. Unfortunately, even though the NIMC has a research unit, it is more focused on conducting research on discovering the impacts of the television programmes produced in BTV. There is no evidence of in-house research within the NIMC.

The above discussions have opened up a new view of the NIMC. It is important to conclude that the nature of a mixed workforce from various organisations and inadequacy of a specified workforce are causing some major difficulties in achieving a positive result within the NIMC. Apex training institutes such as NIMC face three particularly delicate situations: orientation, expectation and dedication issues. The issue of 'orientation', which is an integrated set of attitudes and beliefs in favour of any organisation, is a crucial factor. Without a properly-orientated workforce, it will not be possible to start to act for a new situation or environment. The second issue is expectations. The workforce should have a common ground of expectations rather than a desire to attain personal expectations. Common expectations for organisational purposes by the cumulative workforce have always had a greater value. Finally, it is also important to value the fact that, even if each individual within the workforce solely dedicates him/herself to knowledge and self-development, if the organisation as a whole does not develop or the organisation itself does not step up to assist their cumulative workforce, it will not be possible for that organisation to develop further.

5.5 PESTEL Scenarios of Media Education and Training

The government's effort to provide much-needed media training in Bangladesh is quite limited. Typically, if any Bangladeshi wishes to make their career in the Mass Media Industry such as Film, TV, or Radio Industry, then they have to follow a complex procedure. Apart from the government's effort, private attempts to provide training are also insufficient. A number of external factors such as Political, Economical, Social, Technological,

Environmental and Legislative situation may be preventing the growth of the media training sector in the country. It is therefore important to identify whether the factors assumed here are really causing any impacts, and, if so, how severe those are for the future growth of training facilities in Bangladesh.

5.5.1 Political Factors:

NIMC was established in 1980. It was previously known as the National Broadcasting Academy (NBA). The NBA was a project of the People's Republic of Bangladesh in Cooperation with UNDP, UNESCO and ITU. In 1983, the NBA was renamed as the NIMC. It is interesting to note that the government took 9 years to establish a national training institute after the independence of the country in 1971. The Radio Transmission in East Bengal started in 1939. The FDC (which later became BFDC) was established in 1957. The East Pakistan Television (which later became the BTV) was established in 1964. During 1939, when radio transmissions were first introduced to Bangladesh (the-then East Bengal), there must have been a need for a radio workforce. The issue was somehow managed by the employees of the radio station. However, the government – the-then British Government, later on the Pakistani Government and finally the Bangladeshi Government - kept the public waiting for 41 years until they introduced a national institute to address the demand for training. This indicates the government's insufficient political commitment in this regard.

Since its establishment, NIMC's budgetary allocation has been managed from the government's development, as opposed to revenue, budget and this reflects the government's political and less-than-committed view about this organisation. The NIMC generally provides various training courses on the applications of technology within the media industry. Therefore, the government as a whole should be more helpful in facilitating the NIMC's adoption of changing technological requirements. Currently, the NIMC is using antiquated technology to train their students, so they are very out of step with the technologies of the digital era. Hence, a balanced and upgraded technology policy should be designed or adopted to train the public and private workforce. However, the history of the government's assistance in helping organisations meet technological demands has not been very exemplary. One of the respondents pointed out one of the causes behind this:

The government has taken a long time to realise the fact that the digital technology is currently grasping the world in every aspect. For example, in 1990, when the Bangladesh Government was offered to have a free fibre cable connection with the information the 'super high way', the-then government declined the proposal

with the logic which stated the internet connectivity as a threat to the security of the country. (NN, Dhaka, 2008)

It is interesting to identify that the same government that declined the proposal of connectivity with the global information super high way in 1990, has after 16 years realised their mistake and decided to become connected with the submarine cable at a cost of ৳6,280 million (£54 million).[xxvi] How the government's political views and insights could greatly hamper the nation's technological development and decrease the performance for organisations such as the NIMC is clearly illustrated in the above scenario.

The current government's (since 2009) vision for creating a 'Digital Bangladesh' might change the scenario and create positive impacts on organisations such as NIMC. It is still too early to predict whether this vision will become a reality or not. No indications have yet been noted to suggest whether the Government is prioritising media training or developing the workforce for the digital media industry.

However, it is interesting to discover that, since 2000, a trend has been emerging which suggests positive growth in the media industry. The various governments over the last decade have permitted several private TV and radio channels to be established, and encouraged independent filmmakers to create films. Therefore, this growth clearly required the parallel growth of the media workforce. Unfortunately, the government has not taken any political initiatives to prepare a trained workforce in order to serve the industry. It appears that the government has failed to recognise the skill shortage within the media industry and they remain without a national training policy.

The NIMC has developed their own training policy which they have not been able to adopt into a national training policy. Because almost every job in the media industry involves technical expertise, the government could have introduced a procedure of authorisation and confirmation of minimum knowledge and skills for media employees to commence in the media jobs. Therefore, the lack of a national policy has narrowed down the government's vision of providing training to the wider media community who really need it. Hence, organisations such as the NIMC are mostly dedicated to providing training to government officials.

Originally, the NIMC training started its activities by offering training courses for government broadcasting crews. It aimed to train up the workforce of Bangladesh Betar

(Radio Bangladesh), BTV and Department of Films and Publications (DFP) and Directorate of Mass Communication (DMC) of the Ministry of Information and BFDC. It is interesting that the expansion of media training in government is anomalous with the general needs of training for the wider media community and developing media professionalism. The data set out below proves that NIMC's contribution in developing the workforce in the private level is very insignificant.

Diagram 12: Training Pattern of the NIMC from 1980 to 2005

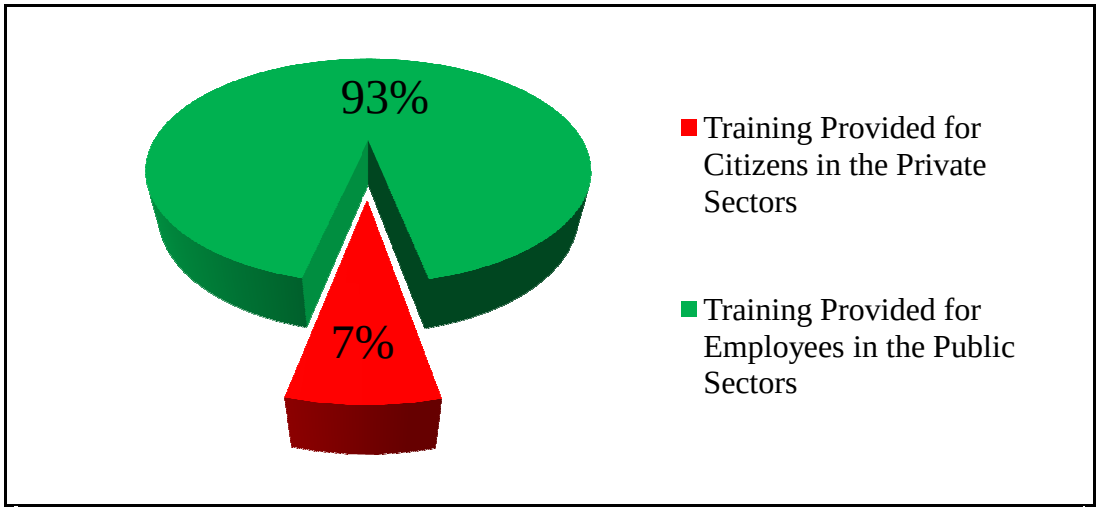


Diagram 12 shows that between 1980 and 2005, the NIMC placed more emphasis on training up the public workforce rather than the private workforce. However, in reality, the representation of the private workforce is much larger than the public workforce. For example, only 4.82% of the film industry are currently the public workforce, whereas the other 95.18% are known as the private workforce.

The lack of training facilities for the private sector clearly signalled the requirement of establishing private institutes for media training. Accordingly a very limited number of organisations have come forward to fulfil these training needs. Amongst these organisations, Worldview International Foundation, Bangladesh; Elementary School for Film and Video, Dhaka; Bangladesh Centre for Development, Journalism, and Communication; Centre for Development Communication; Mass-Line Media Centre; Bangladesh Centre for Communications Program and the Academy of Media Development are the major private organisations providing training to develop the media workforce.

Apart from traditional media training, currently there are some institutes that are now providing training for digital media technology; Bangladesh Computer Council, Ananda Computers; Daffodil Institute of IT, New Horizons Computer Learning Centre, Bangladesh,

Orgate IT are pioneers in this field. They are mainly offering courses on Digital Video Editing, Graphics Design, Web Page Design, 3D Modelling, Animation and Computer Generated Imaging (CGI).

Most of the above media courses are mainly aimed to support the post-production stage of the traditional media and mainly provided in Dhaka, because of the facilities that Dhaka provides. As the capital city of the country, Dhaka is always the preferred location for private training providers.[xxvii] They can easily attract large numbers of students from this populated city, and can also hire local and foreign trainers and equipment for their training centres. This expansion of training facilities on DT within the private sector is mainly because of business interests. It is not clear from the diverse curricular and training modes of those centres whether the government has any policy to appraise their private initiatives and unify them for the sake of future workforce development.

Media-related training is particularly helpful to attain specific skills or further professional development. These practical training courses can dramatically increase the standard of the media sector when the cognitive knowledge level also develops. Therefore, media training development parallel to theoretical knowledge is also required. Hence, Media Education is also a crucial issue. An enriched environment of Media Education can eventually help the media professionals to develop culturally-competitive content. Unfortunately, the Bangladeshi government is maybe, but not engaged in of expanding the media education capabilities.

It emerged that there has been very limited progress in improving and expanding Media Education in Bangladesh. A very few universities in the country are now offering media courses. Typically, the public universities offer more theoretical courses. The emphasis of the private universities in media teaching is relatively different from the public universities. The private universities are trying to combine their theoretical courses with media practice practical. However, the balance between the theoretical and practical elements is not satisfactory. Most of the private universities cannot yet provide adequate equipment for student use. One of the respondents admitted the limitations within their university:

Since 2002, we have been using the digital camera. However, we have still not been able to go into HDTV. The sort of budget and planning that we need in order to go into HDTV is not currently available for us. Moreover, we are also using AP (Adobe Premiere) for the students to gain more practice as it is available. (AAW, Dhaka, 2008)

The need for learning specific applied skills is in demand within the universities. Some of the university teachers have argued that universities have a basic difference to vocational training organisations. Therefore, even though there is a demand for practical courses within the media department, due to the cognitive nature of the university, this is not always possible to accommodate.

Amongst the public universities of Bangladesh, only Dhaka University, Jahangirnagar University, Rajshahi University and Chittagong University are offering some courses on Mass Media. The University of Dhaka, University of Rajshahi and the University of Chittagong have dedicated departments on mass communication and journalism. These universities are providing a four-year undergraduate programme, 1 year M.A, and MPhil and Ph.D level courses. In the Drama and Dramatic Department of Jahangirnagar University, out of the 26 Undergraduate courses, 2 studies (Mass Media and Film Studies) are particularly focused on Media Education. In the M.A level, out of 10 courses, 4 courses are focused on Mass Media: Scriptwriting for Mass Media, Acting in Mass Media, Directing in Mass Media and Film Studies. Although teaching Media and Journalism courses started at the University of Dhaka from 1962, in the last 5 decades, no remarkable emphasis was found on teaching film technology. Therefore, the limited expansion of Media Education within the public universities in Bangladesh clearly signals the government's lack of political commitment to Media Education and Development.

5.5.2 Economic Factors:

The aforementioned political scenarios have had some impact on the economic scenario of media training in Bangladesh. Apart from the NIMC's revenue expenses (such as salaries and overhead costs), the government's budgetary allocation for training purposes is very insignificant. In 2007, NIMC's annual training budget was only ৳3,000,000 (£25,997.66). It was interesting to identify that the NIMC's budget was as low as 0.00042% of the national educational budget of the country.[xxviii] Even if the NIMC received the smallest possible quantity of 0.01% of the national educational budget, the government would have to increase their current budget by 23.80% to reach the allocated budget.

The economic constraints have had a severe impact on the quantity and quality of training. Among the mass media, film is an expensive media to produce; hence it is expensive to

provide training on film production too. The expensive nature of film training has been narrated by one of the respondents:

In 2005, the total yearly training budget of the NIMC was only ৳1,800,000 (£15,598.60). In that year, when we decided to provide a 6 month training course on filmmaking, we asked the government to allocate an additional ৳1,200,000 (£ 10,399.06). I also took some personal initiative and therefore the Ministry of Information agreed to our proposal and the Ministry of Finance finally allocated us the money. Even the additional allocated money was not sufficient enough. In order to complete the training course on filmmaking therefore we had to manage another ৳700,000 (£ 6,066.12). (NN, Dhaka, 2008)

In this vein, it is also notable to mention that in 25 (1980-2005) years of training, NIMC has offered 73 types of training courses but only 3 of them were on film (please see Appendix 4 for detail). Film as a medium offers a huge revenue to the government. Hence, logically it would not be impractical to think that, within NIMC, film should have had priority. In reality, the scenario was the reverse. Over the years, the film training was only 4.10% of NIMC's total involvement. The same respondent refused to blame the issue of low ratio of training on film medium on the economic limitations of the organisation, preferring to consider this issue from a different perspective:

Those who are working in the BFDC don't come to attend the training even if they are invited to. The reason behind this is that NIMC generally conducts the trainings between the normal office hours (9am to 5pm) which clash with the BFDC work time. The BFDC crew are not able to put up with this kind of training because while having the training, they can be fired from their job contracts. (NN, Dhaka, 2008)

The issue which has been raised here opens up another critical aspect of the economic factor. Apart from the BFDC and BFCB, the remaining 95.86% of the film workforce are currently working privately. Therefore, if any member of the private workforce wants to take advantage of the training to benefit their professional development, then either way they might be affected. Normally, an NIMC training course is not free. A trainee or on behalf of the trainee, the organisation has to pay a minimum training fee from ৳1,000 to ৳10,000 (£8.67 to £86.66). In addition to the fees, the trainee eventually has to consider the daily earnings which they are not getting during the period of the training engagement. The risk of economic loss due to the decision to receive training is not always comfortable for many members of the workforce. Due to their extremely poor economic condition, some of them simply cannot think of attending any training course in their lifetime. The chances of attending a training session become slimmer when the producer or the production company of the worker does not encourage or allow trainees to leave their responsibility for training purposes. Not

agreeing with a producer's decision may not be the best policy for a member in the workforce as it might cost them their job or any other chance of working in the industry.

The economic factor not only puts the NIMC and its trainees under threat, but it also upsets the trainer's incentive to take part in the NIMC teaching. Apart from the NIMC employees, there are a number of external academics and media professionals who play a part in training up the media workforce. It is evident that the qualified trainers are mostly associated with filmmaking, thus they prefer to engage themselves more on making than teaching because of more earnings.

As the training courses on film media are very costly, training on film are very limited to the private sector. Hiring film equipment and buying film footage for training purposes are really expensive. Therefore, most of the training courses on film technology at the private level are offered as taught courses.

5.5.3 Social Factors:

In terms of the expansion of media education, some social initiatives have been noted. A small number of private universities are also contributing to develop the Media Education in Bangladesh. Currently, Independent University, University of Development Alternative, University of Liberal Arts Bangladesh, Stamford University of Bangladesh, Shanto-Mariam University of Creative Technology and Perdana College of Malaysia and Daffodil International University are providing Bachelors and Master Degrees in Media disciplines. Therefore, it is important to discuss the above stated universities in terms of their contribution to the media education.

Table 4: List of the Private Universities Offering Media Courses

No.	Founded	University	Level	Subject
1	1993	Independent University of Bangladesh	Graduate Course	• Media & Development Communication
2	2002	University of Development Alternative	Graduate Courses	• Communication • Media Studies
3	2003	Green University of Bangladesh	Graduate Course	Film, Television & Digital Media
4	2003	Shanto Mariam University of Creative Technology	• Graduate Course • BTEC (UK) • ND (UK) • HND (UK)	Graphic Design & Multimedia

5	2004	Stamford University of Bangladesh	Graduate Courses	• Film & Media Studies • Journalism & Media Studies
6	2004	University of Liberal Arts, Bangladesh	Graduate Course	• Media Studies & Journalism
7	2007	Daffodil International University	Graduate Course Post-Graduate Course	Journalism and Mass Communication

In order to achieve their diverse goals to reach media communities, the private universities have integrated several media courses on print, broadcast and film medium. Specifically, at Undergraduate level, they have included several courses on film studies.

Perdana College of Malaysia, Dhaka campus, is now currently offering BA (Honours) in Mass Communication with a major in Film and Television. Under this program, the students need to study up to one year in Dhaka, and then they proceed to UCSI University, Malaysia, to complete the remaining part of their program.[xxix]

Most of the above private universities are now trying to teach mass media courses with a balance of theoretical and practical courses. Most of the universities currently have post-production computer labs where they can demonstrate the practical courses, such as graphics design, web-page design and digital video editing for the students. The facilities for providing practical courses on camera operation and lighting are still not very common within the above universities. With the purpose of meeting the practical course demands, Stamford University of Bangladesh has developed its collaboration with BFDC. Therefore, the Stamford University students often get a chance to visit the BFDC as part of their courses. Apart from the Stamford University of Bangladesh, some of the other universities, such as Independent University of Bangladesh, have provided their students with digital cameras as part of their practical courses.

It has not yet been confirmed to what extent the above private universities are contributing to the expanding growth of media education. No significant research has been carried out to address how the media education of the public and private universities is contributing to the media workforce development. Moreover, the academies which are nowadays providing media education and training do not have any effective collaboration with each other. The social scenario of collaborative relationship has been revealed by one of the NIMC respondents:

MSA: As a national institute, when you design training courses for the media workforce, do you consult with the universities or study their curriculum?

NN: So far I know, the NIMC has never tried to collect the curriculum of a university. However, whilst designing the training courses on filmmaking, we collected some parts of the curriculums from national and international sources. (NN, Dhaka, 2008)

The lack of social interaction is not only prevailing in between the academic institutes, but it is also occurring within the interaction of the academics and film professionals. One of the respondents has identified the problems of social interaction:

As you know, there are two types of film industries in Bangladesh- the BFDC based commercial industry and the independent filmmaker based cottage industry. Even though the art cinema or alternative cinema platform (cottage industry) is not really seen as a separate film industry, I think that amongst the two industries, the academicians have less communication with the BFDC based film industry. (AAW, Dhaka, 2008)

Interestingly, *NN* has also agreed with the above social communication problem. *NN* explained that the reason for this communication gap is simply because of the difference of knowledge acquisition:

The film professionals who have trained from foreign countries find it difficult to work in the BFDC. The style and process of work that they have learned from abroad is quite different from the BFDC's guru oriented learning pattern. (NN, Dhaka, 2008)

The conflictive situation addressed above can be seen as a social problem between the indigenous knowledge and skills with the standard knowledge and skill practice. The collaboration between the NIMC, universities and the media industry is now expected to develop the future workforce. Furthermore, with the new global integration of DT, it is next to impossible to develop and integrate DT into Bangladesh without this collaboration.

Furthermore, there is no significant initiative to bridge the gap between the University level media education and the primary, secondary and higher secondary schools. There is currently no link between university education and the pre-university education level. One foreign academic currently working in a private university in Bangladesh has suggested a way to bridge the gap:

Well, yeah, I mean I began my career in Academia doing media education and teaching people to go out and teach media studies- one of the first formal programmes in Australia-this goes back 30 years. And we were adequate for the introduction of media studies in the schools and it took 20 years to become an established

subject in the western Australian schools .If you started now, it would take you 20 years before you would have syllabus SSC course running to go on to university. It's a long term project. (AAZ, School of Social Sciences, University of Liberal Arts, Dhaka, 2009)

Media education is not only missing at various school levels, but also within the post school stages too. Internationally, many countries around the globe offer vocational training courses on media in the post-school stage. In Bangladesh, such an attempt has not been evident to build up media professionals through vocational training. Hence, this social scenario needs to be addressed with great care to build up a total media workforce and the emphasis needs to be on learning DT to build a more common ground for the workforce development in film, television and radio industry.

5.5.4 Technological Factors:

In the previous section on political scenarios, how the government's political views have held back the technological achievements within the country has already been discussed. The effects of political decisions can be seen as one of the major limitations for media education and development but other micro level limitations are also essential issues to consider.

It is thus important to consider how, within the micro level perspective, organisations such as NIMC are addressing the technological factors in their training procedures. Since 1980, NIMC has gradually been equipped with a variety of training equipment. In 1998, NIMC received an enormous donation from the Japanese government. Japan International Cooperation Agency (JICA) donated several sets of Video Switchers, Colour Camera Chains, Video Monitors, VCRs (Video Cassette Recorders), and Microphones, Microphone Booms, CD Players/Audio Sources, Digital Audio Tape Recorder Set, Lighting Equipment, Telescopic Hangers and a substantial amount of peripheral equipment. This generous donation that NIMC received was a combination of 336 Sets/pieces of media production related equipment worth ৳15,700,000 (£136,054.42).

It is interesting to discover that since the advent of DT, the NIMC has not yet developed any set up to facilitate training on the applications of the new technology. In a rapidly-changing technological world, the NIMC have failed to lead the media workforce with the new uses and updates. The disadvantages of not having equipment are more severe when there is also a shortage of technical manpower. One of the respondents has explained the NIMC's limitations in this regard:

Recently, with the help of the AIBD (Asia- Pacific Institute for Broadcasting Development), we organised a course on internet broadcasting. We did not have the sort of equipments needed for an internet broadcasting course. Therefore, we had to send our trainees to the Bangladesh University of Engineering and Technology (BUET). We have not only used their computer labs, but also had the assistance of their faculty experts. (NN, Dhaka, 2008)

The above scenario explains that organisations such as NIMC are not well prepared to face the challenges of the new DT. Moreover, due to the lack of collaborations, no clear scenario of the technological capability of other organisations can be realised.

In addition to capacity building, it is also strategically important to develop the infrastructure along with the recent equipment in NIMC and to liaise with other educational organisations to develop the workforce and to assist the growth of media education. Early integration and application of the latest equipment in NIMC can raise the NIMC's position as a technological gate-keeper. NIMC could grow as a testing place for the compatibility of the latest equipment and technology. Their recommendations could lead the national media industry to build up a rendered much simpler via DT. Compatibility between the training equipment and technology within the media industry settings can be a real advantage for the entire media workforce.

5.5.5 Environmental Factors:

In reviewing the training requirements of the current workforce of the BFI, it has been identified that the 36.27% (vulnerable and slightly vulnerable) of the total film workforce require immediate training. Without proper training they will not be able to learn the new knowledge and skills of DT for applying into the industry. As this training requirement is a vital concern, therefore, it is crucial to find out the existing training environment -specifically the state of physical infrastructure- of the NIMC. It is acknowledged that as a media training institution, NIMC's infrastructure is inadequate to meet the demand of the growing media workforce. Therefore, it is important to examine how the aforementioned limitations affecting the training environment can be overcome.

According to the information placed on the NIMC website, 'since the establishment (1980) and up to 2003, the NIMC has provided training for 6625 people'. This is merely 288 people being trained each year. Unless the infrastructural capacity and thus the training environment capability of the NIMC increase at a dramatic rate, it would take the NIMC 13 years to train up the vulnerable workforce of the BFI. Such statistics show the extent of how disinclined the industry is to train their workforce members. However, it is not practically possible to place

attention upon the film industry only. The NIMC have to accommodate other industries (radio, television, mass communication, ministry of information etc.) which suggests the integration of DT, where all vulnerable members are trained, may indeed take much longer than 13 years. This prompts us to ask the question as to whether integrating DT in Bangladesh is really possible.

Because the NIMC is a government organisation, it provides training during office hours, meaning that the vulnerable members wanting training have to sacrifice their immediate work in order to take part. The vulnerable members themselves cannot spare time to come to take the training, as earning is their first priority. Therefore, barriers exist from both sides, as the NIMC only provides face-to-face learning. Thus the conclusion is that the NIMC needs to establish a training environment which accommodates a geographical and time separation (distant education mode) between the NIMC and the part-time trainees.

In an educational setting, it is very important to ensure an easy interactive environment where the teacher/trainer or student/trainee will be able to communicate at ease. Many scholars are now suggesting developing an e-learning environment to optimise learning and ensure wider participation. In such a case, the NIMC may also develop an e-learning environment which will require designing web-based online courses for the various types of training. The NIMC does not even have its own website. This situation thus proves that NIMC has a lack of capability in entering into the e-learning environment. In order to develop an e- learning environment, the NIMC should build up the skills and interests to design and develop online courses. It is a fact that designing online courses requires extra time and dedication, which might be another challenge for NIMC as most of the NIMC trainers are hired on a temporary basis. The financial expenses are another challenge in developing the e-learning environment. A.A. et.al. (2008) identified:

Notably, e-Learning applications which have become central to the learning process may be developed using proprietary programming tools. Meanwhile, the process of acquiring proprietary programming tools, the license and using them to develop large software application is not only complex but a huge sum of money is spent on the purchase and license. (A.A. 2008; p 194)

There is no doubt that the mechanisms needed to develop an e-learning training environment in the NIMC would be not easy to be develop, but only this environment can be helpful to development of the knowledge and skills between the trainer and the huge numbers of trainees.

As most of the intended trainees of the film workforce are located in Dhaka (Capital City of Bangladesh), they are privileged to have access to asynchronous online courses. As an asynchronous mode allows geographical disparity, but demands a real-time presence with the facilitator to attend the live online class, through a computer with standard internet access and a headset, therefore it may not be suitable for them as they may have other career involvement. However, although asynchronous mode could be suitable for knowledge learning, it may not be suitable for technology learning. Technology learning requires hands-on tutoring, which might not be possible to achieve through e-learning. A combination of both e-earning and face-to-face learning environment might therefore be helpful in this regard.

This combined learning environment not only saves money and time but also creates an eco-friendly training environment, where there will be less carbon emissions due to the online mode of training. Since 1980, NIMC has never offered any training courses to develop environmental awareness about product waste, energy waste and carbon and chemical pollution caused by the film industry. These environmental issues need to be addressed as well.

5.5.6 Legislative Factors:

NIMC is currently administrated by bureaucrats. Thus very few of them are really able to contribute to the Institute as a faculty. Therefore, NIMC mostly depends on the academics of the universities and professionals of various media industries. NIMC's dependence on external resources sometimes creates problems in maintaining and running the institute to the desired plan and schedule. A number of ways have been suggested by respondents to eradicate the problem. One of the respondents suggested that, as a national institute, it should undergo legislative reform to become an autonomous organisation. He argued that this would allow the organisation to act more freely from government constraints. (*NN*, Dhaka, 2008) Interestingly, his colleague did not see autonomy as a solution to get rid of the problem. She claimed:

MSA: Do you think that if that if NIMC becomes an autonomous body, it would help the organisation?

AAH: I don't think that NIMC needs to become an autonomous body. NIMC needs to change its qualitative standard. NIMC should be freed from the control of the Ministries.

MSA: How could that be possible?

AAH: In reality, we need more freedom so that we can run our organisation according to our plans. Nowadays, we are totally dependent on the government. This needs to change. If NIMC becomes an autonomous or privatised organisation, we will eventually lose our positions to run this organisation. (AAH, Dhaka, 2008)

It is indeed obvious that having autonomy or privatised status would transform NIMC's organisational culture and create an impact on the existing workforce. Therefore, a further study is needed to discover what sort of changes would really help NIMC to work as an effective organisation.

Apart from effective legislative decisions for structural changes of NIMC, there are more decisions that also need to be addressed for developing an effective national training policy. An effective national training policy would eventually help to grow a homogeneous workforce to serve nationally. Introducing multi-stage vocational training would ultimately keep up the motivational factor within the workforce. Hence, the workforce would have the opportunity to update their knowledge and skill in accordance with the new technological development and would have grounds to prepare for a better future as bright as 4k resolution or more.

5.6 Film Education and Training for Workforce Development

The above outline of Media Education and Training Scenarios in Bangladesh clearly indicates that among the media, the film medium has some serious problems in regard to workforce development. In particular, the problems of film education and training are more distinct than those evident in the other media.

The challenges of effective film education are broadly related to self motivation organisational and PESTEL factors. Self-motivation and development, as well as an organisational orientation which realises the importance of training for film workforce are the two important factors. As a national organisation, NIMC's 4% contribution in film training needs to be reconsidered. Moreover, the lack of political and economic support has narrowed the opportunity of the film workforce to have training for their professional development. Hence, economic constraints are also affecting new recruits' opportunities to receive training and to become members of the film workforce. If a workforce is created effectively, each individual will be better prepared to accept new and forthcoming challenges.

The social scenario of film education is greatly hampered owing to limited opportunities in film education in Bangladesh. The contributions of the universities clearly indicate that, in a public set up, Jahangirnagar University is partially providing support to expand film education. In Bangladesh there is still no public university prepared to teach fully-fledged programmes on film education. Even in the private educational sector, only Stamford University of Bangladesh is currently offering Graduate and Post-graduate programmes in film education. It is evident that the input of the above-mentioned two universities is not adequate for developing film education.

Since the partial integration of DT in BFDC in 2006, the creative workforce of the film industry shows signs of starting to use the new media. The Editing Crews are now especially learning to operate the Non-Linear Editing suites. Some of this editing crew learnt to work with the Non-Linear Editing system at a very early stage, from the Chief Editor under his direct supervision, whereas the rest of the crew gradually anticipated this new technology.[xxx] A number of Film Directors have already tried to make their films by using digital cameras and digital editing.

With the advent of DT, some of the Booking Agents have already changed their profession. Instead of remaining in the previous trade, some of the Booking Agents have become employees in a Digital Movie Distribution company. The company is now trying to convert the traditional Cinemas into digital Cinema halls. Not only the existing film workforce, but also a number of new workers, is being prepared as a digital workforce.

5.7 Summary

This chapter has elaborated on the BFI workforce and listed a brief profile of the Pre-production, Production, Post-production, and Distribution and Exhibition workforce individually. This chapter has also highlighted the self-efficacy, absorptive capacity and PESTEL scenarios in great detail in order to understand the individual and organisation level micro scenarios and macro scenarios of training and media education. A series of problems on film education and training, which can be obstacles to developing the film workforce, have also been discussed. Problems, including reasons of individual incapability of the trainees, lack of trainers, expensive and time-consuming nature of training were mainly emphasised. In overcoming the hurdles, a number of recommendations were also discussed. Privatisation of BFDC and NIMC, ensuring autonomous status for NIMC, bridging the gaps

between the universities and schools and colleges, standardisation of training and introducing media courses at school, college and vocational levels were hence discussed.

Chapter 6: Film Production and Possible Digital Integration

6.1 Context

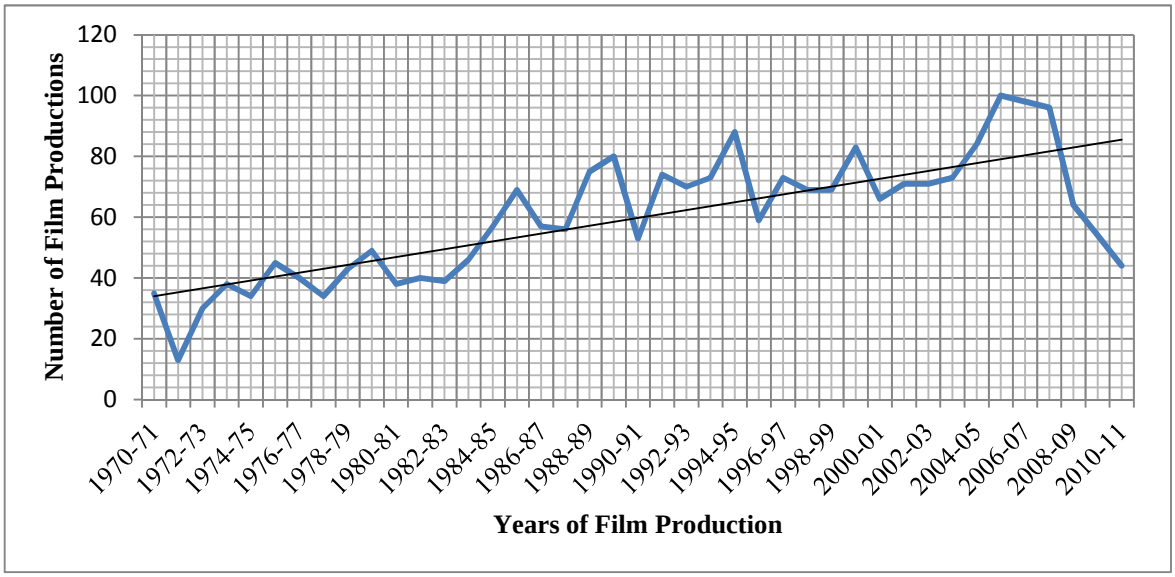
Globally, in the last few years, there has been a strong desire within the film industry to produce movies by using DT (Korris & Macedonia 2002) and the recent development of computer software and hardware has made it possible to create a full-length feature film exclusively through DT. Most filmmakers and entrepreneurs from MEDCs are usually well-informed about everyday developments in the digital film-making technology (Ohanian & Phillips 2000; Herold 2003; Culkin 2008). However, filmmakers and entrepreneurs from LEDCs usually have less access to the latest updates (Burkett 2000). For example, amongst film professionals in Bangladesh, the notion of making a film entirely in the digital domain has been assumed to be more wishful thinking than a feasible reality.

This chapter will therefore examine various approaches that could be undertaken to implement DT in the film production process in Bangladesh. It will focus especially on the three stages of production (pre-production, production and post-production) and their functions, and look at possible interventions that are crucial to implement the necessary technology. In addition to the film professional's attitude, it is also vital to consider the opinions and activities of the private and public agencies operating in complex political, economic, social, technological, environmental and legislative systems. Through the use of the PESTEL model, this chapter will finally examine existing opinions and formulate a strategic approach to understand the integration process.

6.2 Political Factors: Impacts upon the Production Workforce

In an earlier discussion (in chapter 4), the impact of political factors on the BFDC management was addressed. While considering technology integration for quality development and attaining a competitive advantage, it is crucial to consider whether the political factors have affected or will affect the production performance of the BFDC workforce.

Diagram 13: Political Impacts upon the Film Productivity



Over the past four decades, the data on film production capacity has clearly indicated that, during any political crisis in the country, there was a sharp decline in the production rate of the industry. The first instance was seen between the fiscal year of July 1971 to June 1972. Almost half of the financial year, the country was at war with Pakistan. During the war, film production fell to its lowest level. Only 13 films were produced, which was 63% lower than the previous year's productions. The second notable instance is in the fiscal year, 1981-82, when in March, 1982, martial law was introduced and all democratic rights were suspended. Certainly at the beginning of the dictatorial rule, this political catastrophe hindered film production and decreased the growth rate. Another collapse (33.50% decreases on the previous year) of film production capacity was seen during 1990-91 when widespread public protest forced the military government to resign their power for democracy.

The figures shown in the data table not only provide a picture of decline in production capacity due to the political crisis, but also offer an accurate impression of the growth of productivity during stable political situations. For instance, in 1994-95, the industry produced 88 films. This was notably the highest number of film production between the years 1971-2004. However, in the years of 2005-2006, this record has been broken with the production of 100 films. During the years of 1991-1996, 1996-2001, 2001-2006, because the country was under the democratic governments, which consisted of political stability, a steady trend was seen in the growth of film production.

The aforementioned longer historical trend consistently demonstrates that there is a profound impact of political factors upon film productivity of Bangladesh. A growing part of scholarly literature (for example: Kumar & Crook 1997; Xu 2000) on technology integration asserts that new technology has a positive correlation with cost reduction and increase in revenue and productivity. Whether the productivity and revenue of the BFDC will be enhanced if they are able to fully integrate DT has not yet been identified. Although it has been found in an earlier analysis (in chapter 4) that the production cost of digital film would be less than the 35mm celluloid film, a broader study is required to make this argument in a general context. It is interesting to note that there is a positive correlation between political stability and production growth.

Table 5: BFDC's Productivity Growth and Cost Reduction in a Politically Stable Condition

Years	Quantity	Total Cost		Net Cost per Film		Total Revenue		Net Revenue Per Film	
		BDT	GBP	BDT	GBP	BDT	GBP	BDT	GBP
2000-01	66	258090000	2236569	3910455	33887.41	261005000	2261829.97	44167	382.74
2001-02	71	280632000	2431914.6	3952563	34252.315	284268000	2463423.62	51211	443.79
2002-03	71	267603000	2319007.2	3769056	32662.07	271218000	2350334.29	50915	441.22
2003-04	73	301673000	2614252.7	4132507	35811.682	307761000	2667010.41	83397	722.71
2004-05	84	283726000	2458726.7	3377690	29270.55	285549000	2474524.57	21702	188.07

Table 5 clearly indicates that political stability in Bangladesh has a large impact upon the enhancement of film productivity. The table shows that, in a period of five years, the total output of the film industry increased by 27%. Although this table does not show any positive correlation between productivity growth and cost of production, an indication of maximum revenue revealed that the BFDC secured the maximum revenue when producing 73 films. Within the scope of this study, as it was not possible to adapt a rigorous economic analysis to confirm the optimal growth in production, a simple arithmetic calculation was considered adequate to determine the maximum possible output achievable by using DT in the BFDC.

In Bangladesh, the government annually allows 52 days of holiday for the public. An extra 14 days are also provided which include religious observances and others.[xxxi] Therefore, as a

year provides 365 days, 365-(52+14) = 299 working days remains in Bangladesh. Currently, the industry has 19 mechanical cameras capable of shooting on 35mm celluloid. As the 19 cameras within the BFDC are not fully operational due to technical faults the numbers of productions therefore decrease. If the new DT replaces all the 19 mechanical cameras with digital cameras and all the cameras are used in film production for two shifts in a day, the teams would be able to shoot 38 shifts a day. If the production teams work to their utmost ability every day, at the end of the year, this could lead to 11362 shifts. If the average digital film needs 40 shifts filming hours to complete a film shooting, then the industry's maximum level of production could reach up to 284 films in a year. An average of 60 celluloid films per year has been created in the last 41 years in Bangladesh. This apparently proves that if the BFDC workforce engages themselves in a double-shift digital shooting pattern for a whole year, then they might achieve a 373% growth over their current average.

In reality, achieving such a tremendous production growth might not be possible for several reasons. For example, Bin Xu (2000, p 491) has identified that 'a much higher human capital threshold is required for LEDCs to benefit from the technology transfer of MNEs (multi-national enterprises). To enjoy the benefits of any new technology, not only is skilled manpower required to support productivity growth, but a wider audience and a related increase in their appetite for digital movies are also crucial. An increase in the scale of film production mostly depends on those latter elements since they constitute market size and also stimulate production variety. A stable political scenario enhances a situation where film audiences find it comfortable to watch their chosen movies.

6.3 Economic Factors: Prospects of HDTV in the Film Economy

The success of a new technology generally depends on the commercial viability of that technology. This viability from the point of the BFI can be seen from 3 perspectives: the consent of the BFDC bearing the expenses of the new technology integration, the consent of the producers to invest money using the new technology and, finally, the economic dynamics of the impacts of the new technology on the workforce's income. The following section of this chapter will discuss the economic factors.

Currently, there still isn't any set-up for digital shooting within the industry. A digital shooting set-up requires a considerable amount of government investment. Such a large investment requires the understanding of the government themselves on whether this

investment is worth the effort. Something is only worthwhile when it promises a competitive advantage. Therefore, in order to make this a worthwhile choice, the necessity of a superior technology, which is in competition with other technology, is needed.

It is evident that, even with few limitations (such as data storage and battery life are limited) HD technology is becoming popular as a superior technology throughout the world due to its cost-effective features. Taking the Bangladesh scenario into consideration, the comprehensive benefits of this technology can be assessed. On an average, Bangladeshi filmmakers usually buy 50,000 feet of raw footage to complete their shooting. The recent cost of 400 feet of celluloid is ৳16,700 (£144.72) in the BFDC; therefore at least ৳2,087,500 (£18,090.04) will be needed to buy the 50,000 feet footage for shooting. In contrast, shooting the same movie in a HD format would eventually only cost ৳28,571 (£247.59).[xxxii] Interestingly, this reveals the fact that using HD technology would eventually save 98.63% of its expenses for stock during the production phase. On average, Bangladesh is currently producing 60 movies a year. As a result, it can be estimated that using HD technology would save the country a total of ৳125,250,000 (£1,085,402.31) in a year.

A recent price quoted for 24P HD Cam indicates that the replacement of BFDC's 19 traditional 35mm cameras would cost ৳113,126,015 (£980337.23)[xxxiii], which means that if the government decided to invest 90.32 % of the BFDC's footage selling price (of 60 films), they would be able to replace all the existing mechanical cameras with 24P HD Cams and achieve digital shooting capacity. For example, if the BFDC decide to discontinue its imports of raw materials required for 35mm celluloid film production after June 2012, they could use the budget previously allocated for the purchase of those raw materials for the acquisition of HDTV cameras and tapes in early weeks of July 2012. This decision would eventually free the BFDC from selling picture negatives, sound negatives and positives on a credit basis and realising their previous loans to film producers.

On the contrary, the new 24P HD technology would help to create new boundaries for film producers. Specifically, the budget conscious producers would benefit from this technology as they would be able to produce their film with less investment than before. As this is not yet a reality, no forecast is available to predict the scenario of the producers' participation in the proposed technology. Although it is not yet clear how the producers will financially respond in producing film through new technology, a number of respondents confirmed from

their experience that existing producers would welcome any new entrepreneurs in investing the new technology. One of the respondents argued that:

I can say without any hesitation, that until now many new businessmen/their investments were received with pleasure. Otherwise, it might not have been possible to accumulate significant investments and produce many films. Therefore, I don't see any threat of entering the new businessmen into the film business. (AAU, Dhaka, 2008)

Although this response suggests that existing producers of the BFI may not block the investment paths for new entrepreneurs, it is not yet obvious how the existing producers will interact when the new technology becomes operational. Another respondent anticipated a mixed outcome of this situation:

I think out of the 100 producers, 50 of them will go for HDTV and 50 of them will invest in making films using the 35 mm. (AAE, Case Study 1, 35mm Celluloid Film, Member of all the Units, Dhaka, 2008)

The above respondent did not elaborate on why 50% of the film producers would still prefer to use the old technology. However, respondent *AAL* has already discussed (in chapter 4) the issue of a false economy as opposed to producers taking credit facilities from the BFDC. Because of these credit facilities, a producer can make a film with very little investment; thus reusing this credit facility over and over again to produce more films. This could ultimately entice such producers to carry on with such customs and avoid what the new technology has to offer.

In the case of film financing, piracy is identified as the biggest challenge by a lot of people. In a report published in 2009, the International Intellectual Property Alliance (IIPA) has expressed their concern about the commercial damage caused by piracy[xxxiv]. One of the respondents claimed that eradication of piracy can attract foreign financing in the film business:

The USA, Canada and UK embassy lobbying group are currently trying to pressurise the issue of amending the copyright law on Bangladesh with preventive measures and penalties. If we could minimise the piracy to an acceptable level and create a conducive environment in Bangladesh, I think we would receive a lot of film financing from foreign countries. (AAG, Ex Executive, Star Cineplex, Dhaka, 2009)

Like the business software, books, records and music industries, the film industry of Bangladesh is not fully free from the piracy problem. In practice, a number of producers are involved in raising money for producing plagiarised movies. Therefore, the acts of producing

plagiarised movies create an enormous impact on the economic dynamics of the workforce associated with that film. A recently-published report in the daily newspaper reveals the fact as follows:

Those who are writing stories for the film are actually supplying the order of the Producers. A Screenwriter who does not want to disclose his identity has confirmed, 'Whatever the Producers dictate us to do; we usually do so; and if I don't want to, somebody else will carry out this job. Therefore, for the sake of the earnings and avoiding joblessness, we act according to the producer's demand.' (Daily Manob Zamin[xxxv])

It was evident from the field observation that not only the Screenwriters, but also other members of the production, distribution and exhibition units of the workforce are becoming involved in the plagiarised filmmaking only for economic purposes. As the income pattern of the workforce is greatly dependent on the number of productions they work on each year, it is vital to know their earning patterns in understanding the current dynamics of the film economy within the BFI workforce.

Table 6: Income/Investment Pattern within the BFI Workforce

No.	Groups of the BFI Workforce	Minimum and Maximum Income or Finance for Each Production			
		Minimum		Maximum	
		BDT (৳)	GBP (£)	BDT (৳)	GBP (£)
1	Producer	2,000,000.00	17,331.77	7,000,000.00	60,661.21
2	Screenwriter	40,000.00	346.64	60,000.00	519.95
3	Actors	5,000.00	43.33	3,000,000.00	25,997.66
4	Fighters	4,500.00	39.00	6,000.00	52.00
5	Extras	3,000.00	26.00	4,500.00	39.00
6	Makeup Artist	30,000.00	259.98	50,000.00	433.29
7	Costume Designer/ Dress Man	30,000.00	259.98	35,000.00	303.31
8	Director	300,000.00	2,599.77	700,000.00	6066.12
9	Dance Director	50,000.00	433.29	60,000.00	519.95

10	Assistant Director	20,000.00	173.32	33,000.00	285.97
11	Cameraman	40,000.00	346.64	150,000.00	1,299.88
12	Assistant Cameraman	10,000.00	86.66	12,000.00	103.99
13	Still Photographers	55,000.00	476.62	60,000.00	519.95
14	Production Manager	40,000.00	346.64	50,000.00	433.29
15	Production Boys	9,000.00	77.99	12,000.00	103.99
16	Editor	50,000.00	433.29	60,000.00	519.95
17	Assistant Editors	25,000.00	216.65	30,000.00	259.98
18	Sound & Dubbing Crew	12,000.00	103.99	15,000.00	129.99
19	Laboratory Crew	5,000.00	43.33	15,000.00	129.99
20	Distribution Manager	25,000.00	216.65	40,000.00	346.64
21	Booking Agent	10,000.00	86.66	187,500.00	1,624.85
22	Projector Operators	5,000.00	43.33	6,000.00	52.00
23	Cinema Hall Staffs*[xxxvi]	3,000.00	26.00	5,000.00	43.33
24	BFDC & BFCB Officials*	3,000.00	26.00	40,000.00	346.64
25	Cinema Hall Managers*	15,000.00	129.99	25,000.00	216.65
26	Exhibitors	5,000.00	43.33	150,000.00	1299.88

The above table shows that the minimal-level income (৳36,000/£311.97) for some groups of the BFI workforce is very low in comparison to other groups. According to the Bangladesh Bureau of Statistics, the average 2005-06 income of a worker in the manufacturing industries was ৳44,520[xxxvii] which indicates that the current minimal-wage level BFI worker is being paid less than a worker in the manufacturing industry 6-7 years ago. Perhaps this factor incites the workforce to take part in as many productions as possible - regardless of it being plagiarised or original. Research indicates that some members only manage to secure one production in the whole year which thus pressurises them to quit their job merely because of the economic constraints. For example, according to the member's list published in 2009,

there were 322 enlisted Film Directors in BFI. However, 92 of them have changed their profession due to lack of job scope which proves the extent of the economic severity present within the BFI.

Keeping all of this in mind, producers are still continuing to plagiarise films which prove to be commercially successful in neighbouring countries (like India and Pakistan), in the hope that the Bangladeshi audience will enjoy the film - thus ensuring excellent economic return for the producers. Such a scenario becomes even more complex when the BFCB decides to ban some of these plagiarised films. However, above and beyond the interventions of the Bangladesh Film Producers Association, the BFCB committee members are also aware that the bans on plagiarised films could seriously hamper the film economy of the country. As the BFDC offers credit support for producing films, they are also concerned about refusals. Generally, producers seek to be excused from paying their debts to BFDC if the BFCB bans the release of their films.

Whether these complexities will clear up in the presence of DT integration has not been discussed within the industry. Currently, some TV channels (Channel I, ATN Bangla, and ETV) have proceeded in film financing and some of them have used HDTV to produce their films (*Rokkha*, 2008; HDTV Format Film; Produced by Channel I). Therefore, if these TV channels carry on in this manner, and other film entrepreneurs come forth because of the low budget, perhaps film production will become more dynamic in the digital era. The results of this research reveal that most film producers are not aware of the nature of benefits that DT can contribute. Producers are not conscious of the innovative operational processes, trading relationships, informational and strategic benefits that DT can add.

6.4 Social Factors: Overcoming Challenges of the Social Problems

The concerns of the political and economical factors on the film workforce have already been addressed. It is now crucial to consider the impacts of those factors which are affecting the social aspects of the film workforce. Without knowing the current social issues such as plagiarism, financial malpractice, bureaucracy, and aging problems prevailing within the film workforce, no integration can be successful. A fruitful integration of the new technology requires an understanding of the current social problems and an ability to overcome those limitations.

A deep social crisis which the industry workforce is currently facing is the degradation of moral ethics caused by plagiarism. The severity of this social problem can be realised through the individual response of the senior crew member of the industry:

If you talk about the contemporary period, I will say we are passing a bad time. Currently there is no aesthetic judgment palpable. The reason for that is because the product is not my own child; therefore I am not interested to take care of it. I mean the story is not mine. If the story was my child, my creation, then perhaps I could bring her up. Now we are stealing the story, the child is matured enough so we do not have any chance of taking care of the child. (GG, Bangladesh Cinematographers Association, BFDC, Dhaka, 2008)

The industry's creativity is now gradually metamorphosing into developing adaptive qualities to copy the original. When the innovative workforce stands between creativity and un-creativeness, this dilemma severely affects the professional ethics and social relationship among the film workforce. The practice of plagiarism by some of the members of the private workforce thus creates a negative impact on the public workforce of the BFDC. It appears that the public workforce of the BFDC becomes reluctant to offer quality service to the members of the private workforce. As *GG* convincingly described:

GG: The administration likes to keep their distance with us (the service users). They deliberately want to keep their distance.

MSA: Why?

GG: Money. It's all because of money. When we brought this camera, the administration said that they wanted to bring Chinese cameras but the technical committee said no. We wanted the German made cameras. However, because I was in the technical committee, the argument happened and we were finally able to bring the German made cameras. Recently, they've abandoned that technical committee because they say that it causes them problems. That's our main dilemma because the administration says that they are importing German made cameras but in reality, they are actually importing Chinese ones. The most interesting thing is that after all this malpractices happening in Bangladesh, various investigations are taking place; but nothing is happening to BFDC. You can cause as many corruptions as you like; the government will keep engulfing it. (GG, Dhaka, 2008)

Although *GG*s opinion indicated financial malpractices happening in the course of camera procurement, the other procurement activities still need to be explored before making a general claim about the malpractice. It is important to note here that the abovementioned opinion highlights the outlook of the private workforce of the industry, and gives an understanding of how the social factors can act insidiously in a film industry.

In order to understand the procurement process of the BFDC, it is crucial to identify the bureaucratic administrative culture of the BFDC. As the BFDC is a state-controlled organisation, none of its employees can be seen to be involved in the process of assisting any film producers to achieve their production services requirements. The BFDC management has explained the potential causes of their limitations:

As a state owned organisation, we have to follow the PPR (Public Procurement Regulation 2008). Therefore we cannot build up personal networks with our customers for effective management. As we have to rigidly follow the PPR, we cannot work independently. (PP, Government Official, BFDC, Dhaka, 2009)

The BFDC's rule-bound bureaucratic management appears to create uncertainties, lack of expectations and reliance within the filmmaking community on the public workforce. When an organisation cannot formulate any swift decisions in response to critical requirements to satisfy its users, this can create a high risk of uncertainty among the service users. For instance, in April 2009, I witnessed a serious scarcity of film raw materials (picture negatives, sound negatives and film positives) at the BFDC and asked the management to make a query about the issue. One of the high officials of the BFDC explained how the regulatory processes caused such a standstill situation within the industry:

In order to procure anything (raw material or equipments), we have to go through the tender process. For example, to procure film negatives or positives, we have to rely on the two local agents. If the local agents quote a tender price which is higher than the estimated price, then we cannot buy the raw materials. We have to refer back to the decision to reconsider by 'Estimating Committee'. (PP, Dhaka, 2009)

The occurrence of this kind of social uncertainty has deep and frustrating impacts upon the entire workforce as the production process stops and the private workforce becomes temporally jobless. Allowing production companies to import raw materials directly for film production could be a suitable alternative to overcome this problem. In practice, it is not permissible by the BFDC administration, as the bureaucratic management do not want to lose their control over the filmmakers.

The bureaucratic nature of BFDC is well understood by its 'top-down' management policy. Commanding and controlling features of 'top-down' management create numerous barriers between the BFDC managers and service users. The experience of the private workforce in receiving any service from the BFDC authority was not reported positively. It was revealed from the observation that when accessing each service, the service-user needs to follow a multi-step official procedure. Eventually, that demands much time and attention from the

service-user. Moreover, the overbearing management cannot always ensure transparency and accountability to its service users. How the deprivations of having a professional standard service from the bureaucratic management can critically affect the social dynamics of trust of the public workforce can be understood by the incident of a strike. In 2006, a general strike was called by the producers where all the members of the private workforce unanimously demanded immediate removal of the Managing Director of BFDC and its corrupt officers.[xxxviii]

The bureaucratic culture of any organisation not only generates adverse impacts on its service users, but it also produces detrimental impacts on its own employees' vocation. In reality, the top-down custom of bureaucratic management of the BFDC seems to be failing to monitor the actions of their commands and recognise the reasons behind the implementation gaps. In fact, the subordinate line managers need to report the day-to-day problems to their superiors, but in practice they do not act accordingly. Therefore, no information about the problems can reach up to the higher management from its bottom-level employees. Such a cultural practice is preventing the bottom-level employees from serving their organisation in a better way. Moreover, no instance was observed where BFDC employees had regularly enjoyed promotion, training or any incentives as a reward for loyal service. Therefore such cultural practices have created negative social impacts within the vocationally-dedicated public workforce of the BFDC.

Recent field studies have shown another social problem that the management is ignoring. As the BFDC is more than 50 years old, a significant number of its workforce, who joined at a young age, are now old enough to retire from their jobs. The typical practice of the BFDC is that no-one can usually start their career directly as an operational crew. Anyone who wants to pursue their career in becoming a PM, Cameraman, Editor or Director, generally starts their profession as an Assistant in their chosen field. After a decade or so, when they become experienced enough to be an operational crew member, they can perform their job independently. Therefore, initial judgment proves that most of the senior members of the workforce working in the BFDC are much older than the rest of members of the industry. The ability, priority and values of that elderly community are not in favour of any dynamic change of the workforce. One of the respondents has also identified the problem of aging and spoken of it as a social problem which is hampering the workforce development:

The reason for this is quite simple. No one tries to think outside the periphery or try something new as they see it as taking a risk to learn something new at this old age. (AAC, Bangladesh Film Production Manager Association, BFDC, Dhaka, 2009)

The analysis above suggested that these social problems are certainly hampering the social equilibrium of the film workforce in Bangladesh. One obvious question that arises from the above analysis is how these problems can be solved. It would unwise to expect that the problems like plagiarism or corruption will decrease immediately in the BFDC, but some preventive actions can lessen the severity. The fact is, unless concerted action is taken to enhance development and to reform national factors such as political, economical, social issues in an appropriate way, it will be difficult to curtail those issues.

How concerted action can help to minimise political adversity can be understood by examining the BFDC context. Geographically, even though the BFDC is based in Dhaka, it consists of a boundary and a gate thus making it a very secure workplace, even in the case of a political strike (*hartal*). Typically, a *hartal* in Bangladesh mainly occurs due to the strike action of opposition political parties protesting against any government anomaly.[xxxix] Refusing to comply with the *hartal* owing to any practical urgency can seriously put lives under threat of political violence. In such a politically-hampered situation, it takes great ingenuity, care and skill to complete the shooting schedule as planned. The practical scenario is narrated by a crew of the production team.

On the day of hartal we eagerly try to work somehow. If we have outdoor shooting and we are unable to go there then as an alternative, we try to manage BFDC and strive to fix up set properties within the indoor studio for shooting. Generally we use ambulance as a means of transportation for the respective artists. We need to also manage the BFDC community during the shooting within hartal. (LL, Case Study 1, Digital Film, Production Unit, Dhaka, 2009)

The above respondent clearly illustrates that it is still difficult to get an organised consensus to complete planned production schedules during *hartals*. The BFDC workforce itself is divided by their political opinions which are sometimes put into action during the times of *hartals*. However, if the workforce could desist from mixing political and professional interests and place emphasis on the professional execution of their duties, perhaps the BFDC would become a more cooperative workplace. Agreeing to concentrate on the work within the BFDC complex, regardless of what is happening beyond the boundaries of the BFDC, the industry can strive to attain a better standard and resolve this social problem.

A radical social change in the bureaucratic structure of the BFDC can mitigate another social problem and elevate the existing filmmaking to a new height. According to conventional practice of bureaucratic culture, it is quite challenging on the part of the public workforce of the BFDC to facilitate a working environment with improved efficiency and skills. Therefore a number of respondents in and outside BFDC have suggested that privatisation of the BFDC may eventually be helpful in developing a new working environment. One of the respondents has argued for immediate privatisation of this establishment.

I think that BFDC should have been privatised before the independence of our country. As it is under the government sector, we have a tendency to become dependent on the government. (CC, Dhaka, 2009)

Another respondent does not see privatisation as the solution, but he has recommended that BFDC should be free from the existing bureaucratic system. As BFDC is a corporate type establishment, he suggested that a pool of dedicated government officers with permanent attachment to this organisation could help the management to be more effective. (*PP*, Dhaka, 2009)

This opinion was supported by another respondent. He specifically mentioned developing a separate service pool with job specifications, which would sooner or later help the BFDC service standard to be developed. He even proposed a reform within the private workforce. For example, he argued that the industry should shed 70% of its existing film directors, as typically they have no proper theoretical or technical knowledge in filmmaking. In addition, he also recommended a new service rule to the government for further appointments and promotions of the public workforce of the BFDC.

We have asked the government to introduce an independent service pool with job specifications for the BFDC workforce only. Currently 75% of the posts are being occupied by the internal candidates whereas the rest of the 25% are being recruited externally. We are now thinking of promoting the internal staff up to two phases on the basis of their experience but we would surely like to ensure the relevant qualification of the candidates for the 3rd phase. We are now requesting the government to offer more entry level jobs to the qualified personnel. (PP, Dhaka, 2009)

It is important to note that the recommendation of the above respondent would certainly bring some changes, but the negative impacts (if any) of recruiting all the new workforce should be considered as well. As the effects that will take place if DT is integrated have already been discussed, it is crucial to understand the micro-level readiness of the workforce which will be

required for working under the new technology. The following part will therefore identify the technological requirements of the workforce for the digital environment.

6.5 Technological Factors: Building up Capacity and Capability

In order to consider the readiness of the BFDC workforce for prospective DT, it is vital to be aware of the current technical capacity of the BFDC and technological capability of its workforce.

During the study, it was observed that the BFDC has some limitations in terms of their technical capacity to provide a filmmaking service. For instance, BFDC has 19 cameras in service for production, but, not all of them are fully compatible for shooting for all purposes. Most of the Cinematographers prefer to work with the three newest model C4 Arriflex cameras. C3 types of cameras generally have less preference as they are an older version than the C4's. Logically, it would be expected that there will be less willingness amongst the Cinematographers to work with the more inferior models like C2's or Chinese-made cameras. The poor technical quality of the BFDC camera was also reported in a national daily as follows:

The directors have complaints about the lenses of the cameras too. 'Most of the lenses do not fit for shooting', Bangladesh Film Directors' Association secretary, Shah Alam Kiron told New Age, 'After waiting so long to get the schedule for good cameras, all we get is the blurred print. Filmmaking is a visual media, so when we compromise with the cinematography, we have nothing left of the art.' (The New Age Newspaper) [xl]

Not only do the low-grade cameras impair the quality of the work, but also the substandard chemicals that are used to process and print the film also reduce the quality of the filming. The point being discussed here is explained in more detail by a Senior Cinematographer, in response to one of my questions regarding quality of film production.

MSA: How do you define the quality of the Bangladesh cinematography standard compared to all the other SAARC (South Asian Association for Regional Corporation) integrated countries?

GG: Our standard is bad. We are unable to become modern because our laboratories are unable to become modern. The labs of Bangladesh are never proving to be of good quality. Neither in the black and white era, nor in colour era! Everywhere around the world, a chemical called KIT is being used. I've personally been trying for 10 years myself and I haven't been able to manage the authority to import and use this KIT chemical for film processing.

MSA: What sort of chemicals do they use here?

GG: They use local chemicals. Due to the lab, the cameraman isn't even able to understand what he's doing right or what he's doing wrong. I don't know which one I exposed correctly or which one I exposed incorrectly. The one that I think would have a bad filming turns out to be good but the one that I think will have good filming turns out bad. This is because of both chemicals and negligence of the lab workers. (GG, Dhaka, 2008)

One of the respondents working in the lab denied the blame and asserted this as a lab problem. In accordance to the international standard, the footage of every day's shooting is usually needed to be sent to the lab for a rush print on the same day. This practice is not common in Bangladesh. Where the footage is actually meant to be sent to the lab every day, lab crew *AAO* sees this as the issue to blame in order to avoid his responsibility. *AAO*'s experiences claimed that most of the production units do not send the entire footage for development in to the laboratory in one batch. He also claimed that most filmmakers sent their footage on different days. In his opinion, the quality therefore fluctuates due to the day-by-day processing deflexion and chemical variation. *AAO* explained some more reasons for the quality degradation:

It is practically not possible to provide a standard service from a government organisation. For instance, due to the bureaucratic nature, we always have to procure any chemicals from the lowest bidder, which means poorer in quality than the brand chemicals. Not only chemicals, but some daily delicate parts like spiral brushes, wiper blades, soft touch tiers are also often in need of changing. In reality, if 1,000 pieces of parts is needed, we try to manage this need within 200-300 pieces. Hence we are offering the cheapest service in the Asian region. (AAO, Government Official, BFDC, Dhaka, 2008)

However, alongside the imperfect technical capacities such as camera and lab materials, the traditional working capacity of the BFDC management and its drawbacks also need to be taken into account. Most of the administrative services in BFDC are still following the traditional paper-based communication method. Due to the political commitment of the current government to develop a digital Bangladesh, much has been said recently about the urgency of developing customised software for the BFDC. Therefore, in 2009, the BFDC developed customised software for building up a better capacity in office management. Although the urgency of introducing a customised software development was mostly aimed to achieve political privilege and thus to please the political government, serving the filmmakers was not prioritised. As a result, the requirements for the software were not determined accordingly by the BFDC and the software was not able to attain the standard. One of the respondents has confirmed the problem of the customised software:

The customised software worth ৳2,000,000 to ৳2,200,000 (£17,331.77 to £19,064.95) is not functioning. Recently an administrative order has been served to take initiative to make the software functional. (PP, Dhaka, 2009)

The potentiality of a customised software is huge. For instance, instead of using a paper-based request form for hiring any equipment or booking the studios, the service users could download and submit their requirements electronically in advance. This would help the BFDC management to provide services for its users more dynamically. Moreover, any specially-designed software could help the members of the production management team of filmmakers to calculate the total cost of various services for their film. Therefore, it could help the service users to have an idea of the budget for their proposed film. Paying the money through a debit or credit card would also eventually facilitate transparency and accountability within the BFDC and its users.

Operational functionality of any software usually relies on several criteria such as project management plans, quality assurance plans, configuration management plans and verification and validation plans. Any failure to identify the plans correctly or to realise the plans properly can invalidate the software. Moreover, a conservative organisational culture can seriously hamper the design process of the customised software. Leif et.al. (1994) have emphasised the following problems:

The major problems in implementing the process are often political rather than technical. Upper management is often afraid to commit the organization in writing to explicit procedures, because that would mean they would be required to follow. (Leif et.al. 1994, p 71)

During the design phase, the kind of support that was required to make this software operationally effective was not given by the BFDC management. Therefore, two possibilities can be noted as to why this support was not given. Firstly, there is Leif's explanation of the management being afraid to denote the organisational procedures clearly can be seen as one reason. Secondly, the incapability of the BFDC management to contribute to the design of the software can also be seen as another reason contributing to their failure to support the software design.

On the question of integrating the new technology, the managerial workforce's capability was not the only thing which hampered technology integration, but the private workforce's capability also played a part. It was evident through the fieldwork that a lot of the members of

the pre-production, production and post-production related private and public workforce were not at all ready for this DT integration.

6.5.1 Capability required within the Pre-Production Workforce

Within the pre-production workforce, the screenwriters' capability of using the new technology is vital. It is evident from the research that most of the professional screenwriters in the BFDC are not aware of the range of possibilities in using software for writing. As professional writers, they are acquainted with the fundamental knowledge and skills concerning dramaturgy and narration, but they do not know how to use the digital software's toolset to manage and create complex interactive storylines.

So the question seems to be whether the traditional screenwriters are given adequate training to operate the programmes that will help them to become a capable digital storyteller. Research interviews and observation together suggest that operating the digital software is not the only limitation, but there are some other constraints on understanding the core-knowledge behind the concept. While discussing with the scriptwriter of the digitally-produced film called *Priotomeshu*, the writer mentioned that he did not use any software during his scriptwriting:

I want to switch over into digital technology. I was looking for some film-writing software which is specially designed in Bangla (Bengali). I have tried a single screenwriting software programme written in English and I was not comfortable with handling it. I need a hand from someone who develops software. In fact, the film industry can take the initiative to develop a digital tool for film writing and to make it comprehensible to us. AAK, Case Study 2, Digital Film, Production Unit, Dhaka, 2008)

So the challenge is not only the technological part, but also the theoretical understanding and language as most of the software is programmed in English. It is true indeed that recently much work remains to be done for research (and commercial) implementations of digital story-writing programmes. In 2004, Irish scholars developed '*Textable Movie'*, which was open-ended software for digital storytelling.[xli] However, according to Vaucelle and Davenport (2004), *Textable Movie* software was designed and aimed only at teenagers. Therefore, *Textable Movie* did not fully qualify for professional use in a film industry.

Adaptive Digital Storytelling *(Adaptive DST)* was another software package developed in Austria on a Macromedia Director MX platform with an integral programming language called lingo. This application tool was initiated to create a balance between the increasing

level of interactivity and dramatic-narrative aspects of digital storytelling by using different adaptive parameters of linear and non-linear structures.[xlii] Another software *DraMachina* was developed by French companies in 2004. This XML (Extensible Mark-up Language) based tool was particularly aimed to support the interactive fiction movies.[xliii]

MIT (Massachusetts Institute of Technology) scholars (Williams et.al. 2005) in the USA contributed to support the digital integration in scriptwriting in a different way. They developed a very large database of story scripts on Java interface. This system has two basic functionalities. Firstly, it can guide the user to contribute their stories to the database. Secondly, it can help the prospective writers to gain experience from the collected realistic story scripts in their scriptwriting with feedback from the inference engine.[xliv]

As writing technologies change, they require changes in our understanding of writing scripts in the digital age. The above examples of digital writing tools indicate the potential of DT in screenwriting and also indicate that some of the possibilities are yet to be explored. For example, when developing logical inferences for the narrative structure of a story, it is not yet proven whether artificial intelligence (AI) or behaviour-based artificial intelligence (BBAI) is the appropriate approach (Brooks 1996). An effective relationship between the screenwriter and the software developer will be needed to find the right approach.

Arguably, it could be said that whilst the scholars of the MEDCs are still working on digital scriptwriting, some additional time will be needed in Bangladesh to master digital scriptwriting. A wide range of databases of previous film scripts can be the beginning of this digital integration. Furthermore, user-friendly software for the local screenwriters will also be required in Bangladesh.

For the producer and director, when a screenwriter completes their story, it is a decisive time in the pre-production stage to develop a pictorial representation of the text based script. From the early stages of film production, the hand-drawn storyboard was a very popular tool which was used for visually describing the script. Traditionally, film directors asked the sketchers or artists to sketch or draw appropriate visuals of the story narratives on a paper or cardboard to create storyboards. The features and potential of storyboarding in film production not only shape the pre-production stage, but also have long-standing effects in the entire production. Dony et.al. (2005) have described the aspects of storyboarding in film production:

Storyboards are drawn during preproduction then used throughout production and postproduction in tasks like set design, location lighting and image compositing. They provide for all participants a common reference to the 'vision' of the piece. Shorthand descriptions of all important visual components of each shot provide clear and accurate depictions of motion sequences in static form. These include specific methods of describing camera or subject movement through the use of various drawing techniques (Dony et.al. 2005, p 425).

Now some questions may be raised about the use of storyboard: Is it obligatory for the filmmakers to create a storyboard? There is no straightforward answer to this question. The complexity of mapping out such a storyboard is not an easy job. Therefore some of the filmmakers want to avoid the difficulties of creating storyboards which either need drawing or sketching. Rikke Omgreen (2006) has pointed out the complex nature of sketching:

The creation of such detailed sketches is always a complex and resource demanding task (time, adequate competences and insight into the system are needed) (Omgreen 2006, p 186).

For developing a pictorial representation of script-texts, a storyboard approach is particularly common in the pre-production phases of filmmaking in MEDCs. For example, in Bangladesh, repeated interviews reveal that the creation of storyboard is not regular practice. The interview with the Cameraman of *Rakhkhushi* (who spent 30 years in cinematography) reveals that in the pre-production stage there is a lackadaisical attitude which does not use storyboard during filmmaking in Bangladesh. Moreover, he explained the key causes of this kind of laid-back attitude in this regard:

Storyboarding was practised in the film industry before the liberation. At this time, only Suvash Datta (Film Director) created storyboards. In addition to him, a very few numbers of Directors like Matin Rahman and Azizur Rahman made storyboard for their production. Most of the Directors in BFDC do not use storyboard as they believe that their experience enables them to visualise the shots by heart. Therefore creating a storyboard is ultimately wasting their time. (AAD, Dhaka, 2008)

There are several interesting and significant observations that can be drawn from the interview. First, notice that use of storyboard in preproduction in Bangladesh is not worth mentioning. The reason for not creating a storyboard is that it takes a considerable amount of time and is therefore neglected. What was revealed further into the interview with the same respondent was that there is in fact no professional storyboarder in the BFDC. It is unclear, therefore, whether negative attitudes towards not using storyboarding arose from the overconfidence of the film directors or from their lack of perception in the preproduction stage. In the absence of compelling evidence, it remains a matter of controversy.

Additionally, it is also a matter of concern when there is no storyboard prevalent even in digital film production. For example, the digital movie *Priotomeshu* (2009) has no dynamic storyboard, nor does it even have any static storyboard. The data set of the case study 2 discloses that it needed 40 shifts of shooting to complete the digital movie. Typically in a standard production ratio, in an 8 hour long shift, a single camera setup should shoot 6 minutes of useable footage. Therefore, as a 150 minutes production, *Priotomeshu* should have limited its shooting within 25 shifts. In reality, they used 15 shifts above this number. Using a storyboard could help the director to save the time and money utilised for additional shifts. This may prove that in Bangladesh a general prejudice against storyboard is prevalent.

In order to work in a fully fledged manner towards DT, a new professional group will need to be developed. This new group would hopefully play a positive part in the digital storyboarding capability of Bangladesh.

With the integration of DT, the role of a PM has also changed. At the pre-production stage of filmmaking, when the film script is ready, it involves the PM developing a meticulous plan for the project. To convert the screenplay into a feasible film project, the PM needs to complete a number of planned setups before shooting occurs. Usually, the multi-tasking management jobs include script breakdown, cross-plotting, location hunting, scheduling and estimating the budget for the movie. Managing such a large-scale job requires skills to ensure quality and to complete the job within the specific time-frame. Such efforts are not always easy to attain for the small management team of the PM. The basic argument behind the approach is that creative people cannot be brought under full control of the PM and therefore uncertainties are expected. Currently, the MEDCs are using several software packages to avoid operational uncertainties. Schlamovitz (2007) has mentioned a software programme which contributes specifically to production management:

In "Movie magic" all relevant data on scene descriptions, cast, crew, props, equipment, locations, stunts, extras, special effects, animals, wardrobe etc. are entered in to a database, and used to conduct the script breakdown sheets and eventually the production schedule, call sheets, day-out-of-days reports, and the final budget of the movie (Schlamovitz 2007; p 7).

Certainly this professional standard is absent in the film production management in Bangladesh. Interestingly, in Bangladesh one cannot find any kind of job description for a PM. For example, typically the job of a PM begins with script breakdown. The script of a film primarily includes the temporal information of a scene like morning/noon/

afternoon/blink or night and spatial information like locations (generally outdoors) as well as settings (normally indoors) and other information such as number of characters, their actions, props and animals to support the action. The PM needs to break down all the information of the script accordingly. In reality, the chief assistant director performs this duty rather than the production manager in Bangladesh.

The capability of the production managers in Bangladesh is based on trustworthiness with regards to financial transactions rather than any craftsmanship responsibilities. Therefore, even the approved jobs of developing a meticulous shooting schedule or a call sheet for the artists are often done by the directors or by their assistants. More often than not, the PM's role is to arrange the things as per demand. For example, communicating with the artists and Crew, housing and arranging food for the artists and Crew, transporting them and their equipment to the locations and bringing them back to BFDC: these are the main operative duties of PMs in Bangladesh.

In practice, when the current PMs are not given the satisfactory operative information and knowledge, then the chance of error will increase. And more errors can therefore threaten the entire production process with risk and uncertainties for the filmmaking. To alleviate the problems of production management, Schlamovitz (2007) has this suggestion.

Only two obvious solutions are possible: increase the amount of information available or decrease the amount of information required. The greater the gap is, the more difficult it is to organize, plan and control the process, and a need for a more flexible approach arises (Schlamovitz 2007; p 12).

It could be assumed that this kind of strategy would be suitable for developing the production manager's job in the BFDC too. The cost and opportunity to access information and to conceptualise this information as understanding of knowledge and to act according to the knowledge to achieve experience is a complex process. Therefore blending the digital technological support for improving production management still needs to go through many stages like basic, intermediate and tertiary levels.

6.5.2 Capability required within the Production Workforce

During the last couple of years, practically everyone who has been considering using DT in the BFI has typically emphasised changing the post-production unit, rather than the production unit. Early ideas of integrating DT in the BFDC were based on an underlying assumption that producing a high-resolution digital film would be possible by converting the

35mm celluloid movies, through using a converter machine during the post-production phase. Therefore they imported a Telecine Machine for this purpose. However, not only had the BFDC management ignored the potentiality of making a digital film during the production stage, but also many members of the current workforce ignored the option of producing films through digital shooting. However, some professionals have found DT quite useful in film production. Conflicting views between the media professionals need to be considered carefully to explore how the technology can reframe the debate.

At the core of the debate, those who were in favour of shooting the film on celluloid and then converting that footage into digital format argued that as long as the public exhibition was not ready for digital film projection, there was no reason to change to digital production. One of the media professionals has clarified his viewpoint in favour of using DT in the post production phase:

What sort of changes do we need? We simply need to change the printing system. Previously we used to print out our films on celluloid now we have to print them out on a digital format. Apart from that the rest of the making process should remain the same. It would be really dangerous if we cannot understand this concept. We should not treat film productions to be the same as television programmes. (NN, Dhaka, 2008)

This perception widely exists within some members of the BFDC workforce who think that by using a digital camera in the production phase they will not be able to perform the technical requirements of a 35mm celluloid-based film production. Respondent *NN* has expressed his concern by indicating a limitation of digital camera in film production:

Television is a tape-based digital technology and film is celluloid-based technology. Films run 24 frames per second whereas Televisions always maintains 25 frames per second. Suppose if we (BFDC) use HDTV technology for shooting, then we need to have an option to go back to 24 frames per second. (NN, Dhaka, 2008)

Lack of information on recent technological advances in HDTV technology has created an incorrect perception among some members of the workforce about the compatibility of this technology. Paul Wheeler (2003) has described the capability of recent 24P HD Cameras in performing harmoniously as an alternative selection of 35 mm celluloid camera technology:

The enthusiasm for tape shots at a frame rate of 24 fps (frames per second) using a progressive scanning technique together with the HDCAM recording format has come about because, for the first time, with a tape-based recording system, it offers true worldwide compatibility. This has only previously been achieved

using 35mm film and then only since the early 1930s, when the world, which was already moving to a film width of 35mm, finally agreed to use the same perforation as well (Wheeler 2003, p 3).

It is evident that some of the Bangladeshi filmmakers were not informed about the competitive features of HDTV technology for shooting film. While producing the first HDTV technology-based movie called *Captain Maruf* (2007), the production team could not explore its features properly. The inferior technical quality of *Captain Maruf* has generated a negative perception about the potential of HD technology among some of the filmmakers in the BFDC.

The negative experiences about HD technology were revealed during the interview with the director of the movie. According to him, during the shooting period, instead of using the HDTV option, the team recorded the film in a standard digital video (DV) format.[xlv] Not knowing the potential of the HD technology, the film was recorded in DV mode, which exposed the movie with less than half of its expected standard. Moreover, the production team did not use the inbuilt cinematic picture ratio of 16:9 during their shooting. Switching to DV mode allowed them only to shoot in a ratio of 4:3. In order to convert the ratio manually they externally mounted the lens with black papers to have a cinematic ratio. Certainly this mounting technique also caused further resolution loss. Besides those problems, the team faced a more challenging situation to finalise the production. One of the respondents has denoted his experience with HD technology:

Converting the movie from digital to 35mm was a tough job for me. Transferring the movie into celluloid through Reverse Telecine could cost me ৳2,000,000 to ৳2,200,000 (£17,331.77 to £19,064.95). Therefore I projected the complete digital production by a video projector and re shot it on celluloid. I was really worried whether the Film Censor Board would issue me the censor certificate but, finally, they issued it. (OO, Dhaka, 2008)

The above factors showed the early and inappropriate ways of using a HD camera to produce a digital film. Recently, a number of independent filmmakers have embraced HD technology in Bangladesh for its benefits and costs. The most important benefit of using HD technology is that it can function as a complete film camera, in addition to its television/video applications. In conjunction with a film adaptor, the 24P HDTV camera can be used to accommodate the various types of fixed film lenses from narrow angle to wide angle. Eventually fitting this film adaptor allows filmmakers the freedom to interchange the lenses

to achieve varying angles of view, focus, and depth of field. The compatibility of this technology was confirmed by an HD Cam cinematographer:

When we use the film adapter (called cine ultra) with the HDTV, it works perfectly as a 35mm film camera. Therefore, we do not have to use the zoom option of this camera; instead, we decide to use the prime lens. Just as a 35 mm camera, we also have to use different lenses for different shot sizes. We need to have a focus puller to pull the focus ring as well. We even use the same filters and aperture standards like the 35mm cameras. (HH, Case Study 2, Digital Film, Member of the Production Unit, Dhaka, 2009)

Lighting for film is fundamentally different from any television or video production. It requires more illumination than any other broadcast standard television production. The speciality of film lighting can also be achieved by using HD technology. The cinematographer narrated his experience in this regard:

When I go for film lighting, I use more lights and tight aperture opening for it. I usually try to work in an aperture between 4 and 5.6 for indoor and 8 or 11 for outdoor shooting. In contrast, if I shoot for a TV production, during the blink I will open as much aperture as I can or even I will use gain option to expose the scene. For example, if I use 10 to 12kW (kilowatt) to light a room for a TV production, I will use at least 25kW to 30 kW to shoot the same room for producing film through HD technology. (HH, Dhaka, 2009)

In addition to the above advantages, the users of HD technology can also enjoy the technical advantage of recording location sound during the production phase. Technically, this system allows the filmmaker to avoid the hassle of a multi phase recording system of 35mm format; but it also creates problems such as picking up surface noise during shooting. Charles S. Swartz (2005) identified another limitation of digital sound recording technology, in that there is no universally accepted method of synchronising film with digital files.

Between 2006 to 2010, only 3 films have been digitally shot within the industry. To some extent, this therefore indicates the lack of current capability within the workforce to use the new technology. This lack needs to be overcome throughout the cinematography workforce before DT integration can take place.

The number of digital productions proves that the current directors of the BFDC are also lacking the capabilities demanded by DT. The career of a film director can be seen as a profession where creativity and skills of using technology are both required. In order to remain competitive in the digital communities, existing directors will need to acquire new types of skills. The importance of acquiring new skills was quoted by Peter Britton (1993) from discussion with by the filmmaker Scott Billups:

Digital gives us an unlimited power to previsualize entire scenes, composite, remove wires, tweak color and sound, and even create new characters. All this is just what directors want: total control. (Britton 1993; p 87)

It is therefore vital for the directors, dance directors and assistant directors working in BFI to learn the new DT sooner or later to have control over their own profession.

6.5.3 Capability required within the Post-Production Workforce

There is mounting evidence which proves that DT was not well received by the industry workforce. One of the key crew members of the BFDC criticised the integration of DTS for digital sound as an over-ambitious decision:

Sound is vital phenomena in film. Instead of facilitating the digital sound recording system, they (BFDC management) jumped to DTS all in a sudden. Switching on to DTS needs several infrastructural developments like compatible sound projection system within the cinema halls and similar sound processing unit. Furthermore, related workforces such as the Sound Recording Crew and Film Directors need to become familiar with the new system. (ABA, Dhaka, 2008)

This crucial interview information clearly indicates how technological capacity has created an adverse impact upon the post-production workforce of the BFDC. John Belton (2002) also underscored the weakness of DTS system:

DTS made a number of crucial mistakes in promoting the system. DTS encouraged theatres to play back the sound louder than they had with Dolby SR, in large parts because DTS (and other digital systems) claimed to have greater headroom. The additional volume strained the amplifiers and loudspeakers, resulting in amplifier clipping, general system shock, and tweeter failure. The result was a harsh, metallic play-back of the dialogue. DTS moved fairly quickly to control this potential disaster (Belton 2002, p 101).

Due to the limitation mentioned above, DTS was not explored by the-post production workforce and it also did not become popular within the Cinema Halls of Bangladesh. Therefore the BFDC workforce and not develop their capability to apply this technology, nor did the exhibitors build up their capacity to equip their cinemas with DTS.

Moreover, it is evident from the observation that the newly-established non-linear digital editing facilities of the BFDC were valued by the associated workforce. Due to the capacity-related weakness of the newly-established post-production (discussed in chapter 4) unit, perhaps this non-linear digital editing failed to attract the post-production workforce. Although the Editor of the case study 1 has acknowledged that he has individually learnt the applications of non-linear digital editing, in reality this was not a very common practice.

Therefore, with some few exceptions, most of the crew working in the post-production process in the BFDC still need to develop the capability of knowing and learning the new technology.

6.6 Environmental Factors: Solar Energy

Environmental factors can be defined in various ways. It is worth mentioning that the workforce of the BFI is attempting to reduce the industry's impact on the environment and, in particular, its carbon emissions. The industry workforce is helping to reduce the power waste by their patience and participation. A common practice of switching off lights when they are not needed has been found in the industry. More or less the entire production workforce is careful about electricity consumption.

At the BFDC premises, it is not popular to use any power generator in case of power failure. Even though the industry is facing problems of power failure on a regular basis, they do not use any alternative source of electricity. Instead, most of the Directors are tolerant and wait for 10-15 minutes for the electricity supply to come back on to the production floors. (*LL*, Production Unit, Case Study 1, 35mm Celluloid Film, Dhaka, 2010)

One possible solution of power failure can be provided by installing solar power units to ensure electricity unbroken supply when the normal power supply fails. No active initiative was observed during the fieldwork to conserve energy or look at alternative sources like renewable energy technologies for overcoming this problem. The management as well as the workforce of the BFDC still seem to be reluctant considering the issues around energy resources and environmental management, which in the context of LEDCs is particularly important.

After acknowledging the positive effects of a solar-based green environment, the reason behind the lack of initiative was the expensive installation cost of solar energy units. *LL* also expressed his concern about the output capacity of the solar unit where, during shooting, every production floor requires at least 30kW electricity. He doubted whether it would be really worthwhile to facilitate solar energy for the entire BFDC complex as this would require a huge investment. This issue therefore needs further scholarly attention to judge the potentialities of solar energy and suggest an environmental policy in considering DT within the BFDC.

6.7 Legislative Factors: Reforming the Current Legislation

While integrating DT in the BFDC, it is important to consider the current regulatory structure and legislative conditions in order to complete a successful integration. Knowing the current legislative conditions in advance will assist the new DT workforce in devising strategies to overcome the obstacles, owing to the increasing plagiarism rates and ignoring or violating copyrights whilst producing films which spawned extensive legislative discussion of procedural reform measures to alleviate the crisis. When the digital movie content seems to be more vulnerable to plagiarisation, discussion on this issue becomes specifically crucial.

According to the Censorship of Films Act in 1963 (amended in 2006), the BFCB has an unambiguous regulatory obligation to decertify a plagiarised film. The Government of Bangladesh has clearly elucidated the features of a pirated film that can be regarded as unsuitable for public exhibition. The BFCB defines the breadth and nature of plagiarism as follows:

Plagiarism is prohibited in any form from any old or under-production foreign or Bangladeshi film. N.B. (1) A plagiarised film is that which comes to near the original as to suggest the original in the mind of every person seeing it.[xlvi]

Despite knowing the rules with regards to plagiarism, some film producers within the BFDC still continue to plagiarise films, claiming that their films are locally produced because they have used local artists, local production crew, local settings and the native language. Therefore, they question how these films could be treated as plagiarised movies. When these films are later sent to the BFCB to receive their censor certificate, the BFCB legislative body records any objections it may have in certifying the films. Subsequently, those producers then try to influence the legislative body (for example, with money or via their political connections). Even though some filmmakers refused to give direct opinions on the issues where the producers have tried to take advantage of their capabilities, some indirect evidence has been inferred which reveals the truth in this regard. A daily newspaper has recently pointed out the issue of BFCB members granting certification on the basis of their wishes:

Producers have had to depend on the wants and dislikes of the BFCB members. If the artists and the crew in the films are of the BFCB members' likings, then the film is certified. Otherwise, there is a lot of cutting and tearing done to the film. (The Daily Amar Desh Newspaper[xlvii]***)***

BFCB sources reveal that during 2008-09, the censor board refused to offer censor certificates to 18 films because of their piracy and obscenity.[xlviii] Whether regulatory legislative rules or other external factors worked against the wishes of these BFCB members in banning these 18 films remains hidden. Moreover, the filmmakers' complaints against the irregularities of the BFCB activities were denied by the vice chairman of the BFCB. The Vice Chairman has defended himself by saying:

If any producers are not happy against the decisions of the BFCB, they are more than free to appeal against us to the court. (The Daily Bangladesh Protidin Newspaper[xlix])

Since the declaration of the Vice Chairman of the BFCB confirmed that producers could appeal against the censor board to the court, corrupt producers have been taking advantage of this system to issue stay orders for their films. Producers of corrupt and plagiarised films who are unable to convince the BFCB members to certify their films appeal to the court and issue a stay order, which allows them to screen their uncensored film for at least a period of time before further action is taken against them. This issue was recognised by the ex- general secretary of the Bangladesh Film Artist's Association who reported his opinion to a national newspaper:

Our observation suggests that stay orders can be obtained from lower courts. Sometimes, stay orders are obtained before the release of films. Which is why the amendment of Film Censor Act 2006 is not effective, though the act has provisions to punish for projection of films, display of posters and advertisements without certificates, starting from three months to a maximum of three years imprisonment and a fine of BDT 10,000. We want that the law enforcement agencies to ensure the proper implementation of laws regarding films. (The Daily Star Newspaper[l])

In response to the above conflict, a number of film professionals have suggested lifting the current ban system of the BFCB and replacing it with a film rating system. In 2009, one of the participants of a round table discussion on the BFCB issue suggested that:

The Censor Board (BFCB) should be demolished. If any film seems to have sexual infatuation, it could be mentioned as suitable for the adults only. The current activities of the Censor Board seem that they are trying to teach the filmmakers which could never be helpful to the development of the film industry. (The Daily Somokal, Newspaper)[li]

The film rating system, which is widely used in many countries around the world, helps to set an age limit for the film viewers in accordance with the content of the film. The issue of having the 'copyright certificate' prior to the release of the movie is not still widely practiced

by producers in the BFI. However, in line with the rating system, if the copyright system is also made mandatory, as well as increasing the above mentioned punishment on copyright infringement, a comfortable legislative environment will be created for films that will be produced digitally.

In addition to the above legislative flaws, another type of weakness is affecting the workforce choices and reducing their legislative rights. Most of the contracts of engaging crew and artists are currently carried out in the BFDC on the official pad of the producers. Typically, there is no use of legal stamps to sign the contracts. Therefore, the producer cannot take any legal actions in the case of any disputes. Making complaints to the artists' association or to a union of a particular crew is the only option on the part of the workforce. Likewise, if the producers violate any conditions of the contract, the artists or crew cannot propose it to the court or ask for any legal actions. Nevertheless, the deprived members of the production team can complain against the management to the producer's association.

However, in the case of the associations not being able to deal with the complaints, the issue then moves over to the BFDC management. In this particular legislative crisis, the BFDC management generally call the defendants and appellants to negotiate over who will win the deed to get rid of the claim. This option normally needs a long-term negotiation which consequently affects the particular member who lost out to the claim. In avoiding those anomalies, a legally enforceable agreement in writing might be helpful for the BFDC workforce. It appeared that, although existing oral contracts provide some remedy for breach of contract, the limitations of the oral contract cannot be ignored. It was evident from the data that the privilege of the oral contract was misused for tax evasion.

Deducting the tax and national insurance during the payment is not a common practice within the BFI. This discreet situation was revealed in an interview with a member of the production team:

We do not deduct any money for tax purposes. It is the responsibility of the artists or Crew to pay their own tax to the government. As a means of tax fraudulence, when an Artist has a payment of ৳500,000 (£4,332.94), most of them then ask the management team to mention it on the record as ৳100,000 (£866.59). The management has to therefore carry out the request. (LL, Dhaka, 2009)

The act of tax evasion creates another type of pressure on the production team to formulate two types of budget. One is to create the actual budget based on genuine expenditure and the

other is to create a false budget. Creating the false budget not only accommodates the tax crimes of crew and artists but also generates room for tax avoidance for the producer as well. I could not obtain any direct evidence of the producer's tax avoidance. Indirect evidence indicates an undisclosed fact; in general, every producer likes to pay their team with cash rather than using any official banking method. The idea behind this is that transactions through banking channels could become legislative evidence against the act of tax dodging. Respondent *LL* has also noted this issue:

For example, we paid one of the eminent actresses ৳300,000 (£2,599.77) as her remuneration. However due to our relationship with her, she demanded us in writing her a receipt of only ৳100,000 (£866.59) and therefore we had to do so. In cases like this we have to do what the artists ask us to do. (LL, Dhaka, 2009)

The common legal malpractice of film management through tax crime has created an ambiguous setting around the economic endeavours of the film companies. Such a state of affairs has created a negative impact, even within external financial institutes, about film financing. Therefore no Banks or Insurance Societies want to offer any loans for filmmaking. Early evidence of past financial customs disclosed that some of the banks used to provide secured loans for film production. Normally, a secured loan is supported or backed by security or collateral. When the producer takes out a loan for filmmaking, the loan is secured by his fixed assets. Repeated cases of failing to repay the loan have now forced creditors to take legal action and to stop financing in the film sector. (*AAP*, Dhaka, 2009)

Even though the producers were divested of their benefits of having loans from the banks, they managed to secure an alternative credit facility from the BFDC. The BFDC has established a tradition of providing production and post-production services on a credit basis. Depositing partial security money (5% to 10%) hence allows the producers to enjoy a wide range of credit services. Utilising film footage for shooting and printing purposes, enjoying studio services equipped with camera and lights and set properties and also having all the post-production facilities are all possible on a credit basis.

Recently a daily newspaper revealed that that the BFDC has become a weak organisation due to its failure to realise its debts from the creditors.[lii] From a social point of view, certainly the relevant producers become liable for violating the state law and damaging the goodwill of the film business. Such an example of financial violation thus encourages other producers to retain their loan and also tempts new producers to invest their black money in the film business. It was evident from the field observation that one of the producers financed 17 films

simultaneously. The above situation proves that the BFDC has failed to recover its loan through the administrative process. Therefore, a strong legislative choice of regulatory forms is needed where by the loan can be recovered.

Producers producing digital films need to develop their own policies on how they are to confront the problems because of legal contracts and tax avoidance. Moreover, the producers also have a choice in which they will choose to either use the credit facilities with the BFDC or proceed with their own investments.

6.8 Summary

This chapter has mainly emphasised the contemporary PESTEL factors of the industry, as well as the probable impacts of digital integration on the workforce of BFDC. Each of the PESTEL factors has been given great importance in this chapter in order to generate a clear picture of the extent to which the BFI has prepared itself.

Political factors have had a great effect upon the production performance of the BFDC workforce. This chapter estimated that if HDTV cameras become functional, the number of productions and thus the economic volume would increase. However, a requirement of further research was identified to explore the optimal productivity growth level. This chapter has also proven that the government will not have to invest any more money to buy digital cameras. Currently, the BFDC conserve money currently spent on raw footage and processory material to buy digital cameras instead.

Social problems such as plagiarism, bureaucracy and aging have become barriers towards integrating the new DT. In terms of the technological factors, the capacity and capability of the workforce needs to be developed. Furthermore, environmental consciousness has already been spotted within the workforce. However, due to economic constraints, this factor is not being seen with enough importance. The installations of solar panels are very expensive and thus this issue is being avoided by the industry. Finally, the current rules and regulations of the BFDC require amendment and this amendment is very clearly being demanded by the entire workforce. In such a case, a rating and copyright system has been suggested to enhance legislation. Thus, if the above-mentioned factors can be addressed thoroughly, DT can be integrated more easily.

Chapter 7: Film Distribution and Exhibition

7.1 Context

Despite the considerable amount of investment and size of workforce devoted to the trade of film distribution and exhibition, it appears that the Bangladeshi film businessmen have not yet learned the competitive techniques required to survive within the film business. As a result, many of the distribution outlets and cinema halls are closing down. The recent 57% decline in the number of cinema halls is a striking example of just how quickly and substantially the film market's sales and profits are being affected[liii]. Film entrepreneurs have tried to identify the causes of this trade fall. There is no consensus about a single cause for this downturn. Many argue that the prime cause for the adverse drop is the failure of state law and the enforcement agency to prevent film piracy. Some of the entrepreneurs regard the uncomfortable environments of the cinema halls as a reason for fewer admissions. A number of further problems (such as, narrow waiting rooms, uncomfortable seats) have also been described by the other entrepreneurs.

To overcome the problem, a private company is currently planning to integrate digital projection systems into some cinemas. Although the new systems will help to change the traditional means of distribution and exhibition in Bangladesh and increase the exhibition quality, numerous possible problems cannot be ignored. Possible integration of digital film distribution and exhibition cannot be feasible without the support of the political, economical, sociological, technological, environmental and legal bodies of the state. In reality, it is not always easy to ensure multifaceted assistance and state cooperation but the fact is that importance of multi-organisational incentives and government compliance can generate a policy and strategic vision for building up an effective digital film distribution and exhibition system to boost the film business in Bangladesh.

In this regard, this chapter is initially aiming to discuss traditional means of film distribution and exhibition arrangement in Bangladesh. It will look at the recent numbers of distribution outlets, and the existing quantity of the screens for film exhibition. A review of recent literature shows that recent developments in digital film distribution have considerable potential. It would thus be of interest to learn how this digital distribution could be useful in Bangladesh. Therefore, the chapter will also examine the possibilities of digital film distribution and exhibition in Bangladesh. The main thrust of the research effort in this

chapter will be to identify the obstacles to the development of the digital distribution and exhibition system in Bangladesh. The resistance of norms and institutions will be discussed here. Besides that, this chapter will finally outline useful strategies in fulfilling the new digital needs.

7.2 Political Factors: Film Distribution and Exhibition System

As an entertainment industry, film has a large landscape that encompasses various technical gadgets, capabilities, infrastructures and multi-phase involvements. In terms of DT capabilities development within the film industry, a concept of disoriented development between the two related parts of the industry has been identified. In 2003, the-then government permitted the BFDC to integrate DT into its post-production set up. Whilst integrating DT in the BFDC, the government did not take any initiatives to facilitate the development of the cinema halls with digital exhibition capabilities. Therefore no values have developed where the producers might be able to exhibit their digitally-produced films. Hence, the disorder resulting from the exclusion of the exhibition units from its integration plan has caused the BFDC integration to become ineffective. The production workforce still believes that the possibility of the digital films can be realised if sufficient digital exhibition outlets are made to exhibit these digital films. One of the respondents voiced his doubts on the readiness of the industry:

A product is only created for marketing. However, when we create a digital film, where is it going to be marketed? We would need a cinema hall to market that film but have we thought of digitising the cinema halls in Bangladesh? Have we thought about how we are going to project the digital film? If not, then why is there such a commotion going on with wanting to integrate digital technology into the industry? (AAU, Dhaka, 2008)

Conversely, the exhibitors argue that they are not ready to convert their cinema halls for digital compatibility, when most of the films in Bangladesh are currently still being produced using the 35mm celluloid format. In the current scenario, the exhibitors are not convinced about the validity of converting their cinema halls. A considerable amount of money will be needed to convert the cinemas into digital theatres. Therefore, a political decision of the government is crucial to solve the problem.

To build up an effective digital distribution capability in the film business, the initial requirement of cooperation between the film distributors and the exhibitors is needed.

Additionally, the collaboration of political, economical, sociological, technological, environmental and legislative bodies will also be needed to establish a useful digital film distribution system. In reality, it is not always easy to bring the diverse communities under the same umbrella and get them to work to achieve a particular goal beyond their discipline.

Ideally, the political decision of the government to support the refurbishment and development of the cinema halls is needed to begin integrating DT throughout the entire country. Banks and other financial organisations should therefore assist the government's decision by providing the film entrepreneurs with loans to carry out the integration. The exhibitor's society should welcome the new technology into their film businesses as part of socially integrating DT. Local software developers, computer and networking engineers and other technical members of the society should come forth to provide their knowledge on the online distribution, e-ticketing and digital projection capacity build-up. Environmentalists and other naturalists should come forth to introduce renewable technology and other eco-friendly methods to the industry. Finally, lawyers and the government's legislative bodies should together stand up to ensure copyright and rating systems for the digital products to complete this project and make it a success.

Therefore, it can easily be deduced that among the stakeholders, without the initial input of the government, the actual integration process cannot commence. The principal aim of this section is to identify the array of political support which will help to prepare distribution and exhibition for digital compatibility.

Ideally, most of the exhibitors expect to have some kind of assistance from the government for their cinemas. Several film professionals have suggested that Bangladesh government can follow the example of providing five years tax holiday for film exhibitors, such as been introduced in India and Nepal. Respondent *AAG* describes the potentiality of converting run-down theatres into multiplexes:

When all the run-down theatres were converted to multiplexes in India, the Indian government gave a five year's tax holiday. The Indian Parliament passed the legislation which stated that whoever amended or renovated a run-down theatre would automatically get a five year's tax holiday. Currently, even a semi-urban city is filled with multiplexes in India. (AAG, Dhaka, 2009)

In reality, no initiatives have yet been taken to implement such a legislation to refurbish the nationwide cinema halls. Not only is the lack of political initiative preventing the country

from a successful DT integration, but a negative attitude has also been detected in some government officials. Moreover, one of the government officials believes that this refurbishment should be done by private initiatives. The notion of building up multiplexes throughout the country is not supported by this official. By quoting the high ticket price of the Star Cineplex, she also raised her concern about the viability of the multiplex establishments around the country. She also expressed her doubt as to whether the cinema hall owners would be able to understand the digital system and bear the cost. She added:

If the cinema hall owners invest their money for digital capability, then they would certainly expect a return. In the Star Cineplex, the urban zones are able to afford the high ticket prices to watch a film which may not be a reality for the rural audience. (AAR, Dhaka, 2008)

AAR's opinion regarding the economic viability of the urban multiplexes of being more than that of the rural multiplexes needs to be considered carefully. Without doing a nationwide feasibility study, it would be impossible to decide whether multiplex development or refurbishment of single screen cinemas will be more economically viable. A feasibility study is only possible if the government provides historical data on the number of halls, number of admissions and revenue earnings in each geographical location throughout the country. If this confidential data is received, the decision-making as to whether multiplexes or single screen cinemas will be economically viable in a particular area can be easily determined.

The government's challenge of building up a digital Bangladesh will never be realised unless the cinema halls are converted to digital compatibility. Recently, a private organisation called *National Phone* entered the market to study the feasibility of integrating DT within cinema halls. Initially, this private organisation officially engaged the most experienced booking agents to complete the study. Engaging these booking agents was necessary because they realised that the booking agents would be the best force to negotiate with the exhibitors in favour of their new organisation. In addition to this, the new company was also able to avoid the probable rivalry with the whole workforce of booking agents, since, if the digitisation project becomes successful, it will severely affect the careers of the rest of the booking agents.

Initially, in the long run, the *National Phone Company* has a plan to reach the urban cities of the 64 district headquarters. The prognosis for their future development is obviously dependent on the country's national internet connectivity. The government's recent effort to develop a national backbone has already connected 59 districts with fibre optic cables for the

end-users. Moreover, out of total 465 Upazilas (sub-districts), the two licensee organisations which are currently working to develop internet connectivity in Bangladesh have already reached 297 Upazilas.[liv] The scenario of such technological development reveals that the forecast of the company regarding the expansion of DT-based exhibition and e-ticketing system is more likely to occur. As a result, the *National Telephone* has signed numbers of Memorandums of Understanding (MOU) in 2009. Certainly, there are some halls which remain outside this treaty. In this case, either the government or other private organisations should therefore assist them towards digital conversion.

Apart from the wireless based DTH (Direct to Home) technology, some film professionals are thinking about a substitute means of digital film exhibition. An independent filmmaker shared his own experience of using a multimedia projector and a DVD version of his film as an easy and inexpensive means of digital film exhibition. He claimed that, as an independent exhibitor, he was happy that the audience accepted this alternative screen. Compared to the inferior quality of filming that the audience had experienced before, they still accepted the new screen which was relatively smaller in size but with a much greater resolution. The filmmaker shared his experience:

When I showed the DVD copy of my film by using a multi-media projector and supported the sound technology, I was amazed to see that the audience were enjoying the screening. (ZZ, Case Study 2, Digital Film, Member of all the Units, Dhaka, 2009)

The independent producer/exhibitor was surprised to discover the substandard quality of screen resolution and sound output of the traditional rundown theatres. The rundown theatres of the rural areas usually exhibit films which are one to five years old. Consequently, those prints have so many scratches and hitches that the films are almost impossible to view and listen to.

A multimedia projector of 3000 lumens can only cover a 48 square feet screen (6'' x 8''), which is not at all an adequate standard for professional film projection. A minimum professional standard requires a 20,000 lumens projector and a screen which is generally 2100 square feet (30' x 70'). If the rural areas want to switch from the rundown theatre projection standards to digital projection standards, then a projection system that lies between the professional and unprofessional standard could be the affordable way for them.

A typical rundown theatre is created for an average audience capacity of 600-800. However, the digital format is only being shown in multiplexes which are generally designed for an audience of 150 to 200. Therefore, in order to convert a traditional rundown theatre into a digital theatre, the traditional rundown theatres may need to be split into 4 sections in order to accommodate the correct audience. This could eventually lead up to 4 new multiplexes. The new multiplexes will not only create a comfortable screening environment for the audience, but also expose them to a wider choice of films. It can be assumed that during the process of refurbishment, the old equipment will not be recycled. Not only will the architecture and exterior be refurbished, but the interior structure will also be refurbished. This will lead to an end of many problems: bugs, uncomfortable seating, toilets etc. Furthermore, increases in the audience will eventually also lead to less loss for the exhibitors. A government policy to ensure the digital projection standard might be helpful to answer the proposal.

Globally, E-cinemas or digital cinemas are becoming a popular technology for distributing movies idea behind the technology is to upload a newly-produced movie on the central server of a distributor. This will enable the distributor to send a copy of the movie to the server of the relevant exhibitors who have already bought the movie. When the exhibitors receive the digital content through an intranet system, they will easily be able to digitally project the movie onto their cinema screen. This technology will also allow the exhibitor to switch, route or schedule the movie according to their choice. To facilitate this kind of capability, the distributor and the exhibitor should develop a fibre-optic intranet backbone and necessary infrastructure (such as servers, digital projectors, digital screens, Dolby sound systems and appropriate architectural designs) throughout the country (Rembiesa 2001). In a recent publication, a group of scholars have claimed that they have successfully used IP (Internet Protocols) to distribute 4K of uncompressed motion picture data in real time (Shirai et.al. 2009).

Implementing this technology in the BFI will involve great investment. In the international arena, the exhibitors' association and major studios of many countries are collectively introducing the total digital exhibition system for their screens.[iv]

It is interesting that the Bangladeshi film capitalists are counting the money that will be needed for digital projection, but not the money that they are spending on their day to day film businesses. They are unaware of how the proposed scheme for distributing movies digitally can save time and money spent on their existing businesses. In the traditional

system, printing and transporting the 35mm celluloid film contents costs huge time and money. For example, a single hall print of a movie costs approximately ৳100,000 (£866.59) and the transportation costs at least ৳1,500 (£13.00). The director of the (2009) movie *Monpura* claimed that he had already made 44 prints of the film. If the digital system had existed, the director could have perhaps saved the ৳4,466,000 (£38,528.53) spent on transportation and multiple prints of the movie. Moreover, the distributors could have avoided the difficult task of estimating the number of prints and may not have needed to lose money over prints, or lose customers for supply shortages. Digital distribution, however, may have an answer to this problem. Any additional copies will require almost zero reproduction cost. (*AAY*, Director, Monpura, Dhaka, 2009)

The scenarios mentioned above clearly indicate how political indecision has hampered the expansion of digital distribution and exhibition opportunities so far. It has also identified where the political decision is still needed. The following part of this chapter will consequently discuss the economic factors of integration DT into film distribution and exhibition.

7.3 Economic Factors: Distribution and Exhibition

In order to understand how the film industry economy system works in Bangladesh, some background information such as the history and the norms of film distribution and exhibition needs to be understood.

Early film business history describes that, in the Pakistani era, film distribution was operated as an independent business.[lvi] Distribution channels were not the business unit of the producers like now. Currently, most of the producers own a production house as well as a distribution house. There are a few separate business establishments for film distribution. However, only a minority of these businessmen do not own a production house along with a distribution house. This usually allows them to buy completed films and process them for distribution. After buying the distribution rights of the films, the businessmen become the producer of the films. Each film-producing division nowadays has an allied distribution wing. In the current study, it has been established that there are 224 registered distribution outlets. However, only 154 of them are currently functioning.[lvii] Most of the distribution channels work to distribute the films which are produced by their own production organisation.

In 2009, the recent data source from the Association of the Film Exhibitors of Bangladesh revealed that they currently have 208 registered members; thus implying that there are 208 cinemas. Some of the exhibitors own more than one cinema hall and some of them have not yet been registered as a member of the association. The association has claimed that in reality of existing cinema halls, the number is now only 618. Of the cinemas, each has approximately an average capacity of 750 seats and exhibit four shows (Morning, Matinée, Evening and Night) and thus can accommodate an audience of 3000. Hence, in a single month, the maximum number of the film audience in Bangladesh will be not more than 55.62 million.[lviii] Within the current film business, these 55.62 million admissions is the highest possible economic effort that the exhibitors can accomplish, assuming that other parameters are favourable.

7.3.1 The Economy of Three Trade Partners in Film Business

In order to ensure the efficient use of film resources in Bangladesh, the traditional film business involves three distinct entities in a trade partnership. The three entities are producers, distributors and booking agents. Even though producers and distributors stand for an undivided business organisation, sometimes distributors act as an independent business entity. Therefore, these distributors would rather purchase and distribute films which are produced by other organisations. This distributing arm not only purchases these films owing to lack of their own productions, but also with the intention of ensuring some additional profit by using their distributing channels. Respondent KK discussed the trading pattern:

Impress Tele-film Limited has so far distributed 40 films. 28 out of the 40 have been produced by Impress Tele-Film themselves and the rest of them have been purchased from external production units. (KK, Case Study 1, 35mm Celluloid Film, Distribution Unit, Dhaka, 2008)

Generally, the producers maintain a separate distributing office to run their business smoothly. The majority of the producers engage a trustworthy manager to deal with the job of film distribution. Most of the films distributing offices are located in Dhaka. This centralised film distribution office in Dhaka is very close (only 3 kilometres) to the BFDC. Therefore, it is convenient for the majority of the producers to keep an eye on their distribution business as it is close to their production division. In contrast, it is not always convenient for the nationwide film exhibitors to travel to Dhaka every week to choose the best film for their cinemas.

To satisfy the countrywide demand of the film exhibitors, a mediator group has emerged in the business of Bangladesh film distribution. This mediator group is known as Film Booking Agents. The film booking agents usually take the responsibility for any potential loss, theft or damage of the prints that they borrow from the distributors to supply for exhibition. They also take the financial liability to ensure a secure transaction between the distributor and the exhibitor.

Besides the distributors, the booking agent satisfies the exhibitor's requirements by providing assistance in choosing the suitable films for their cinemas. Deciding on the suitability depends upon some variables, such as geographic locations, seasonal impacts, festivals, local cultural likings of the audience and the financial ability of the respective exhibitors. Booking agents are often conscious about not overlapping the same films in a single locality and hence require a continuous means of communication (e.g. using a cell phone). The concern of avoiding the overlapping problem is well explained by an Executive of the Booking Agent Association:

We have divided the nationwide film market in different stations. For instance, there are five cinema halls in Comilla. But we do not count them as five halls; we consider Comilla as a single station. We would never supply more than two films there. (FF, Dhaka, 2009)

FF further elaborated that the booking agents always made sure there was still a different film for every cinema hall – even if it necessarily wasn't new. If any particular film creates a huge demand within the audience, then the booking agents avoid the norms of delivering one film in one locality. In order to earn some extra commission, the booking agents deliberately go for multiple prints of a same movie and then deliver it to the neighbouring cinemas in the same locality. The distributors generally do not intervene in this scenario as they are also making profits out of the deal. (*KK*, Dhaka, 2008)

7.3.2 Contracts and Payments of the Film Trade

In the film business of Bangladesh, there are two types of contracts which are commonly practised. One of the most common contracts in the current film business asks for an 'agreed percentage' of the gross box office sales. The total calculation is usually done after the primary deduction of the 5% commission on the total sale of the booking agents. As a widespread rule, the distributors and exhibitors share an equal split of the total sales. The

formula that is used is 50/50 percent for the first week run of the movie. Respondent *KK* has revealed the revenue pattern of the film business as follows:

If a movie shows signs of audience interest for another couple of weeks, then the share of the profit may remain the same or may decrease by 5% in each following week. So typically, in the first week run, after the 5% commission of the booking agent, the distributor receives 47.5% of the box office collection and the exhibitor also receives 47.5% of the total sales. In the second week the distributor may have 42.5% and in the third week 37.5%, while exhibitors by and large enjoy their 47.5% share throughout the contract period. (KK, Dhaka, 2008)

Usually the percentage remains higher right after the first release of a particular film. If the movie contains a very popular artist and/or is directed by a famous director, then the booking agents generally try to book a print by paying entry fees in advance. Booking a print of a movie in general costs between ৳150,000 to ৳250,000 (£1,299.88 to £2,166.47). The market of the Bangladesh film business is principally based in the divisional cities of the country. (*KK*, Dhaka, 2008)

After the divisional cities, the district-level cities get the second preference, whilst the Upazilas (sub-districts) get third preference.

The second type of contract in the film business is locally called “fixed rental”. The fixed rental also needs an agreement between the distributor and exhibitor. In this circumstance, the booking agents also act as a mediator between the two parties. On the basis of market assumption, both of the parties decide on a particular rental rate for a particular film. The limitation of this particular rental basis is that at the end, if the distributor is profiting then the exhibitor is experiencing loss. The opposite situation is also very likely to occur in these circumstances (*AAM*, Dhaka, 2009). Another respondent indentified the weakness of the rental basis contract:

This film business is very complex. For example, suppose your film is proving to make very good business in Mymensingh and you know it is. You have made ৳200,000 (£1,733.18) profit…but you know that it may not come because of this rental contract. (AAU, Dhaka, 2008)

On a rental basis, if a film is recently released, there are more chances of it commanding a higher price than a film which was released quite a while ago. For example, a movie that was released 10 years ago might only cost ৳5,000 (£43.33) whereas a movie which was released a week ago might cost ৳60,000 (£519.95) to rent out. With some exceptions, normally rural cinema halls have more interest in fixed rental contracts. For example, if a cinema hall has a

bamboo fence and tin roof; it usually can't make an agreement with the distributor for a percentage based contract. This is because the distributor knows that cinema halls as poor as the ones in rural areas often experience poor sales, which lead to low revenue for the distributor. Besides, loss, damage and piracy of the film prints are also concerns for the distributor. Therefore, traditionally, the rural cinema halls are the last destination of the nationwide film distribution system. (*FF*, Dhaka, 2009)

In reality, distributor and exhibitor's revenues drop because of some mandatory expenses related to the contract. The distributor is generally bound to pay the cost of the initial advertising and publicity for marketing the movie. The most expensive means of advertising is TV advertisement. Typically, a distributor aims to advertise 30 to 40 minutes altogether in the prime time slot within the popular television channels. The cost of a TV commercial could vary from ৳30,000 to ৳70,000 (£259.98 to £606.61) per minute. Therefore, a total 40 minutes of TV advertising can cost from ৳1,200,000 to ৳2,800,000 (£10,399.06 to £24,264.48). The newspaper advertisement can reach up to ৳600,000 (£5,199.53) for a single movie product. Printing a large quantity of posters in different sizes is the main approach of publicity of a film. This promotional activity can cost from as low as ৳50,000 (£433.29) to as high as ৳700,000 (£6,066.12). If a particular film becomes a success, then the distributor needs to reprint more posters for the publicity of the film. As a result, the publicity cost could be higher.

In recent times, the distributors try to realise the substantial promotional cost by arranging a sponsor for their particular movie. If the distributors are lucky enough then they can eventually manage to secure ৳1,000,000 (£8,665.89) as a sponsor fee. In addition to the promotional cost, the distributors also have to bear the one-way transportation cost of each print to get it delivered. (*KK*, Dhaka, 2008)

In contrast, the exhibitors have to bear the local publicity cost of the movies they are going to exhibit. The exhibitors themselves have to meet the expenses of the operational cost of the cinema hall such as electricity, loan payment, insurance, staff payment, telephone bills and other miscellaneous costs. Moreover, the exhibitor also has to pay the cost of transportation of the film on its return to the distributor.

7.3.3 Global Distribution Network

With some exceptions, Bangladeshi film distributors have not yet appreciably entered into the global distribution market. According to government statistics, since 1976, 6 million Bangladeshi people have moved to different countries of the world.[lix] This sizable population could be the potential audience of the Bangladeshi Films. Moreover in West Bengal, Tripura and Assam (States of India), there is a big demand for Bangladeshi films because these states share almost the same language and cultural tradition as Bangladesh. Apart from some joint venturing productions with West Bengal, there has been no sign of a regular and effective distribution policy for the Bangladeshi film to reach its neighbouring Bengali community of West Bengal, Assam or Tripura. Unfortunately, there is also no sign that Bangladeshi distributors have tried to appeal to the global market. Recently, some of the film exhibitors have been thinking of integrating digital exhibition systems in their cinemas. This integration could eventually create a positive impact on the traditional means of an existing distribution system.[lx] Subsequently it could open a new horizon of digital film distribution in local and global perspective.

7.3.4 The Ancillary Markets for Film Trade

It is obvious from the above analysis that theatrical distribution is almost the solitary system of film distribution which is widely practised in Bangladesh. Apart from the traditional means of theatrical distribution, the uses of the ancillary channels for distribution purposes are very limited. One of the respondents confirms that the film producers are not conscious enough about the potentiality of the ancillary market:

I'm not aware of a film being in a cinema hall and being released as a CD or DVD format simultaneously. We are not careful about any alternative or multi-channel distribution. (SS, Case Study 1, 35mm Celluloid Film, Production Unit, Dhaka, 2008)

Another respondent has explained why alternative channels are not popular for film distribution purposes in detail:

Producers, along with the release of their films in cinema halls, don't want to sell the video rights immediately. Selling the video rights raises the probability of film piracy. Normally, a film takes 6-7 months to be shown around all of the cinema halls in Bangladesh. The video rights are therefore sold after this period and its selling price becomes ৳100,000 (£866.59) to ৳150,000 (£433.29) to be sold as CDs or DVDs. (AAU, Dhaka, 2008)

Because the return from the selling the video rights is so low in terms of their investment, most of the producers don't consider the value of this wing of the ancillary market system with importance. The following part of this chapter will discuss the ancillary markets of Bangladesh.

7.3.4.1 VCD/ DVD/Blue-Ray Disk Sales and Rental Services

Globally, many entertainment companies are taking advantage of selling or renting out the digital disk to their home consumers. In addition to VCDs (Video Compact Discs) and DVDs (Digital Video Discs), Blue Ray Discs are becoming a popular format for watching high-quality movies at home. Typically, a VCD contains only 720MB information, while a DVD has more space: 4.7GB and a Blue ray disk can hold 25GB of space. Therefore watching the same movies in three different formats can create different forms of appreciation due to the picture and sound resolution.

In Bangladesh, VCD is the most popular format of watching movies because it is cheaper to buy or rent out. A national newspaper has pointed out the popularity of VCDs and DVDs in Bangladesh:

Audio and Video business jump at the thought of a new movie because the demand of these CDs are very high in the Bangladeshi market. A huge number of the audience do not prefer to go to the cinemas. Therefore, they prefer the CDs coming out for them to watch the films. (The Daily Amar Desh Newspaper[lxi])

The DVD is a more popular format for wealthy people. Apart from some brand companies like *Laser Vision* and *G series*, the large production qualities of the VCDs or DVDs are substantially poor and the prices are cheap. Illegal VCD sellers can offer cheap VCDs because they usually do not have to spend much money to make a copy of the original movie and they do not use standard CD materials. Because of video piracy, when a film producer sells the copyright of the film to the legal CD and DVD businessmen, they usually receive ৳100,000 (£866.59) to ৳150,000 (£1299.88) for the film. Therefore, the revenue received from this stream is still not remarkable. Stopping piracy could admittedly boost the revenue of the film producers.

7.3.4.2 Rental Service for Aircraft Audiences

Some inventive producers have managed to sell their films to the different airline companies as an alternative distribution channel. The monthly rental rates of the films for airlines vary from ৳10,000 (£86.66) to ৳150,000 (£1299.88) (*KK*, Dhaka, 2008).

Even though more than 70 million Bangladeshis currently live outside of Bangladesh and often travel through various airlines, most airlines do not show Bangladeshi films. In such a case, either the film producers or the government should therefore pressurise the airlines to subscribe to Bangla films which could also eventually enhance the film revenue.

7.3.4.3 Television Release

Apart from the above ancillary markets, the other alternative distribution channel is the TV industry. Old films usually bring in less money for the distributor than current films. Recently, some of the TV companies have started producing films. These companies have also established their own film distribution wings. These distribution wings not only put up their own produced films for sale, but also sell the films bought from other producers for making business. So, when TV companies sell their film productions to their own TV Company, they can easily make a better bargain than the other film distributors. *AAP* explains his situation:

As a producer- after producing my film- if I want to sell the film to a TV company at a minimum cost of 4,00,000 taka, they will not buy it. Selling films to TV companies are only profitable for those who have received financial support from TV Companies and sold the product back to the same TV Company. (AAP, Dhaka, 2009)

For example, *Rakhkhushi*, a film produced by Impress Tele-Film Limited, has sold their film to their own TV Company called *Channel I* for ৳2,000,000 (£17,331.77). This deal will eventually help the producer to realise almost 50% of the production cost. In contrast, the majority of film distributors cannot make any significant deal out of TV distribution. A television company mostly, if not always, broadcasts a film twice. However, the producers only get the price for broadcasting it once instead of a double payment which only comes down to a minimum of ৳20,000 (£173.32). (*AAE*, Dhaka, 2008)

7.4 Social Factors: Film Exhibition

The recent 57% decline in the number of cinema halls logically implies that there is a downturn in film admissions too. Less audience inclination can be seen as a social act of rejecting film. Currently there is no national data available to understand the amount of social rejection in this regard. Even the film distribution and exhibition units do not have any proper record. There is also no evidence available to understand how the film entrepreneurs are adapting to this social and economic change. The severity of the social scenario is evident from data published in a national newspaper. The local reporter reveals the audience presence in a Barisal District Shodor (central) Cinema Hall:

The 'Obhiruchi' cinema hall is currently one of the most aristocratic cinema halls in Barisal. It has an audience capacity of over 900. We are currently exhibiting one of the most popular films of today (Moner Manush) which only gets 30 people on the afternoon show, 87 on the evening show and 47 on the night show on a Monday.[lxii]

The above scenario is very revealing, as the local audience participation, which could have an optimum attendance of 2700, only adds up to 164. That is only 6% of the maximum capacity of cinema audience per day. Therefore, this proves that social rejection in Barisal is 94%.

Recent trends show that only lower class audiences go to the cinema halls. Middle- class and Upper- class people do not go to the cinemas because of the stereotypical rumours about the standard and stereotypical story lines. In a (2009) round-table discussion between the filmmakers, one of the participants pointed out the solution for audience increase within cinema halls:

Bangladeshi cinema halls have, more or less, always been of a stereotypical standard and recently the situations have only become worse. Therefore, the only thing that can prevent this from happening any further is if our society's gentle members begin to come to the cinema halls; by gentle, I mean the Middle-class public who stand for having a decent taste. If we fail persuade them to come back, there will be no other way to overcome this matter. (The Daily Samakal Online Newspaper [lxiii])

It is not yet clear, how the current filmmakers are trying to solve the social problem of audience rejection and ensuring the return of the middle class audience to cinemas. A number of directions have been suggested from the same discussions. Introducing a national film policy, establishing a film institute for a better workforce and exploring the possibilities of DT and updating the existing film censorship regulations are useful recommendations to resolve the social problems. As it is beyond the scope of this study to investigate why people

are no longer going to the cinema, this study will focus on other challenges related to distribution. One of the filmmakers claimed the crisis has emerged as a consequence the filmmaker's moral degradation:

The fact is that our ethical perimeter is not the same anymore; we like to sell ourselves. Independent or commercial trains are no matter. Today, reality shows that even a poet wants to ride a car let.alone the nature. When I came to Dhaka, a poet was simply happy with the poem they wrote but now they need a car and an apartment. We are currently in a cat and mouse chase scene. Who can go the furthest/earn the most? (The Daily Samakal Online Newspaper[lxiv])

It is an important issue of research to identify what social causes are preventing audience participation in the cinemas. When someone spends a significant amount of money to see a film, they usually expect a comfortable social atmosphere to enjoy their time. For any individual, there are always many choices to be made before they finally go to the cinemas. Social safety and comfort are the two major issues which generally any audience considers before entering the cinema. Unfortunately, many local film journalists have repeatedly reported the cinema halls' environment as unacceptable. The worst scenarios of cinema halls environment is reported by one of the journalist of a daily independent as follows:

At present we observe a glaring insufficiency of facilities in some important respects, even in some notable cinema. Where there is provision for air-conditioning facility, it is alleged that the facility is discontinued at some stage of the shows, thereby causing great discomfort for the viewers. The seating arrangement in most of the cinema houses is of a low standard with bugs and other insects infesting it. The environmental situation in most of the cinema houses is as bad outside as the one inside. The areas outside are frequented by touts, ticket black marketers and some other anti-social elements.[lxv]

One of the respondents has also identified the problems of single-screen theatres currently prevailing in Bangladesh:

The main problem of our cinema halls are that there is not enough waiting places. In some of the halls, the audience have to stand under the scorching sun whilst buying the tickets. As there is only one way in and out, the people have to wait for the other people to pass through. Sometimes, this is a very embarrassing situation. Most dangerously, the toilets are the most awful places of all. That is why we would like to redevelop them. (EE, Dhaka, 2009)

Hence, the *National Phone* Company has planned to refurbish the existing cinema halls to ensure a comfortable and pleasant environment for the mass audiences of Bangladesh as a part of their intended digital integration project. The audience assessment undertaken by *National Phone* gives them the notion to reduce the three types (dress circle, rear stall & stall)

of audience seating arrangement. Instead of a first class, second class and third class seating arrangement, they are planning to divide it into premium class and general class. To serve the audience more comfortably, they are also planning to introduce e-ticketing. This company is well aware of the adverse effects of ticket selling within the black markets. They are hopeful that e-ticketing will bring more comfort for the film audience.

7.5 Technological Factors: Distribution Channels

The recent developments of digital filmmaking and various technological developments are currently changing the traditional methods for distributing movies in many countries in the global arena. Digital distribution has become very popular 'buzzword'. They have little meaning in the current perspective of Bangladesh and specifically in the context of film businesses. Bangladeshi filmmakers have already started producing digital films, which is a signal that the BFI is in need of digital distribution.[lxvi] When the digital movies are ready for release, logically the question is asked as to whether the platform is available to distribute and exhibit the movies digitally. Currently, the future of the digital distribution is very much in the dark. In Bangladesh, the features of digital distribution are crucially missing and vitally needed. This research seeks to understand the basic criteria to facilitate the digital film distribution and exhibition.

Instead of traditional theatrical distribution, if Bangladeshi film entrepreneurs want to utilise other digital distribution, this will create a number of possibilities. There are several potential distribution channels which are currently available in Bangladesh, but never used for film distribution, such as online distribution, mobile phone distribution, cable networking and satellite TV networking.

7.5.1 Online Distribution

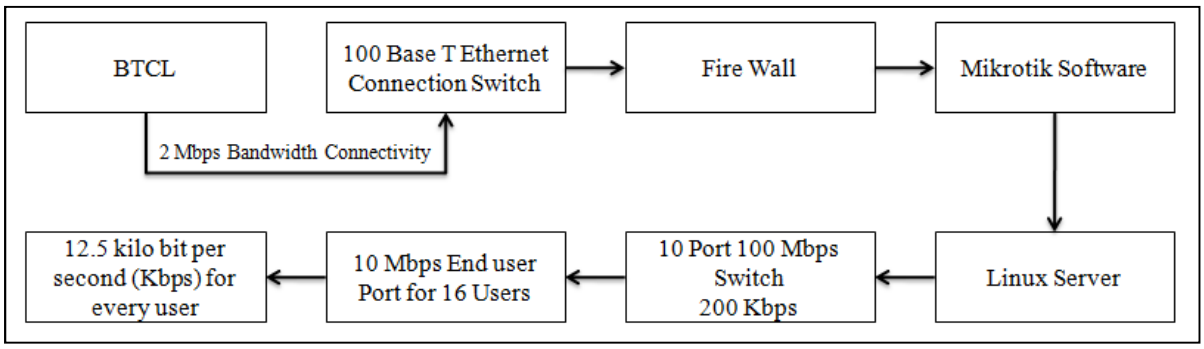
Internet users could be a potential audience of local movies. Historically, the beginning of an internet service was established through the digital microwave link to the general users through the Dial up services in Bangladesh in 1993. At that time, the service was mainly restricted to providing offline e-mails. Later on, the VSAT (Very Small Aperture Terminal) based data connections in 1996 were created for the purpose of online services for its end-users. Fibre-optic cable connectivity in 2005 widened the opportunities of its services for the users with increased upload and download bandwidths. According to the internet world

statistics, in Bangladesh the total number of internet users has reached near 1million in 2010.[lxvii]

In addition to the current 55.6 million audience capacity, film businessmen can count the 1 million internet users as a potential movie audience. If the internet users really start watching the local movies, the movie audience number can increase up to 1.96% on top of the current seating capacity.

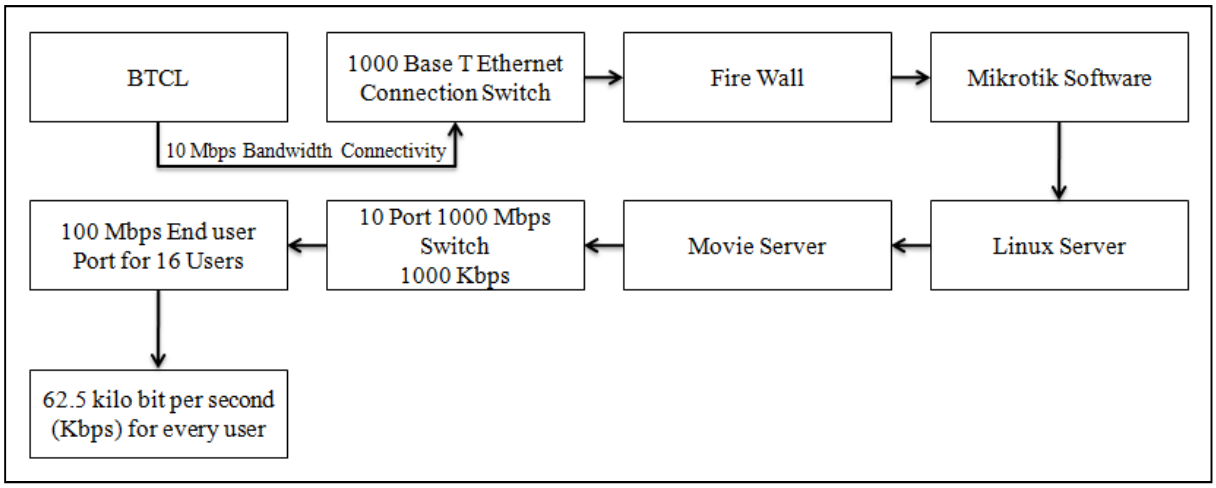
It will not be an easy job for distributors to reach the ever-growing number of internet users without negotiating with a nationwide Internet Service Provider (ISP). According to the ISP Association of Bangladesh, there are 73 major ISPs currently registered for this service.[lxviii] These major ISPs get their bandwidth from the Bangladesh Telecommunications Company Limited (BTCL) and then share the bandwidth with the local ISPs. A typical local ISP set up is generally commenced with a 2 megabit/sec dedicated connectivity from BTCL through the registered ISP. The majority of local ISPs build up a 100 Base T Ethernet workstation which usually has 10 ports and each port has 16 outlets for the end users. Hence, a typical setup can accommodate 10x16= 160 users with a dedicated 12.5 KB (kilobyte) per second speed connectivity.

Diagram 14: A Typical Local ISP Work Station Diagram in Dhaka



In order to facilitate the end-users to watch the movies online; the local ISP workstation should enable some necessary system upgrades. For example, the ISPs will need to have strengthened connectivity (10 megabits per second) and a 1000 Base T Ethernet set up. Internationally, a 64kilobyte per second dedicated broadband line to view movies online is recommended.

Diagram 15: A Proposed Local ISP Work Station Diagram for Film Distribution



This proposed upgrade of course raises the question of feasibility of this kind of development in Bangladesh. At present the internet users are approximately paying ৳700 (£6.07) monthly for their services. Therefore from the 160 users, the local ISP is earning ৳112,000 (£970.58). Apart from the staff and maintenance expenditure, they are also paying ৳27,000 (£233.98) (including VAT) per megabit broadband connectivity. If the ISP is to provide a movie downloading service, then either the end users have to pay 2.49 times higher than the current payment or the BTCL has to reduce its connectivity rate by 80%. The demand for reducing the connectivity charge is becoming very popular. Therefore, in the near future, it will not be impossible to include the internet users as the new movie audience (*YY*, Local ISP, Dhaka, 2009).

7.5.2 Mobile Phone as Means of Other Distribution Technique

Delivering film content through cellular phones is now a reality. After the commercial introduction of the 3G (third generation) network (the cell-phone equivalent of a broadband network), China has recently used this non-real time delivery system on a mobile phone to distribute their movies.[lxix] Similar to China, Bangladesh has recently started the process of entering into the 3G network.[lxx] According to the web information, Bangladesh currently has six operators and 78.07 million cell phone users[lxxi]

It will bring a revolutionary change if the Bangladesh film entrepreneurs can make a treaty with the current six operators (Grameen *Phone, Bangla Link, Robi, Airtel, Citycell and Teletalk,)* to deliver their films to the 78.075 million mobile phone users.

If the number of mobile phone users (78.07 million), internet users (995,560) and cinema hall audience (55.6 million) are added, this will contribute to a significantly immense audience of 134.67 million. This represents a very substantial number, considering the current population of Bangladesh stands at roughly 165 million. Using such methods, films could theoretically be distributed to over 81.61% of Bangladesh's population.

The film distributors of Bangladesh have raised a serious concern that the six cell phone operators are selling Bangladeshi film music as a song or ring tone format but are not paying any royalty to the distributors. Therefore, these distributors can easily regain money by suing them.

The growing market for mobile phones in Bangladesh has drawn attention to the cell phone manufacturers like *Ericson* and *Nokia*. These companies are producing their cell phones to satisfy Bangladeshi users. Therefore, they can include a very popular, newly released Bangladeshi movie. Moreover, a PDA can also do the same by including a Bangladeshi film by default, but to make this a successful job, the distributors have to make an agreement with the respective manufacturers.

7.5.3 Film Distribution through Cable Operators to Television

The Cable Operator Association of Bangladesh (COAB) is an organisation which delivers TV channels through cables to the home TV audience. Currently, the members of this association are thinking about opening a multiphase digital service (like BBC *i player*) to their users so that the users can surf the net and watch particular TV programmes they might have missed. Like HBO, there are no TV channels in Bangladesh which are only dedicated to showing films. COAB has therefore also expressed their interest in establishing a dedicated channel which would only podcast the Bangladeshi movies 24 hours a day:

Filmmakers, ignore us a lot. We have the minimum of a year's relationship with our customers because of the contract, but the film businessmen don't necessarily have such long term contracts with the customers. If filmmakers want to screen their films, they go to the TV channels owners, but I am there in the main section where it all counts. TV channel owners broadcast the films using satellites but if I don't want this to happen, I can stop the end users from receiving the screenings of the film. So ideally, the producers should come to us but instead they choose the TV channel owners over us. The audience don't watch one channel all day. We have 12 TV channels in Bangladesh. Producers need to come to the main location where it all happens rather than using intermediator diversions to screen their films. Those who are willing to seek cooperation

with us will be provided with cooperation. And if they do come forward, we could establish a cable operated channels to just showing films 24/7. (AAF, COAB, Dhaka, 2009)

If the Bangladeshi film entrepreneurs can propose a useful partnership policy, this could also be another ancillary market for film distribution. Therefore, it is clear that in Bangladesh there is a wide range of possibilities for digital distribution. The consideration of the film becomes more understandable as the source multiplies. Digital film distribution and exhibition is only possible when film entrepreneurs have access to and work together with respective institutes as already discussed.

National Phone is attempting to create a treaty with as many cinema halls as possible. Initially, they are targeting every district (64) of Bangladesh. They have a plan to use Direct to Hall (DTH) technology[lxxii] with the cinema halls they have made a deal with. DTH technology will enable them to deliver the films to the respective cinema halls through the dedicated digital networking system.

7.6 Environmental Factors: Film Exhibition

In terms of DT integration, a very positive impact has appeared which has somehow been ignored. The environmental friendliness which online distribution and digital projection offers has not specifically been explored.

As soon as the online distribution becomes a reality, the film 'cans' will no longer need to be transported physically. At an average of 60 films being produced each year, the huge nationwide transportation required will therefore decrease and also contribute to the reduction of carbon footprint by the BFI.

When the projectors used to screen traditional film are replaced by digital projectors, particular greening impacts will take place. The spools required to project the traditional films often become damaged and they become scratched. In such a case, the spool needs to be reprinted, which takes up a lot of energy and money. Moreover, when these plastic-based 35mm print outs become damaged they are thrown out to the garbage which henceforth contributes to the increasing unrecyclable landfills. Respondent *AAG* highlighted another factor contributing to carbon emissions during the film screenings:

Because the projectors used in our run-down theatres are more than 50 years old, a lot of carbon is emitted during the screenings of the films. This is very unhealthy for the projector operators. (AAG, Dhaka, 2009)

This carbon emission will surely decrease once the new DT is integrated in the cinema halls of Bangladesh. Therefore, this prospect of DT integration should be taken into account at this stage of preparing to integrate DT.

7.7 Legislative Factors: Film Distribution and Exhibition

The Bangladesh government is currently earning a substantial tax from the different cinemas. The existing tax system is not well appreciated by the film entrepreneurs. The government officials collect the taxes on the basis of total admissions. In practice there is a serious problem with calculating the tax. In almost every case, there is no consensus on deciding the amount of tax. A number of film professionals regard this state policy as causing some corruption. Some of the exhibitors do not want to disclose the actual figures of the admissions in order to save the money they have to pay as tax. In contrast, the tax officers always try to guess the exact admission figures so that they can increase their amount of tax collection. These corruptions are causing a large loss of government revenue. This loss will be higher if the film trade enters into the digital distribution. If the government cannot find any way to check the size and sale of the total film business, they will eventually lose more revenue.

Not only corruption, but the conservative attitudes of the government officials are also affecting the scenario adversely. Most government officials do not prioritise the film industry as much as it deserves. Especially, their attitude about offering a censorship certificate for a particular movie is not unquestionable. A very strict principle to recommend a censored certificate for a particular movie is also always maintained by the government officials. One of the respondents argued that the government is maintaining a double standard in the same country:

When an audience watches a foreign movie at home through TV, the government do not ask the channels for a censored certificate. Surprisingly, when the audience are watching the national movies in cinema halls, the government always asks for a long delaying censor process. (AAM, Dhaka, 2009)

The government officials were unable to formulate any potential policies to offer a censorship certificate to digital films. One of the critics depicted the government's control over new digital films which were waiting for their censorship certificate:

Films like 'Priotomeshu' by Morshedul Islam, 'Dubsatar' by Nurul Alam Atique, 'Kanna' by Maruf Hossain and 'Fire Eso Behula' by Tanim Noor are some films that are jailed in red tapes. All these films were made in digital format but only the Almighty knows when they will see the face of light.[lxxiii]

The chairman of the BFCB has admitted the crisis that has emerged after the new digital films asked for censorship. Whilst censoring a 35mm film, the BFCB literally cut the censored footage with scissors after watching the film. However, digital tapes have prevented them from doing that because digital tapes are not visually readable like 35mm positives.

Our existing law does not allow censorship for digital films. Therefore, we need to modify the law. A committee has been formed and they are currently working on modifying the law. (AAR, Dhaka, 2008)

As a state organisation, the government does not have any financial policy for providing assistance to expand the film business. The integration of DT in the BFI will need enormous financial support. Lack of assistance from financial organisations may seriously hamper the digital expansion of the film industry.

Preparing the industry for the digital era will need various types of equipment, such as projectors, screens, sound systems and movie servers. Importing equipment from different countries can cause a problem in standardising the film industry. A benchmark policy could help to resolve this problem. Unfortunately, the Bangladesh government has not yet formulated a useful policy to ensure technical standards and the homogenisation of digital equipment.

7.7.1 Legislative Support against Piracy

Distributors are not careful enough to expand their business or cautious enough to protect their business from potential threats like video piracy. It would thus be of interest to learn why the vigilant eyes of the distributors watch the ongoing activities of piracy and do not really take any anticipatory measure on their own. Instead, they always blame the law-enforcement agencies for not taking any practical initiatives to stop the piracy.

It is rational that the law-enforcement agencies of the government cannot act incautiously. An agency like the police always needs to know the validity of the claim before investigating the corruption of piracy. Some of the distributors cannot provide the valid documents in favour of their claim to protect their films. The reason of their failure to provide documents is well identified by another distributor:

There is a lack of consciousness within the film distributors. Before the release, any distributor should ensure the copyright of their movie. Some of the filmmakers do not pay any attention in having copyright. Therefore they do not get any official right to claim the protection for their film. Some of the filmmakers deliberately

avoid having the copyright of their own productions. They might have produced the film by copying another movie and did not take any official permission during their duplications. (KK, Dhaka, 2009)

When a pirated film is being pirated again by the video pirates, the producer of the plagiarised film has no moral strength to claim the protection of his movie from the government. It is rather easy to blame the government in this regard and gain some tax exemption on this ground.

Pirated film productions have really squeezed the market of video distribution of the creative films in Bangladesh. Digital films are easier to pirate than the 35mm formatted films because home users can use home devices to copy the digital films. However, because digital films are less expensive, there is a lesser chance of film producers of digital films making losses. Video pirates have almost captured the local market and established dominance. Therefore, genuine producers are not making any significant profits from video distribution. In this environment, a producer can earn as little as ৳100,000 (£866.59) to as high as ৳800,000 (£6,932.71) from the agreement of selling their right for video marketing. Interestingly, whoever buys the video rights eventually also receives the audio rights. Consequently, they sell the popular songs of the film as music albums. (*KK*, Dhaka, 2009)

7.8 Recommendations for Effective Integration

Assessing the existing problems can help the government to plan a constructive strategy for the film industry. With regards to formulating a strategy, it has been noted that there are serious arguments against the government restriction on importing foreign films. The Bangladesh government has banned importing any films from the neighbouring countries (mostly South East Asian Countries: India and Pakistan) since 1971. Some of the film professionals strongly approve of the cessation of the ban on foreign films. Those who are in favour of upholding the ban argue that it should continue “in order to nourish the local culture”.

On the other hand, those against the ban argue that this ‘ban’ is not helping the local movies. Local movies can reach their highest aesthetic and technical quality if they compete with foreign films. One of the film professionals pointed out some potential benefits of suspending the ban:

I have witnessed the enormous demand of the movies of the SAARC countries in Bangladesh. The government should utilise the opportunity of the audience craze to earn extra revenue from the industry. Out

of the 52 weeks, the government can allocate a number of weeks for foreign films and can also ask exhibitors to invest a portion of their extra income in order to develop cinemas for a digital era. (AAG, Dhaka, 2009)

It is an important strategic decision on the government's part to think about this issue. If the government wants to have more private funds available for developing film industry, then this could be a useful way to raise money from an internal market system.

Setting up the film industry for digital expansion can also be aided by offering tax holidays for a limited amount of time. If the government was to offer a tax holiday for a limited period for the investors, the investors may feel attracted to join in the venture. The recent research experience reflects a serious tension of distrust between the existing service providers of the country. For example, the local ISPs do not want to see the cellular phone companies entering this area and providing an internet service to users.

If the government does not protect the small business activities, it has to stand against the multinational venture. In the same area, another rivalry exists between the cable operators and the ISPs. The cable operators are also trying to reach the ever growing digital market. COAB is thinking of reaching their existing customers with new digital services like internet and digital television. Furthermore the satellite TV companies are transmitting their content through cables, so COAB always wants to have a bargaining position in favour of their business interest. The local video shops do not appreciate COAB's transmission of the recently-released popular movies through their coaxial cable connectivity. The hidden business enmity between the different service providers in Bangladesh could flare up and intensify a serious problematic situation for the state. Therefore while planning the strategic involvement for a digital decade the government should consider all of them critically.

The western capitalistic world has a long history of operating its film industry in private ventures. The BFI is partly operated by the government and partly by private endeavours. A mixed and unmatched operation is causing several problems. This problem can be easily solved by ensuring a strategic policy to privatise the whole industry and by ensuring well regulated command of the state over the industry.

7.9 Summary

The issues examined in this chapter are very important in terms of how the film businesses will grow in the immediate digital future. The rise of productions of digital film is indicating

an oncoming revolution of the film business in exhibition. If private efforts for digital distribution and exhibition come into operation, this will soon revolutionise the whole set up of the industry. Additionally, ancillary digital markets can become a regular source of motivation and revenues. The prospects of ancillary markets like internet distribution, mobile phone distribution, digital discs rental or selling outlets were discussed to identify their huge possibilities. Later on, the bureaucratic practices, which are causing crisis in the industry, were also identified and discussed. A number of other difficulties due to the lack of state policies in the industry were also examined in this section. If Bangladeshi film entrepreneurs wish to use this technology to boost their business for the digital decade, they need to have a united vision to start with. Finally, this study has also suggested the strategic vision for the future digital film business.

Chapter 8: Conclusion

8.1 Context

This research began with the objective of identifying the impacts of integrating DT in the BFI. As a part of the process of achieving this objective, this study wanted to examine the apparent impacts (readiness and response functions) on the film workforce of integrating DT. This research has considered four interrelated stages: the role of the BFDC management in integrating DT, the functions of the NIMC and other organisations in the workforce development of DT, the readiness and response factors of the production workforce in integrating DT and, finally, the readiness and response factors of the distribution and exhibition workforce in integrating DT.

As part of concluding this research, it is important to specify the preliminary goal of this study, and also to highlight the achievements and findings of this research. One of the unique factors of this research is that it is the first to discuss an LEDC's film industry as a case study in terms of doing an Impact Analysis on a workforce, in the process of integrating a new technology. Moreover, this research is also the first to use the PESTEL model on a film industry doctoral research[lxxiv]. This research has proven that the novel approach of this PESTEL model not only identified the existing challenges to a workforce, but also helped to provide suggestions to overcome them. Thus, this model can be used in a worldwide context to do further research on film industries (especially in LEDCs during the integration of a new technology). Moreover, in the light of the following recommendations that will be made in the context of the BFI, many could be used in a worldwide context to help LEDCs develop their film industries.

In the next part of this chapter, the recommendations deduced from the analysis in chapters 4, 5, 6, and 7, will be overviewed in more detail. The limitations faced in the course of data collection and therefore in the research findings will also be addressed in order to contribute to ideas for further study in this field.

8.2 Objective of this Study

In 2003, when the Bangladesh government launched DT project, it was the first step in integrating DT into the BFI. It was launched with the intention of realising the potential of

what DT had to offer to the industry (BFDC 2002). However, the failure caused by this yet unfinished project proved that the industry was not, and still is not completely ready for the new integration. The lack of readiness in the industry resulted in the lack of response within the workforce of the industry. In identifying the faults in the integration process, the above mentioned four stages were thought of by me to come up with recommendations and possible solutions in building up the readiness and response factors of the industry.

8.3 Chapter 4 Recommendations: The BFDC Management

At the beginning of this research project, particular attention was given to identifying the initial assumptions which accelerated the initiative of integrating DT in the BFDC. The BFDC management predicted that integrating a new technology would enable the industry to become operationally more responsive to the new technology, and enable the organisation to compete in the market on cost and quality. The BFDC predicted that this proposed change would also have some impacts on the distribution and exhibition options. Unfortunately, not all of their predictions came true. Therefore, the question arises as to why those predictions failed.

In summarising the main arguments that emerged from in the analysis of chapter 4, the political affiliations carried out by the BFDC management acted as the most dominant reasons for the failure of DT integration process. DT project was initiated solely by the political interest of the management. Rather than identifying and emphasising the organisational needs, the politically-biased management wanted to prioritise their political interests. In applying the PESTEL model in the BFI context, this study therefore proved that within the six PESTEL factors, the political factor proved to be the most dominant factor which eventually controlled the other factors in the organisational decision-making within Bangladesh.

This study also discovered that like many organisations in the LEDCs, the BFDC does not have an R&D unit. Therefore, the culture of knowledge and skills development to innovate or integrate new technology is hardly discernible the BFI. The absence of the R&D unit created this kind of knowledge gap. As discussed (Szakonyi 1990) earlier (in chapter 2), through a continuous and systematic evaluation of all the key issues that may affect an organisation's output, an R& D unit becomes acquainted with the strengths and weakness of its own organisational capabilities, and therefore it provides useful guidance on how to improve it.

Whilst integrating a new technology, the suggestions of R&D units become crucial, as they can make suggestions to the management about choosing the right technology which has excellent technical merits and good potential commercial pay-offs. Without such R& D unit, it seems difficult for any organisation (for example, the BFDC) to imagine how the required knowledge and skills can be achieved. Such knowledge weakness therefore exposed those organisations to political intervention in decision-making.

However, during the analysis, it became obvious that in order to avoid the knowledge gap which could be gained from the R&D unit, the BFDC management adopted two strategies prior to DT integration. The first strategy consisted of assigning a Project Director (PD) to undertake the project through knowledge assimilation, preparing the list of required equipment, building up capacity through physical infrastructure and human skills development. The second strategy consisted of building up a committee of experts outside the industry to assist the PD. However, later fieldwork, as discussed in Chapter 4, disclosed that the PD was temporarily sacked from his job because of the allegations against him when procuring the equipment for the project and thus ignoring the suggestions of the committee[lxxv]. This failure thus proved that a PD could not be a replacement or alternative for an R&D unit. This experience therefore helped to show and recommend that within LEDCs, where prevention of corruption is not always easy, responsibility should not always solely be imposed on the PDs to carry out an entire project.

In this connection, it was further advised by the respondents that the BFDC could hire foreign consultants as an alternative. However, it is also important to consider that consultation from a single background may produce some bias over decision-making. Consequently, asking for consultation from a wide range of experts from multiple backgrounds will give the organisation which has a poor R& D record more breathing space. Even though hiring multiple consultants could be expensive for the BFDC, the management of LEDCs like Bangladesh have no choice if they want to avoid corruption. The contribution of a consultant is invaluable in a lot of cases in the situation of a LEDC. Consultancy is not only needed for knowledge assimilation and equipment procurement, but enhancing the capability for skill development also needs consultancy. Moreover, in order to ensure the legislative support required for dealing with the international counterparts, consultancy is also needed. However, the foreign consultants may not be able to serve national cases for the BFDC. In such a case,

national consultants free from political engagement need to be hired to maintain national cases within the BFDC.

Even after assigning various consultants, both national and international, this process will not be successful without the input of management itself. For instance, prior to DT integration, the committee had suggested procuring the Telecine Machine, NLE System and Reverse Telecine as equipment for the Post-Production Unit. However, the management only bought two of the three items mentioned, which caused the new system to remain non-functional to this date. In such cases, if the management had taken the time to listen to the consultancy of the committee, the process could have become an overall success.

Prior to the integration, the BFDC management did not carry out a feasibility study. Therefore, most importantly, the management failed to work out the economic potentiality of this project. This thesis proved from the case studies that the production cost of DT is 30% cheaper than 35mm celluloid production. This study also proved that currently the amount of the credit service that the BFDC management offer to the producers, would dramatically decrease because the producers would be able to produce films with small loans. This is because the main cost of buying the film footage would never be eliminated. Therefore, the new technology would help the BFDC management to have more control over their credit services than before.

As the management did not recognise the economic potential of this project, they were unable to convey that potential to the respective stakeholders (e.g. Producers). Therefore, the ultimate response to the new technology was very disconcerting. For example, since 2006, only 0.84% (i.e. 3 films out of 356) of the total production has been made using DT in the BFDC. This figure shows the extent of the social rejection of the workforce in adopting DT. This also proves that the social campaign required in favour of popularising the new technology within the BFDC (the organisational learning environment) was disregarded by the management.

A number of indicators, such as underutilisation of DT equipment, have been found which suggest that lack of knowledge and skills has been one of the most critical reasons for the rejection of DT. *ABA* claimed that in double shift (16 hours) working patterns, the one unit of NLE system was capable of completing the editing of two movies in a day. Therefore, the two units were capable of editing 120 movies in a month. The recent report published in a

weekly magazine proved that since the start of this project (2006), this NLE service could have been used to edit 600 movies, but in reality only 15 movies were edited; which means that only 2.5% of the major DT capacity was utilised. This is because the BFDC management ignored the basic rule of the manufacturing process of a DT unit by starting the phase with the Post-Production capacity rather than the Production capacity.

The above reasons for failure indicate the need for a further recommendation. The BFDC management should emphasise 'organisational learning' as this is a crucial issue for the successful integration of a new technology.

8.4 Chapter 5 Recommendations: Training Capability

Without knowing the size of the entire industry, it would not have been possible to judge the extent of the impact it would have on the workforce. This research is therefore the first in Bangladesh to have come up with a size of the industry. Including the various private firms such as micro firms with fewer than 10 employees, and some small firms with 50 employees, and counting all the staff of different government organisations linked to the industry, it was worked out that the BFI has a total workforce of 7,893.

In identifying the probable effects of DT integration, this research has also distinguished the members of the workforce into three categories: not vulnerable, slightly vulnerable and vulnerable. The first category is the non-vulnerable group. This study has identified that the majority of the BFI workforce (5081 members), thus 63.73% of the total BFI workforce are in the non-vulnerable group. As their jobs do not require any technical knowledge, skills or training, they are safe from losing their jobs. The second category of 917 workers (11.47%) is in the slightly vulnerable group, who will need to learn a few adjustment tips to adapt to DT. The third category of 1975 workers (24.80%) is in the vulnerable group. The range of the most vulnerable segments has been classified down further to two groups: groups (of 1695 workers) that will be affected if they cannot immediately learn the new technology, and groups (of 280 workers) that will lose their job simply because their job does not exist in the digital industry. The employees of the vulnerable group, who will lose their job if not trained immediately, have been identified as prospective trainees.

The data from the NIMC revealed that no training initiative was particularly conducted to train up the trainees of the BFI, who importantly will need immediate training for integrating DT. The thesis later explored whether the NIMC had the capability to immediately train the

1,695 members of the film workforce. Chapter 5 has therefore already denoted the various limitations of the NIMC's capability, such as lack of training equipment, in the analysis. Therefore, the following part of this concluding chapter will discuss the recommendations and possible solutions to overcome the limitations.

Data from Chapter 5 revealed that the NIMC does not have the equipment required for the technological capacity build up to train the vulnerable workforce. While the BFDC failed to integrate DT fully, the NIMC could instead build up a fully-fledged capacity through adopting all the digital equipment that is appropriate within the industry for their training purposes. If the NIMC could acquire this equipment, they could play the role of a technological gatekeeper nationally. However, in reality, no such initiative was seen within the NIMC to become gatekeepers. Therefore, in response, a further recommendation can now be made. The NIMC could become a testing place to examine the compatibility of the latest media industry equipment and technology. Their recommendations could assist the national media industry towards building up a homogeneous technological setup. Compatibility between the training equipment and technology with the industry settings can be an advantage for the entire media workforce.

The notion of setting up homogeneous technological equipment suggests that if nationally all the equipment becomes identical, the fixity could lead to rigid ways of working, where the room for innovation and creative practice within the workplace may not remain. However, as a LEDC, as long as an innovative capability is not developed, a homogeneous technological set up should be considered. If a homogeneous set up is present, a national level maintenance skill will be developed, which will make the technologies present functional and operational. Moreover, keeping the idea of a homogeneous specification in mind, different organisations will be able to import the technology from international markets at competitive prices.

Coming into the position of a gatekeeper[lxxvi], the NIMC will require a sizeable budget to procure all the latest equipment and technology. It was evident from the analysis that, apart from the NIMC's revenue expenses (such as salaries and overhead costs), currently the government's budgetary allocation for media training purposes is meagre. Therefore, in order to develop a healthy financial capacity of the NIMC, a further recommendation can also be made. The government will have to increase their current budgetary allocation, so that the NIMC can meet the nationwide demand for media training and lead the industry as an early

adopter of the new technologies. However, the LEDC's funding problems may be seen as a barrier in this context.

Although an adequate budgetary allocation will certainly assist the NIMC with increased ability to up-skill more people in providing the training to the film workforce immediately, a new training environment should also be developed. It was obvious from the analysis that the film workforce would not be able to attend an on-campus mode of training in the NIMC for a lengthy period. As discussed several times earlier, the economic constraints of these trainees once again limit their attendance at such courses. Therefore, another recommendation was identified for the NIMC to develop an e-learning capability. It was revealed earlier (in chapter 5) from the web source information mentioned by the NIMC, that the organisation has a capacity of offering training to an average of 288 people in a year[lxxvii]. Hence, it would be challenging to train up 1,695 vulnerable and 917 slightly vulnerable film workforce members, without the support of the e-learning facility. E-learning technology will eventually facilitate a learning environment where all the prospective trainees would be able to learn the theoretical issues and be able to fill their knowledge gaps. Moreover, during the short-term on-the campus practical phase, they would learn the skills required to become a digitally skilled film workforce.

Enhancing the on-campus and off-campus capability of the NIMC, another recommendation can be made. It was evident from the analysis that, apart from the few management staff who also contributes as trainers, there is an acute lack of staff for teaching and training purposes. Therefore, according to the national training requirements, the NIMC should recruit their teaching and training staff on a permanent basis. As this study has already proved that those employees who are working in the NIMC on deputation have less efficacy than the employees working on a permanent basis, this study thus recommends employing more permanent academic staff.

It was apparent from the analysis that, as a national institution, the NIMC has little social interaction with the other similar training or academic organisations within Bangladesh. Not only does the NIMC have a weak social relationship with academic organisations, but it also has poor relations with the various organisations within the media industry. Therefore, in many organisations such as the BFDC, the workforce has developed an indigenous style of learning, rather than applying the standard jargon and techniques into their work place. This

is why the recommendation to develop an effective social linkage should be seriously considered.

The media's impact on society begins from early childhood. Therefore, many MEDCs around the globe have included media education from school level to higher level. It was clear from the analysis that, in Bangladesh, media education is not included within the school and college level. Therefore, the inclusion of media education in the curricula of general education and also in the vocational curriculum is crucial. In this vein, this study also made a recommendation that national media education and training policy should be developed. This policy will eventually help to develop a new media workforce to work in the digital era. A number of respondents therefore suggested that the autonomous status of the NIMC could facilitate the institute to act independently in this regard.

8.5 Chapter 6 Recommendations: The Production Workforce

Aside from the failure of the BFDC management and the incapability of the NIMC as a skilled training organisation to train up the film workforce, this thesis has identified some more internal problems of the production workforce related to failure of DT integration.

Political instability, investment in plagiarised movies and its effects on the workforce economy, non-functional equipment and inferior lab materials, absence of practicing copyright acts, have all been identified as serious problems by the production workforce. If digital shooting was incorporated in the industry, a lot of these problems would immediately have been overcome. Interestingly, in the case of integrating DT, the fact that not introducing DT shooting is a problem has not been recognised by many members of the production workforce. How DT shooting implementation will be able to help overcome a lot of these problems will be discussed below.

Implementing digital shooting into the production workforce will create changes in the dynamics of the workforce. Even though digital shooting will not directly lead to political stability, the new digital cameras will increase the productivity of the workforce. Therefore, the initial productivity decrease that the political instability can create was causing could be cancelled out by productivity growth.

Secondly, digital shooting will also lead to a stronger implementation of the existing copyright act. DT will enable the workforce to put in place technological security systems, as

well as the copyright act, which will act as a defence mechanism for film producers trying to protect their films. Hence, if this act is widely observed, it will be harder for film pirates to plagiarise the films, thus strengthening the defence mechanism of the digital film content.

Thirdly, a strict eye of copyrighting will immediately indicate a stop in plagiarism. Lack of plagiarism will result in new investments, both foreign and local. This will hopefully corner the film producers who have committed plagiarism and free the production workforce from their economic shackles.

Finally, the problems related to lab materials and equipment will also be overcome as the low quality celluloid materials will no longer be required. The digital tapes will be of high quality and will not need frequent repairing, thus ensuring that there will no longer be any problems associated with the lab workforce.

The new DT will certainly help to overcome the above problems if introduced into the production workforce. However, along with the prime recommendation of introducing digital shooting, the workforce will also require capability enhancements. A local software package can be developed to help screenwriting, storyboarding and the production management in their roles. A local database can be created which will include all the successful and popular stories to help screenwriters further into their career.

Being a bureaucratic organisation, the BFDC has been proven to be tentative and resistant throughout the DT integration process. Recently, a number of scholars have suggested privatisation as an alternative option. However, a number of privatisation initiatives in Bangladesh were not successful in terms of improving management control, commercial performance and development (Uddin & Hopper 2003). Therefore, instead of privatisation, a new notion of ‘co-management’ has become popular in management science. Carlsson & Berkes (2004) have defined the notion of Co-management:

Co-management, or the joint management of the commons, is often formulated in terms of some arrangement of power sharing between the State and a community of resource users. (Carlson & Berkes 2004; p 65)

These scholars have identified six positive connotations of co-management: allocation of tasks, exchange of resources, linking different types and levels of organisations, reduction of transaction costs, risk sharing and conflict resolution mechanism through power sharing. Furthermore, they have uncovered the limitations of this management system. Co-

management is more suitable as a process of generating alternative solutions in a demanding situation rather than facilitating the decision-making process which implies different choices between different alternatives.

If the notion of co-management is genuinely introduced into the BFDC, a new organisational learning culture will be created which will become an addition to the NIMC's training as a competitive workforce for the digital era.

8.6 Chapter 7 Recommendations: Exhibition and Distribution

Without digital exhibition and distribution, this integration process will remain incomplete. In line with the earlier recommendation of integrating digital shooting within the production stage of the industry, digital exhibition and distribution have been put forward to make the integration process successful. Currently, out of 618 cinema halls in Bangladesh, none of them include any digital exhibition or distribution facilities. There is no use in digital shooting unless there is a digital way of screening the film. Therefore, not integrating DT into the film exhibition and distribution will once again result in an ultimately unfinished project.

In order to make this integration successful, support from the government is needed. According to the suggestion by respondent *AAG* mentioned earlier in chapter 7, if the government could begin a 5-year tax holiday policy, it would surely encourage cinema hall owners to refurbish their single screen-cinema halls into multi screening multiplexes. However, keeping in mind that some owners cannot afford to refurbish the cinema halls even after the 5-year tax holiday, the Public Private Partnership (PPP) can also be recommended to be used to take out loans. Owners may perhaps also wish to combine both of these recommendations to make it easier for them to refurbish their cinema halls. Moreover, the government can also encourage other financial organisations to step forward and provide loans in this regard as a viable sector of development and growth in the entertainment and cultural industries in Bangladesh.

Even though, in the case of the nationwide film production, a homogeneous set up has been recommended earlier in this chapter, it has not been recommended for digital exhibition. This is because, even though the idea of multiplexes may attract several audiences from the urban areas, it may not be able to attract audiences from the rural areas due to their economic constraints. However, deciding the number of screens within a multiplex or refurbishing the

single screens requires market research about the optimal audience of those cinemas in terms of their geographic location.

In order to make the new multiplexes a success, the films need to be distributed digitally as well. The ISPs currently have many internet customers, who, if the films are distributed online, will create a 1.96% increase in the audience capacity of Bangladeshi films[lxxviii]. Furthermore, with the new launch of the 3G network in Bangladesh, film can also be released in mobile phones for mobile users. This will create the possibility of another 155.54%[lxxix] rise in the audience capacity. Finally, the COAB currently has 2,200 operators nationwide with whom they would like to open a dedicated cable channel to show films 24/7. Hence, if digital distribution can also make use of other ancillary markets, this will surely increase their revenue. In order to make this a success, stakeholders such as ISPs and COAB operators need to work cooperatively. Therefore, with the help of what DT has to offer, film distribution in Bangladesh will also take a new shape.

8.7 Limitations of the Research and Further Research Ideas

Identifying the reasons why the BFDC paid little or no attention to conducting a proper feasibility study prior to the integration of DT project was the basic query from where this research began. Through the case study methods and interview techniques, this research has explored the various grounds for ignoring a feasibility study prior to integrating DT project. One of the strengths of the case study method was that it helped to reach the diverse workforce of the BFI very effectively. It also proved to be useful when trying to reach the operational members of both the celluloid and digital workforce (production, distribution and exhibition workforce). Although the case study method proved to be very useful when finding out in-depth information about members of the operational unit, it did not, however, provide any insights on the non-operational workforce. Therefore, with the aim of knowing the views of the non-operational film professionals (government officials, independent filmmakers and training and academic staff) in and outside the film industry and contributing to the industry directly or indirectly, an interview technique was also chosen. Although this research was able to address the research questions, the limitations cannot be ignored.

While calculating the size of the industry workforce, this research mainly used the published members' lists of the various groups of the BFI workforce. Ideally, a census should have been taken[lxxx], but because the entire workforce population was too large and the time-frame

limited for this study, this was not possible. I was, therefore, unable to collect any reliable data to calculate the number of the workforce associated in the 618 cinema halls. Alternative means of collecting data through phone calls or emails did not work well. Therefore, an estimated figure was used to calculate the number of the exhibition workforce. During the field work, it was realised that, in addition to the existing methods, using the survey method could be more helpful in collecting data and validating the research with an exact number of the BFI workforce. The limitation of not using a survey method was further felt while calculating the number of total admissions in the cinema halls of Bangladesh.

As the theory of self-efficacy has already been used in the educational context, in analysing the training capability (Chapter 5) of the NIMC, this study has therefore used the concept of self-efficacy to explore the efficacy level of the NIMC workforce. However, this theory was not applied in indentifying overall efficacy levels of the workforce associated in the production, distribution and exhibition arms while integrating the new technology. A further research on identifying the levels of efficacy while integrating any new project can be planned to investigate this research in greater depth.

Though not exhaustive, this research has indentified key elements of the mainstream film workforce and the scenarios of the commercial film industry but did not explore the independent film workforce and their ventures. A comparative study between the mainstream industry and independent ventures in integrating DT might be helpful for developing more insights. Parallel to the film media, a conceptual idea of a new media is becoming popular, so, how the current film workforce helps themselves to fit into this new media is a concept worth studying.

Throughout the fieldwork and interview analysis, a number of respondents have suggested developing a clear policy for film production and distribution. The importance of a film policy during the integration of a new technology has been felt during this study. A lot of questions need to be answered before developing a fruitful film policy. For example, like many LEDCs, according to the existing public procurement law of Bangladesh, the lowest bidder always gets the job of supplying the industry with the necessary equipment or material. The issue of the lowest bidder possibly providing the industry with poor quality products has been recognised. Therefore, like Bangladesh, countries that use this process should devote further research and attention to overcoming the limitations that the public procurement laws offer.

If the Reverse Telecine Machine can be incorporated within the manufacturing unit of the BFDC, the BFDC will be fully operational to facilitate a dual mode of production systems, which will be capable of producing both the 35mm celluloid and digital films. It is therefore deemed to be crucial for the BFDC to integrate the Reverse Telecine setup. However, it is also important to consider how long the BFDC management will run this dual-mode production system. It was already discussed earlier (in chapter 1 and 6) that owing to foreign resource dependency, it would not be possible to continue the celluloid production system in the BFDC. Thus this study would also like to recommend establishing a solely digital production capability within the BFDC which could reduce the expenses of the industry.

Even though this research has worked with the economical factors in many aspects, there was a limitation to the study. This study was carried out under the codes of humanities research and therefore an in depth economic analysis was not possible. This research suffered from not predicting the optimal production capacity of the BFDC in using DT. Without evaluating an optimal production capability, the production capacity at which cost per unit is minimised will be unknown. In the absence of the optimal production capacity, it is not possible to generate a cash flow statement, where both the income and expenses can be computed, and thus to make a proper cost-benefit analysis to prove whether the integration process would ultimately be viable. In filling those gaps, an individual research study should be made, based on a purely economic perspective, to complete the cost-benefit analysis and prove the worthwhileness of DT integration in the BFI from a different perspective.

References

Appendix 1 List of Respondents:

AA: Executive; Bangladesh Screenwriter's Association; BFDC; Dhaka; 4th August, 2009

BB: Government Official; BFDC; Dhaka; 20th April 2009

CC: Government Official; BFDC; Dhaka; 22nd May 2008

DD: Executive; Cine Directorial Associates of Bangladesh; BFDC; Dhaka; 20th December 2009

EE: Official Staff; National Phone Limited; Dhaka; 4th April 2009

FF: Booking Agent; Association of Bangladesh Film Booking Agents; Dhaka; 23rd April 2009

GG: Executive; Bangladesh Cinematographers Association; BFDC; Dhaka; 3rd May 2008

HH: Case Study 2; Digital Film; Member of the Production Unit; Dhaka; 24th April 2009

II: Case Study 1; 35mm Celluloid Film; Member of the Production Unit; Dhaka; 6th May 2008

JJ: Government Official; Bangladesh Telegraph & Telephone Board; Dhaka; 27th April 2009

KK: Case Study 1; 35mm Celluloid Film; Member of the Distribution Unit; Dhaka; 5th May 2008

LL: Case Study 1; 35mm Celluloid Film; Member of the Production Unit; Dhaka; 23rd April 2008

MM: Case Study 2; Digital Film; Member of the Production Unit; Dhaka; 25th May 2008

NN: Government Official; NIMC; Dhaka; 16th May 2008

OO: Film Director; *Captain Maruf*; BFDC; Dhaka; 3rd May 2008

PP: Government Official; BFDC; Dhaka; 22nd April 2009

QQ; Member of the Production Unit; *Captain Maruf*; Dhaka; 3rd May 2008

RR: Case Study 1; 35mm Celluloid Film; Member of the Production Unit; Dhaka; 4th May 2008

SS: Case Study 1; 35mm Celluloid Film; Member of the Production Unit; Dhaka; 4th May 2008

TT: Government Official; BFA; Dhaka; 20th May 2008

UU: Staff; Bangladesh Film Exhibitor's Association; Dhaka; 7th April, 2009

VV: Staff; Bangladesh Film Artist's Association; Dhaka; 9th April, 2009

WW: Programmer; SSL Wireless, Jahangir Tower; Dhaka; 18th April 2009

XX: Case Study 2; Digital Film; Member of all the Units; Dhaka; 22nd May 2008

YY: Local Internet Service Provider; Horizon & Associates; Dhaka; 26th March 2009

ZZ: Case Study 2; Digital Film; Member of all the Units; Dhaka; 24th April 2008

AAA: Case Study 1; 35mm Celluloid Film; Member of the Production Unit; Dhaka; 1st May 2008

AAB: Faculty Member; Shahjalal University of Science and Technology; Sylhet; 5th April 2009

AAC: Executive; Bangladesh Film Production Manager Association; Dhaka; 29th April 2008

AAD: Case Study 1; 35mm Celluloid Film; Member of the Production Unit; Dhaka; 30th April 2008

AAE: Case Study 1; 35mm Celluloid Film; Member of all the Units; Dhaka; 7th May 2008

AAF: Local Television Cable Operator & Executive Member; COAB. Dhaka; 19th April 2009

AAG: Ex Executive Director; Star Cineplex; Dhaka; 11th April 2009

AAH: Government Official; NIMC; Dhaka; 20th May 2008

AAI: Executive; Purnima Cinema Hall; Dhaka; 8th January, 2011

AAJ: Executive; Bangladesh Film Directors Association; BFDC; Dhaka; 2nd April, 2009

AAK: Case Study 2; Digital Film; Member of the Production Unit; Dhaka; 25th May 2008

AAL: Independent Film Director; Dhaka; 12th & 13th May 2008

AAM: Executive; Bangladesh Film Exhibitor's Association; Dhaka; 18th April 2009

AAN: Chief Operating Officer; Escenic Bangladesh Limited; Dhaka; 18th March 2009

AAO: Government Official; BFDC; Dhaka; 28th April 2009

AAP: Executive; Bangladesh Producers and Distributors Association; Dhaka; 18th April 2009

AAQ: Film Journalist; Dhaka; 23rd April 2009

AAR: Government Official; BFCB; Dhaka; 21st May 2008

AAS: Staff; Bangladesh Film Distributors Managers Association; Dhaka; 20th April, 2009

AAT: Case Study 2; Digital Film; Member of the Production Unit; Dhaka; 25th May 2008

AAU: Case Study 1; 35 mm Celluloid Film; Member of the all the Units; Dhaka; 27th April 2008

AAV: Executive; Bangladesh Tele-centre Network; Dhaka; 28th April 2009

AAW: Faculty Member; Independent University of Bangladesh; Dhaka; 18th May 2008

AAX: Executive; Motion Cine Club; Dhaka; 25th March 2009

AAY: Film Director; *Monpura*; BFDC; Dhaka; 2nd April 2009

AAZ: Faculty Member; School of Social Sciences; University of Liberal Arts; Dhaka; 25th March 2009

ABA: Government Official; BFDC; Dhaka; 22nd May 2008

Appendix 2 Topic Based Information Questions

Pre-production Topic

(Questions for the Interview with the Screenwriters)

1. Do you think that the appeal of different genre is class based? How will you define the relationship between genre and class in terms of digital age?
2. How do you like to make a balance between the local dimension of script writing and the need of global dimension by the Audience/Consumers?
3. Would you like to adopt any new genre or make a sequel?
4. Do you have any plan to make a film totally different (product differentiation) from your neighbouring countries?
5. Are there any mechanisms originally aimed at guaranteeing the level of production quality?
6. Is there any conservatism prevailing in film than other media?

(Questions for the Interview with the Production Managers)

1. When did you start your career and who inducted you into this venture?
2. Would you please define your job specification?
3. Who carries out the job of location hunting?
4. Are you familiar with the term ‘script breakdown’? How do you do this?
5. Who does the scheduling of the film? How many shifts have the artists, crew members (Director, Ad’s, Cameraman, Camera Assistants, Light Assistants, Sound crew and Assistants, Editing Assistants, Set Designer, Carpenters, Costume Designer, Make-up Artists, Production Manager, Production boys, Singers, Music Composer, Musicians and Dubbing Crew) worked for in order to complete the film?
6. Who does the budgeting of the film? How much does each of the artists and crew members (Director, Ad’s, Cameraman, Camera Assistants, Light Assistants, Sound crew and Assistants, Editing Assistants, Set Designer, Carpenters, Costume Designer, Make-up Artists, Production Manager, Production boys, Singers, Music Composer, Musicians and Dubbing Crew) get paid?
7. Have you used any computer software during production management?

Production Topic

(Questions for the Interview with the Directors and Producers)

1. How many production units are there in Bangladesh?
2. Do you think that the BFI would be able to face the challenges of globalisation or will it be swamped by the competition?
3. What will happen to Bangladeshi Cinema within the frame of a market characterised by technology advance and aggressively marketed productions?
4. After introducing this DT do you think that it will enskill, deskill or will not make any change to your skill ability?
5. Are there any reasons or lack of aesthetic/technical skills that are displacing the BFI out of the market?
6. Are there any ideological reasons or lack of entrepreneurial skills that are displacing the BFI out of the market?

(Questions for the Interview with the Cameramen)

1. How long have you been working for?
2. How did you learn it?
3. Have you taken any formal training?
4. How many assistants did you have?
5. Generally, during shooting, what type of filters did you use? Can you name some of them?
6. What type of filters have you used in this particular film? What type of lens or adapters have you used to create effects in this film- for example, fish eye?
7. Who controlled the tracks, dollies and jib arms?
8. Did you use cranes whilst filming?
9. Have you worked in any other film format rather than the one you have recently worked in?
10. Are the cameramen a part of a particular association? If yes, are you a member of that association?
11. Did you see any speciality within the lighting procedure of your film format?
12. How did you produce slow motion and fast motion?
13. How have you used wide-and narrow-angle lens in this production?
14. How do you define your working relationship with the Director?

15. What do you think of the Director's technical knowledge and capability?
16. Have you suffered because of the lack of technical knowledge from the director?
17. Have you ever disagreed on the position of the camera with the director?
18. Have you experienced any embitterment from the director regarding the depth of the field?
19. Whilst shooting outdoor, did you use a translucent cloth to reduce the intensity of the sunlight or use direct sunlight?
20. During the shooting, did you chalk out any shot divisions?
21. Have you worked in any production where there was a storyboard? If yes, was it difficult to work on the basis of a storyboard?
22. Have you used any support from the clapperboard?
23. How do you differentiate Indoor Lighting for the day and night?
24. How much do you get paid, working as a cinematographer, for every shift in shooting?
25. How have you worked in this film on the basis of a fixed-rate agreement or shift-based agreement?

(Questions specifically designed for the digital cameraman)

26. Is there any difference in the camera work between digital film production and television production?
27. In average, what is the highest amount of light (kilowatts) you used during shooting- both indoor and outdoor?
28. How did you stop a computer's monitor from flickering during on screen?
29. Generally, in Bangladesh, cameramen have to change their lenses throughout the day (from morning to evening) to suit the daylight when shooting in 35 mm film format. Currently, you are using the digital format. So, did you have to change your filter in a certain way as well?
30. Have you ever put any mounting device on the lens of the camera whilst shooting? Did it cause any resolution loss

Post-production Topic

(Questions for the Interview with the Editors)

1. How did you commence your career in editing?
2. Have you received any formal training?
3. Could you please define the traditional process linear editing?
4. In addition to existing linear editing, have you experienced DT in film editing?
5. Have digital technologies and related skills been developed to enable Editors to use digital resources for post-production?
6. What is the impact of DT at your department and on other associated departments?
7. How do you consider the integration of DT in the whole of BFI perspective?
8. How do you like to define your relationship with the Directors?

Distribution Topic

(Questions for the Interview with the Distributors)

1. What approximately is the sales turnover in Bangladeshi Taka?
2. How many distribution channels and exhibition halls/ cinemas are there in Bangladesh?
3. What are the businesses challenges both from Bangladesh and abroad?
4. Are you well aware about consumer preferences?
5. How do you enjoy the Seasonal/ Geographical advantage and how do you avoid the Seasonal disadvantage?
6. Do you conduct or have contact with any Audience Research Organisation?
7. Do you measure Stars' popularity every few months?
8. Have you analysed your Fan Mails to get rough indication of stars' appeal?
9. What are the ancillary markets for the BFI?
10. In addition to your existing physical distribution and marketing, are you thinking about virtual distribution and marketing?
11. How much is your manufacturing and distributing cost for physical copies of a CD or DVD?
12. Do you face any rivalry among consumers when go for physical distribution and marketing?
13. Are you aware of illegal duplication of your film content?
14. Have you taken any preventive measuring against counterfeiting?

15. Have you ever think about pay-preview technique in order to expand your revenue?
16. It is natural for the audience, whose prior knowledge of a particular movie is not sufficient, to seek additional information to avoid risks, such as wasting money and time. Do you deliver information (critical reviews, previews and advertising) adequately?
17. How do you reach to your audience with your product information?
18. Do you think that those are effective?
19. Do you believe in product branding?
20. How do you have used branding technique?
21. According to brand theories, a movie sequel can be conceptualised as in brand extension? Have you worked with that?
22. In movie industry creating brand equity for Actors, Director, or a Production Budget, Genre are very common technique. Which one do you use and how do you prioritise them?
23. Do you have any rating system like MPAA rating, Critics rating, Audience rating?
24. Do you use any digital media to publicise your product information?
25. Do you have any intention to develop any cinema websites to advertise your films?
26. Do you have any plan to increase the number of screens?
27. Have you identified your market SWOT?
28. Do you have any policy for business optimisation?
29. What are the major challenges for the industry? Can you classify them broadly in short, medium and long term in nature?

(Questions for the Interview with a Local Internet Service Provider)

1. Could you please define the set-up of your local internet service programme?
2. How much do you charge for this service?
3. How much do you have to pay the government/company for your connectivity?
4. Would you current service be useful for online film distribution? If not, how else would you provide it? Would you have to change any technical set-ups?

(Questions for the Interview with a Local Cable Television Operator)

1. When was the COAB founded?
2. Can you define the nature and area of your service?
3. What is your service user number?
4. How much do you charge your service users?

5. What kind of technology do you use to provide your service? Is it analogue or DT or both? If you use both, then how do you convert your analogue signals into digital ones or vice versa?
6. What sort of wire do you use for your service?
7. How many television channels do you broadcast in total?
8. Often, you use a channel to show films. How do you decide which film to show? And whilst showing these particular films, how do you follow the copyright law?

9. Often, you always show foreign films, eg. Hindi films. Would you want to establish a dedicated channel showing Bangladeshi films only?

10. Currently, you are providing a package service which includes a number of channels. Aside from the common package, do you plan to provide individual channels to act as extras in packages according to the service user's need?

11. Do you plan to use decoders?
12. How do you define satellite dish TV and other business competitions?
13. Do you have any plans to integrate DT into the business?

14. Do you have any further intentions to provide a local internet service in addition to your current servicing?

15. How do you define your relationship with the National TV Industry?
16. How do you define your relationship with the BFI?
17. Do you have any intentions to build up a partnership with the BFI?

Appendix 3 Open-Ended Questions

Open-Ended Questions: Focus Groups - Government Officials

The aim of designing the open-ended questions was to intervene in the dynamics of the group in a conversational environment. It was my plan to limit the group discussion to two hours.

1. What is the current government policy regarding technology transfer?
2. What were the motivating factors for implementing DT in film editing in Bangladesh?
3. What were/are the barriers to implementation?
4. How are diverse interests addressed? What are the ongoing challenges?
5. How would the government like to function about the further expansion of DT in film industry?
6. The Film industry workforce may be classified as skilled, semi-skilled and un-skilled. Have you designed any training policy to improve the workforce skills into a homogenous level and to train them to face the digital challenges?
7. Nowadays internet is becoming a new medium for advertising and public relations, a new way for enhancing customer service, a new channel for distributing and selling products. How does the government like to define this, as a scope or threat to BFI?
8. Among the mass media how does the government evaluate the film media?
9. What are the criteria for the evaluation?
10. In addition to marketing and selling motion pictures online, the Web is becoming a popular exhibition venue. Most net casters have a consortium of channels, which contain hundreds of programs that can be streamed to any online users. Programs are either broadcast live or archived on high capacity network servers and streamed to users through video and audio. How would the government and especially BFA like to deal with this issue?
11. Are you planning to introduce any Film/Media policy for the new millennium?
12. Do you have any plan to increase production and productivity of the existing production systems?
13. Have you established any unit to strengthen the Research and its development in Film media?

14. Is your organisation conducting or preparing to conduct any methodological research in order to develop appropriate technology, test existing technology or provide suggestion for integration of new technology?
15. As a state institution have you ever facilitated any workshop for existing workforce?

Open Ended Questions: Focus Groups – Film Professionals

1. Are you currently enjoying DT in the post-production process?
2. Do you think that DT has a potential for pre-production and production phases too?
3. E-cinema or digital cinema has the potential to completely revolutionise the motion picture theatrical system. The idea behind e-cinema is to digitally transmit movies to a central computer server, which can then be digitally projected onto a theatrical screen. Do you have any plan to establish a dedicated network of high-band fibre optic cables and satellites to introduce and boost e-cinema?
4. Converting a single theatre to e-cinema has been estimated at $150,000 which is quite expensive. However, a key advantage for using digital projection is image and sound integrity. Unlike celluloid film projection, which brings unwanted wear-and-tear to expensive prints, digital allows a motion picture to be viewed and heard perfectly every time. How do you like to explain the complex scenario?
5. Ever since the Internet took shape as a digital means to promote and sell goods and services, moviemakers have used web promotion, digital radio, cell phone and chat room techniques for marketing and distribution. Do you think that these techniques could be useful for Bangladesh too?
6. National film industries, especially those in Europe, attempt to protect themselves from global film productions through various regulations. How do you like to face the threats of globalisation in the film industry of Bangladesh?
7. Lack of Media Literates is causing various problems in developing a skilled workforce for the BFI. How can the academics provide help to overcome the problem?

Appendix 4 NIMC Organogram

To understand the nature of Training Workforce of NIMC, the organogram of the organisation is presented at bellow.

Organisational Structure of National Institute of Mass Communication (NIMC)

	DG	
Director (Training-Programme)	Director (Training-Engineer)	Director (Administration-Development)
1. Deputy Director TV Programme 2. Deputy Director Radio Programme 3. Deputy Director Graphics and Design 4. Deputy Director Film	1. Deputy Director Television Engineering 2.Deputy Director Radio Engineering 3.Deputy Director Computer Training 4. Deputy Director Camera and Lighting	1.Deputy Director Research 2.Maintanence Engineer 3.Deputy Director Administration 4.Deputy Director Finance
1. Assistant Director Television Programme 2.Assistant Director Radio Programme 3.Assistant Director Graphics & Design 4. Assistant Director Film 5.Assistant Director Mass Communication	1.AssistantDirector Television Engineering 2.Assistant Director Radio Engineering 3.Assistat Director Computer Training 4. Assistant Director Camera and Lighting	1.Computer Programmer 2.Research Officer 3.Librarian 4.Assistant Maintenance Engineer 5.Assistant Director Administration 6. Assistant Director Finance 7.Cameraman

Appendix 5 NIMC Training Database for the Government Officers

A brief list of the Induction /Orientation Training Programmes arranged by NIMC since 1987 is as follow.

No	Trainee	Date	Duration	Year
1	NIMC Staffs	08th August,8025th September,80	07 Weeks	1980
2	NIMC Staffs	26thMarch,81 21st April,81	05 Weeks	1981
3	BCS (Information General) Cadre Officers	15th February,88 12th May,88	13 Weeks	1988
4	BCS (Information General) Cadre Officers	6th August,88 3rd November,88	13 Weeks	1988
5	BCS (Information General) Cadre Officers	26th August,95 30thNovember,95	14 Weeks	1995
6	BCS (Information General) Cadre Officers	14th September,97 04th December,97	12 Weeks	1997
7	Newly Appointed Art Designer of BTV	29th March,98 23rd April,98	04 Weeks	1998
8	Newly Enlisted Artists of Radio Bangladesh	19th May,98 07th June,98	03 Weeks	1998
9	Officers of BB, PIB, DMC & DFP	5th September,99 25th November,99	12 Weeks	1999
10	BCS (Information Radio General) Cadre Officers	09th May,1999 20th May,1999	2 Weeks	1999
11	BCS (Information Radio General) Cadre Officers	04th July,1999 15th July,1999	2 Weeks	1999
12	BCS (Information General) Cadre Officers	16th July,2000 5th October,2000	12 Weeks	2000
13	BCS (Information General) Cadre Officers	14th January,01 5th April,01	12 Weeks	2001
14	BCS (Information General) Cadre Officers	05th August,01 25th October,01	12 Weeks	2001
15	BCS (Information General) Cadre Officers	07th April,02 27th June,02	12 Weeks	2002
16	BCS (Information General) Cadre Officers	01stSeptember,02 21st November,02	12 Weeks	2002
17	BCS (Information General) Cadre Officers	06th December,03 26th February,04	12 Weeks	2003 2004
18	BCS (Information General) Cadre Officers	04th December,04 24th February,05	12 Weeks	2004 2005

NIMC has also offered another type of Induction Training Programme for the BCS (Information Engineering) Cadre Officers. Here a brief list of those training programmes is enclosed.

Serial Numbers	Trainee	Date	Duration	Year
1	BCS (Information Engineering) Cadre Officers	1st November,86 30th January,87	12 Weeks	1986 1987
2	BCS (Information Engineering) Cadre Officers Cadre Officers of Radio Bangladesh	8th November,87 20th March,88	19 Weeks	1987 1988
3	BCS (Information Engineering) Cadre Officers	222nd October,88 26th January,89	14 Weeks	1988 1989
4	Newly Appointed BCS (Information Engineering) Cadre Officers of Radio Bangladesh	18th May1996 12th August,1996	12 Weeks	1996
5	BCS (Information Engineering) Cadre Officers	19th October,1998 11th January.1999	12 Weeks	1998 1999
6.	BCS (Information Engineering) Cadre Officers	14th March,1999 24th June1999	12 Weeks	1999
7	BCS (Information Engineering) Cadre Officers	23rd Jasnuary,2000 20th April,2000	12 Weeks	2000
8	BCS (Information Engineering) Cadre Officers	17th January,2001 29th March,2001	12 Weeks	2001
9	BCS (Information Engineering) Cadre Officers	4th February,2001 3rd May,2001	12 Weeks	2001
9	BCS (Information Engineering) Cadre Officers	30thDecember,01 28th March,2002	12 Weeks	2001 2002
10	BCS (Information Engineering) Cadre Officers	21st Decem,ber,02 20th March,2003	13 Weeks	2002 2003
11	BCS (Information Engineering) Cadre Officers	06thDecember,03 26th February,04	12 Weeks	2003 2004
12	BCS (Information Engineering) Cadre Officers	04th December04 24th February,05	12 Weeks	2004 2005

NIMC has conducted a huge number of training courses on various fields. Here a brief list of 73 types of trainings NIMC has provided from 1980-2005 is being enclosed.

Sl No.	Training titles	Organisation	Date	Duration
1.	Writing for Radio	Radio Bangladesh	16/04/80-25/04/1980	10 Days
2.	Television News Reading	BTV	24/04/80 -08/05/ 1980	2 Weeks
			19/05/80-21/05/1980	3 Days
			13/06/1981-15/06/1981	3 Days
			12/11/1988-17/11/1988	1 Week
			07/12/1988-13/12/1988	1 Week
			15/07/1995-27/07/1995	2 Weeks
		Bangla News Reader of BTV	13/07/1997-24/07/1997	2 Weeks
			25/11/1997-03/12/1997	1 Week
		English News Reader of BTV	16/11/1997-24/11/1997	1 Week
3.	Basic Television Production	BTV	15/09/80-08/11/1980	8 Weeks
			17/11/80- 29/11/ 1980	2 Weeks
	Techniques of Television Production	BTV	19/10/1981-31/10/1981	2 Week
	Television Production	BTV	03/05/82-28/05/1982	4 Weeks
4.	Techniques & Operation of TV Studio	BTV	17/09/80-19/10/1980	5 Weeks
5.	Television News Production	BTV	17/12/80-10/01/1981	4 Weeks
			25/05/1981-12/06/1981	3 Weeks
6.	Audio Tape Recorder Operation & Maintenance	Radio Bangladesh	02/02/1981-07/02/1981	1 Week
			18/01/82-30/01/82	2 Weeks
	Radio Engineering (Audio Equipments Operations)	Bangladesh Betar	19/09/1987-15/10/1987	4 Weeks
7.	Balancing of Radio Studio	Radio Bangladesh	09/02/1981-14/02/1981	1 Week
			09/03/1981-14/03/1981	1 Week
8.	Communication Problems of TV Production (Phase 1)	BTV	09/02/1981-10/02/1981	2 Days
	Communication Problems of TV Production (Phase 2)	BTV	28/02/1981-05/03/1981	1 Week
9.	Television Network Presentation	BTV	24/02/1981-26/02/1981	3 Days
10.	Introduction to Television Engineering/ TV Engineering (Phase-1)	BTV	02/03/1981-10/03/1981	9 Days
			31/08/1981-12/09/1981	2 Weeks
			17/07/83-08/09/1983	8 Weeks
			01/04/84-31/05/1984	8 Weeks
			15/03/86-14/05/1986	9 Weeks
			21/09/1987-17/01/1988	16 Weeks
			26/09/1987-17/01/1988	16 Weeks

			06/10/1990-30/12/1990	11 Weeks
			05/11/1994-26/01/1995	12 Weeks
	Television Engineering (Basic)	Sub-Assistant Engineers of BTV & NIMC	30/01/2000-24/02/2000	4 Weeks
11.	Techniques of Video Production	BTV	06/05/198130/05/1981	4 Weeks
		Freelancer, BAF, FDC, AIN	15/09/1990-08/12/1990	12 Weeks
		BAF, BOU, Children & Mother Health, SARRAC, Agriculture Information Service, City Corporation	31/08/1997-23/10/1997	8 Weeks
		Freelancer	30/11/1996-23/01/1997	8 Weeks
			18/04/1999-08/06/1999	7 Weeks
			02/07/2000-24/08/2000	4 Weeks
		Dept of Journalism & Mass Communication, DU	03/05/1998-21/05/1998	3 Weeks
			02/04/2000-13/04/2000	2 Weeks
	Video Production on Health Education	ICDDRB, Bangladesh	20/07/1985-25/07/1985	1 Week
	Workshop on Video Technology	Bangladesh Air Force	02/04/1986-07/04/1986	1 Week
12.	Introduction to Television	BTV	29/06/1981-01/07/1981	3 Days
13.	Motivational Programme Design for Agriculture	BTV	17/08/1981-22/08/1981	1 Week
		AIS,BADC	05/02/84-09/02/1984	1 Week
		Bangladesh Betar, BIDE,BADC,AIS	02/12/85-21/12/1985	3 Weeks
	Motivational Radio Programme Design for Rural Women	Sri Lanka/India/ Nepal Myanmar/ Maldives/ Brunei/Malaysia/ Bangladesh	08/09/1990-26/09/1990	6 Weeks
14.	Introduction to Radio Engineering/Radio Engineering (Phase-1)	Radio Bangladesh	21/09/1981-03/10/1981	2 Week
			06/02/83-31/03/1983	8 Week
			09/10/83-01/12/1983	8 Weeks
			01/04/84-31/05/1984	9 Weeks
			26/01/85-21/03/1985	8 Weeks
			03/08/85-25/09/1985	8 Weeks
			26/10/85-21/12/1985	8 Weeks
			25/01/86-20/03/1986	8 Weeks
			13/0986-06/11/1986	8 Weeks
			14/03/87-07/05/1987	8 Weeks
			16/10/1990-06/12/1990	8 Weeks
			11/03/1995-09/05/1995	9 Weeks
15.	Maintenance of Broadcasting Equipments	BTV, NIMC Radio Bangladesh	17/10/1981-03/12/1981	1 Week
16.	Management of Engineering Equipments	BTV, NIMC Radio Bangladesh	27/10/1981-20/11/1981	4 Week

17.	Material Design & Creation for Distance Learning Through Radio Media	BTV, IRDP, School Broadcast and Radio Bangladesh	08/02/82-26/02/82	3 Weeks
	Material Design for Training Purpose	NIMC	06/03/1990-05/04/1990	5 Weeks
18.	Radio Programme Presentation	Radio Bangladesh	19/04/82-24/04/1982	1 Week
			17/11/84-29/11/1984	2 Weeks
			14/12/85-26/12/1985	2 Weeks
			18/06/1996-30/06/1996	2 Weeks
			01/03/1998-12/03/1998	2 Weeks
	Radio Programme Presentation & News Reading	Bangladesh Betar	02/03/85-07/03/1985	1 Week
	News Reading for Radio	News Readers of Radio Bangladesh	13/01/1996-25/01/1996	2 Weeks
19.	Techniques of Television Measurement	BTV	05/07/82-17/07/1982	2 Weeks
20.	Television Programme Presentation	BTV	16/08/82-21/08/1982	2 Weeks
21.	Radio Programme (Phase 1)	Radio Bangladesh	31/10/82-23/12/1982	8 Weeks
			17/04/83-09/06/1983	8 Weeks
			12/02/84-09/04/84	8 Weeks
			29/04/84-07/06/1984	6 Weeks
			14/07/84-05/09/1984	8 Weeks
			29/06/85-22/08/1985	8 Weeks
22.	Digital Technology & Microprocessor Implications	Radio Bangladesh, BTV and NBA	05/12/82-15/01/1983	6 Weeks
			11/12/83-20/01/1984	6 Weeks
	Digital Technology (Basic)	Bangladesh Betar	24/09/1988-19/10/1988	4 Weeks
		BTV, NIMC	14/07/1990-09/08/1990	4 Weeks
			03/06/1995-06/07/1995	5 Weeks
			29/061996-01/08/1996	5 Weeks
			17/08/1997-25/09/1997	6 Weeks
			29/03/1998-09/05/1998	6 Weeks
		BTV, BOU, NIMC	30/04/2000-08/06/2000	6 weeks
23.	Population and Development Communication (Radio)	Thailasnd/Fiji/Malayasia/Banglade sh/Nepal/Bhutan/Filiphine/Indones hia	23/02/83-17/03/1983	4 Weeks
	Development Communication (Radio)	Bangladesh Betar/AIS/NIPORT	09//10/83-27/10/1983	3 Weeks
	Development Broadcasting (Health)	Bangladesh Betar, BTV, Family Planning Wing	03/12/1988-29/12/1988	4 Weeks

24.	Audience Research & Programme Evaluation (Preliminary)	Radio Bangladesh	05/06/83-09/06/1983	1Week
		Asia Pacific Regional Countries(13)	04/09/83-06/10/1983	5 Weeks
25.	Maintenance of Radio Equipments	Radio Bangladesh	07/08/83-01/09/1983	4 Weeks
26.	Population and Communication (TV)	Asia Pacific Regional Countries(13)	04/09/83-06/10/1983	5 Weeks
27.	Television Programme (Phase 1)	BTV	23/10/83-10/12/1983	8 Weeks
			24/11/84-24/01/1985	9 Weeks
28.	Trainers Training	NIMC	08/01/84-02/02/84	4 Weeks
			04/01/87-05/01/1987	2 Days
29.	Operation of Television Camera (Basic)	BTV	04/03/84-29/03/1984	4 Weeks
			24/01/87-26/02/1987	5 Weeks
	Operation of Television Camera & Lighting	Assistant Cameramen of BTV	22/06/1997-17/07/1997	4 Weeks
		BTV, BOU	03/09/2000-14/09/2000	2 Weeks
	EFP Technology	BTV	23/08/86-28/09/1986	4 Weeks
	Operation of Film Camera	Freelance Film Cameraman	03/10/1987-11/01/1988	14 Weeks
30.	Television Programme (Phase 2)	BTV,BIDE,NIMC, National Museum	01/04/84-10/05/84	6 Weeks
31.	Television Engineering (Phase 2) Colour Camera	BTV	25/08/84-24/09/1984	5 Weeks
			13/07/85-08/08/1985	4 Weeks
	Television Engineering: Transmitter (Phase-2)	BTV	01/12/84-27/12/1984	4 Weeks
			03/11/85-28/11/1985	3 Weeks
	Television Transmitter Engineering Study	Engineers of BTV	23/05/1996-05/06/1996	2 Weeks
	TV Eng. Microwave Technology	BTV & Bangladesh Betar	25/0186-12/02/86	3 Weeks
32.	Photography	BTV	23/02/85-25/02/1985	3 Days
33.	News Reading for Radio And Television	BTV and Radio Bangladesh	16/03/85-04/04/1985	3 Weeks
		BCS (Information) Cadre Officers	27/03/1988-21/04/1988	4 Weeks
			31/01/1999-04/02/1999	1 Week
		BTV	05/09/1995-21/09/1995	
34.	Role of Mass Communication in Development Process	DMC	01/06/85-10/06/1985	10 Days
			05/07/86-16/07/1986	11 Days
	Techniques and Process of Mass Communication	DMC	02/06/1990-28/06/1990	4 Weeks
			11/03/1995-06/04/1995	4 Weeks
			03/08/1996-29/08/1996	3 Weeks

			03/08/1997-28/08/1997	4 Weeks
35.	Scenic Design & Graphics for TV	BTV	13/10/84-08/11/1984	4 Weeks
	Scenic Design for TV (Phase1)	BTV	06/07/85-01/08/1985	4 Weeks
			22/11/86-03/01/1987	6 Weeks
	Art Direction and Scene Design	BTV	03/04/1987-30/04/1987	4 Weeks
	Art Direction -Producing & Camera Operating	BTV	23/04/1988-19/05/1988	4 Weeks
36.	Television Programme: Educational (Phase 2)	BTV	114/09/85-10/10/1985	4 Weeks
	Educational TV Programme Through Entertainment	BTV, BIDE, NIMC, National Museum	18/01/1988-23/01/1988	1 Week
	Educational Television Programme	Producers of BTV, BOU	21/12/1997-08/01/1998	3 Weeks
37.	Computer Programming	PID/Freelance	28/09/85-14/11/1985	6 Weeks
			04/04/87-29/04/1987	4 Weeks
38.	Radio Programme (Phase2)	Bangladesh Betar	06/11/83-20/12/1983	7 Weeks
			05/10/85-31/10/1985	4 Weeks
39.	Television Colour Studio & Lighting	BTV	11/12/83-20/01/1983	3 Weeks
			13/10/84-08/11/1984	4 Weeks
40.	External Broadcasting Planning	BTV	23/01/86-27/01/986	3 Days
41.	Broadcasting of Television Study	Bangladesh, Sri Lanka India	19/04/86-15/05/1986	4 Weeks
42.	TV Drama Production	BTV	113/10/84-08/11/84	4 Weeks
43.	Pronunciation Workshop	Radio Bangladesh	14/01/1986-21/01/1986	1 Week
			14/03/87-25/03/1987	2 Weeks
			18/10/86-23/10/1986	1 Week
	Pronunciation & Reading Workshop	Bangladesh Betar and Different Educational Institutes	09/07/1988-19/07/1988	2 Weeks
		Bangladesh Betar, Chittagong Centre	03/10/1990-17/10/1990	2 Weeks
44.	Basic use of Computer	NIMC	21/03/87-02/04/1987	2 Weeks
	Computer Operations	Free Lancer	11/06/1988-07/07/1988	4 Weeks
45.	Women Development (TV)	Bangladesh, India, Nepal, Pakistan, Sri Lanka, Iran, Indonesia	23/11/86-18/12/1986	4 Weeks
46.	Air Conditioner Maintenance	Bangladesh Betar, BTV	20/12/86-03/01/1987	2 Weeks
	Techniques of Air Conditioner Operation	BTV, BOU	09/11/1996-05/12/1996	4 Weeks

47.	Television Equipments Technology	BTV	04/04/1987-30/04/1987	4 Weeks
48.	Store Management	BTV Bangladesh Betar	28/05/1988-09/06/1988	2 Weeks
49.	Techniques for Writing & Directing for Film	Free lancer	26/09/1989-29/09/1990	22 Weeks
50.	Techniques of Broadcast able Educational Programme Production	Bangladesh Betar	03/03/1990-28/03/1990	4 Weeks
51.	Techniques of Presentation	Rover Scout	04/03/1990-18/03/1990	2 Weeks
			02/12/1995-14/12/1995	2 Weeks
			13/04/1996-25/04/1996	2 Weeks
		Rover Scout, DU	01/03/1997-06/03/1997	1 Week
			31/05/1998-11/06/1998	2 Weeks
		Presenters of Districts Information Office	15/06/1997-19/06/1997	1 Week
	Techniques of Programme Presentation	Meteorologists of the Directorate of Meteorology	03/09/2000-07/09/2000	1 Week
52.	Techniques of Presentation (Phase-2)	Presenters of the DMC	18/07/1999-29/07/1999	2 weeks
53.	Radio Engineering (Phase-2) (Studio Equipments)	Bangladesh Betar	11/03/1990-09/04/1990	4 Weeks
54.	Equipment Maintenance	NIMC	17/03/1990-12/04/1990	4 Weeks
55.	Drama Performance	Freelancer, BTV Bangladesh Betar and Theatre Performers	21/07/1990-09/08/1990	4 Weeks
56.	Sports Commentary Techniques	Freelancer, BTV, Bangladesh Betar and Bangladesh Sports Writers Association	22/12/1990-10/01/1991	3 Weeks
		Bangladesh Betar, BTV	08/07/1995-27/07/1995	3 Weeks
57.	Techniques of Educational TV Programme Production	Bangladesh Open University	14/01/1995-29/01/1995	3 Weeks
58.	Techniques of Radio Performance	Radio Bangladesh, Chittagong	21/01/1995-02/02/1995	2 Weeks
		Newly Enlisted Artists of Bangladesh Betar	119/5/1998-01/06/1998	3 Weeks
			07/12/1999-18/02/1999	2 Week
59.	Techniques of Radio Production: Magazine Genre	Radio Bangladesh	15/04/1995-04/05/1995	3 Weeks
			02/08/1998-20/08/1998	3 Weeks
	Techniques of Radio Programme Production:	Bangladesh Betar	16/11/1996-21/11/1996	1 Week
60.	Techniques of Television	BTV	08/04/1995-07/05/1995	4 Weeks
		Mechanics, Technicians &	01/03/1997-27/03/1997	4 Weeks

		Operators of BTV	31/01/1999-25/02/1999	4 Weeks
61.	Techniques of Sound	BTV	08/04/1995-07/05/1995	4 Weeks
			16/11/1997-11/12/1997	4 Weeks
			18/10/1998-12/11/1998	4 Weeks
		BTV, DMC,NICVD	21/11/1999-15/12/1999	4 Weeks
		AIS, DMC, BTV, BOU	06/08/2000-31/08/2000	4 Weeks
62.	Techniques of Television Performance	Enlisted Artists of BTV	11/01/1996-04/02/1996	3 Weeks
63.	Audio Visual Techniques		06/04/1996-18/04/1996	2 Weeks
	Audio Visual Equipments Operation and Maintenance	PAE Operators of Divisions & Districts	28/09/1997-09/10/1997	2 Weeks
			11/01/1998-22/01/1998	2 Weeks
			28/02/1999-11/03/1999	2 Weeks
			07/11/1999-18/11/1999	2 Weeks
			05/11/2000-16/11/2000	2 Weeks
64.	Radio News Production	News Section, Bangladesh Betar	23/11/1996-1028/11/1996	1 Week
65.	Techniques of Radio Interview	Programme Organisers of Bangladesh Betar	26/04/1997-08/05/1997	2 Weeks
66.	Lesson on Developing Skills in Communication	Information Officers of Information Directorate	26/04/1997-08/05/1997	2 Weeks
			26/04/1998-09/05/1998	2 Weeks
67.	Broadcast Journalism for Women in Television	China, Cambodia, Louse, Nepal, Vietnam, BTV	08/06/1997-12/06/1997	1 Week
68.	Techniques of Radio	Radio Technicians of Bangladesh Betar	08/02/1998-12/03/1998	5 Weeks
			16/08/1998-17/09/1998	5 Weeks
			08/08/1999-09/09/1999	5 Weeks
69.	Techniques of Lighting	Producers, Art -Designers, Cameramen of BTV,FDC,BOU	26/07/1998-02/08/1998	2 Weeks
			28/11/1999-09/12/1999	2 Weeks
70.	Innovative Radio Programme Design for the Development of the Women and Children	Programme Organisers, Presenters, Scriptwriters and Researchers of Bangladesh Betar	28/02/1999-16/03/1999	3 Weeks
71.	Television Script writing for Children's Programme	BTV Dhaka, BTV Chittagong, DFP	05/09/1999-09/09/1999	1 Week
72.	News Reporting for Television	Newly Recruited News Reporters of BTV	23/01/2000-10/02/2000	3 Weeks
73.	Techniques of Film Camera Operation and Film Editing	DFP,BTV,FDC and DU	28/05/2000-22/06/2000	4 Weeks
			18/02/2001-04/04/2001	6 Weeks

Research Seminar and Workshops organised by NIMC (1980-2005)

Title Design	BTV	06th June,80	1 Day
Role & Importance of Broadcasting Research	BTV, NIMC	21/11/1981-22/11/1981	2 Days
	Radio Bangladesh	23/11/1981	1 Day
Seminar on Research	Radio Bangladesh/BTV	20/07/83-21/07/1983	2 Days
Development Communication (Radio)	Bangladesh Betar/AIS/BTV/NBA	30/10/83-31/10/1983	2 Days
Seminar on Audience Opinion about	BTV	27/07/1984	1 Day

Television Programme			
Pronunciation Workshop on Bangla Language	Radio Bangladesh BTV	01/10/1984-03/10/1984	3 Days
		23/04/1985-25/04/1985	3 Days
Seminar on Suitable Instruction Technology for Film	Film Crews and Film Journalists	07/09/1985	1 Day
Influence of Audio Media in Mass Communication	DMC	10/06/1990	1 Day
Facts for Life	Ministry of Information, DMC, BTV, UNICEF, REBA, Ministry of Health, NIMC	03/05/1995-04/05/1995	2 Days
		25/06/1996	1 Day
	Officers of Radio Bangladesh	14/09/1995	1 Day
Facts for Life Annual Planning & Workshop	DMC: District Information Officers	16/05/1995-18/05/1995	3 Days
Facts for Life Radio Programme Production	NIMC, UNICEF	10/07/1995-11/07/1995	2 Days
Seminar on TV Programme Production	NIMC	12/07/1995-13/07/1995	2 Days
Seminar on Archive Road Show	Radio Bangladesh, BTV, NIMC, BFA, Archive Library, BOU	28/10/1995	1 Day
Introductory Planning (1996-2000) for Objectives & Goals of Bangladesh in Communication with Women& Children		20/11/1995-22/11/1995	3 Days
UNICEF Seminar	Radio Bangladesh, BTV, DMC, PIB	06/02/1996-07/02/1996	2 Days
Workshop on Oral Dehydration	Radio Bangladesh, NIMC	16/07/1996-18/07/1996	3 Days
Workshop on ORT Scriptwriting	Scriptwriters of Radio Bangladesh	22/08/1996-24/08/1996	3 Days
Workshop on the Elimination of Discrimination to Women and Children's Rights	Bangladesh Betar, BTV, NIMC	17/12/1996-19/12/1996	3 Days
	DMC	21/12/1996-23/12/1996	3 Days
		10/03/1998-12/03/1998	3 Days
	Bangladesh Betar, BTV,DFP, Ministry of Information ,NIMC	11/02/1998-12/02/1998	2 Days
Workshop on the Elimination of Discrimination to Women and Children's Rights & Mina Cartoon	Ministry of Information, DMC, DFP, BRAC, Uddipon , NIMC	22/08/1999-24/08/1999	3 Days
Workshop on Further Needs of Training	Bangladesh Betar, BTV, NIMC, DMC	29/12/1996-30/12/1996	2 Days
		23/03/1998-25/03/1998	3 Days
Workshop on Digital Video Technology	BTV, BOU	30th January, 1997	1 Day
Workshop on Operation of TV camera for Sequence–making Purpose	BTV, BOU, Health Directorate	12/03/1997-13/03/1997	2 Days
Deep Debriefing Workshop Session on the Communication Aims of Women and Children's Development	Trained Facilitators UNICEF	27th February, 1997	1 Day
Techniques of Radio Programme Presentation	Announcers of Bangladesh Betar	06/08/1997-07/08/1997	2 Days

Workshop on Innovative Programme Design to Communicate Properly with the Women and Children Development	Officers of Bangladesh Betar	19/08/1997-20/08/1997	2 Days
Workshop on the Innovative Techniques of Radio Script Writing for the Children	Bangladesh Betar ,Nepal Radio	22/02/2000-09/03/2000	3 Days
Workshop on Women and Children Health Information	Women and Children, BTV, DMC and Ministry of Information	26/08/1997-28/08/1997	3 Weeks
Introductory Workshop on Communication to Develop the Health & Nutrition Information among the Women and Children	BTV, Bangladesh Betar, DMC, PIB, DA, DFP and NIMC	01/09/1997-04/09/1997	4 Days
	Ministry of Information, BTV, Bangladesh Betar	17/11/1997-19/11/1997	3 Days
Workshop on the Techniques of Radio Script Writing for Women and Children Development Communication	Ministry of Information, BTV, Bangladesh Betar, DMC, PIB and NIMC	02/11/1997-04/11/1997	3 Days
Workshop on the Innovative Techniques of Television Script Writing	Scriptwriters of BTV	28/04/1998-30/04/1998	3 Days
Workshop on the Television Script Writing for the Children's (AIBD)	Script Writers of BTV, MI	10/09/2000-14/09/2000	5 Days
Workshop on Orientation of FFL Book & CRC Monitoring	Districts Officers, DMC	24/05/1998-25/05/1998	2 Days
		02/06/1998-03/06/1998	2 Days
Techniques of Video Production	NIMC, Untried & Advertising House, Dhaka	16/09/1998-17/09/1998	2 Days
Workshop on Preparing the Work Plan of Communication Process of 1999 to Fulfil the Development Objectives of the Women & Children of Bangladesh	Bangladesh Betar, Ministry of Information, BTV, DMC, PIB, DFP and NIMC	12th November,1998	1 Day
Workshop on Preparing the Rough Log Frame of the Project of 1999		15th November,1998	1 Day
Workshop on Preparing the Annual Report and Finalise the Work plan of Communication Process of 1999 to Fulfil the Development Objectives of the Women & Children of Bangladesh	Ministry of Information and its all Directorates	02nd December, 1998	1 Day
Workshop on Preparing the Work Plan of Communication Process of 1999 of Bangladesh Betar to Fulfil the Development Objectives of the Women & Children of Bangladesh	Officers of Bangladesh Betar	29th November, 1998	1 Day
Workshop on Work Plan of the DMC for 1999	DMC	24th November, 1998	1 Day

Brain Storming Workshop to Detect the Needs of Training in 1999	Ministry of Information and its all Directorates	30th November, 1998	1 Day
Practice Workshop in the Field Area for Women & Children Project	Ministry of Information BTV, Bangladesh Betar, PIB, DMC Proshika, BRAC, NIMC	05/07/1999-08/07/1999	4 Days
Practice Workshop in the Field Area and Having Health Information	BB, BTV, PIB, DFP, TMSS, MI, Planning Cell, BRAC, Proshika, NIMC	31/07/2000-03/08/2000	4 Days
Modern Broadcast Management (AIBD Regional Curriculum)	Ministry of Information, BB, BTV, NIMC	21/11/1999-23/11/1999	3 Days
Trans - Border Broadcasting for SAARC Region (AIBD Sub-Regional Seminar)	Ministry of Information and SAARC Region	15/05/2000-17/05/2000	3 Days
Workshop on CRC CEDOW and MEENA	Ministry of Information, BB, PIB,DFP, NIMC, Proshika, BRAC	18/12/1999-20/12/1999	3 Days
		24/11/2000-27/11/2000	4 Days
Discussion and Workshop on Need Assessments for Designing Work Plan for 2000	Ministry of Information, BB, BTV, PIB, DMC, NIMC	19/01/2000-20/01/2000	2 Days
Workshop on Interactive Radio Instruction	Ministry of Information, BB, NIMC	23/10/2000-24/10/2000	2 Days
Workshop on Television in Aging Society	BTV,ETV, Nepal, Sri Lanka , India, Bhutan, Pakistan, NIMC	29/10/2000-02/11/2000	5 Days
Participatory Communication Technique Workshop Part-1	Ministry of Information, DMC, NIMC	19/01/2001-20/01/2001	2 Days
Participatory Communication Technique Workshop Part-2	Ministry of Information, DMC, NIMC	28/01/2001-29/01/2001	2 Days
Serial Script Writing & Production for the Indian Sub –Continent-Bangladesh Workshop	Script writers of BTV	27/03/2001-31/03/2001	5 Days
3rd International Workshop on Behaviour Change Communication State's in Nutrition Reproductive Health & Health	WIHCC-WIF, NIMC (Uganda, Kenya, Cambodia, Nepal, South Africa & Sri Lanka)	12/05/2001-18/05/2001	1 Week

Appendix 6 Summaries in English of the Respondents' Bangla Transcripts

Screenwriters

- II: Case Study 1; 35mm Celluloid Film; Member of the Production Unit; Dhaka; 6th May 2008
- AAK: Case Study 2; Digital Film; Member of the Production Unit; Dhaka; 25th May 2008
- AA: Executive; Bangladesh Screenwriter's Association; BFDC; Dhaka; 4th August, 2009

For this study, the mentioned three screenwriters were interviewed to get a balanced view of screenwriters and their opinions. More emphasis was placed on the interviews of the two screenwriters from both case studies. Screenwriter *AA* was cast to retrieve data from the Bangladesh Screenwriter's Association's activities.

Screenwriter 1(Case Study 1)

II has written over 100 fiction films in his 32 year career. He has received no formal training in the fields of screenwriting but was invited to several workshops arranged by the local United States Information Service (USIS). The workshops were claimed to be helpful as they were led by American screenwriters. *II* talked about his own method of approximating the length of a film by counting the number of sequences in his films. His average film is said to include 60-70 sequences which he uses to generalise the length of the film as opposed to the international method of counting the pages in the script to come up with the film length.

In reference to the interview questions, *II* said that he did not see the integration of the DT into the BFI as a threat. If DT was integrated into the BFI, he explained that there would be greater influence on the commercial end of the mainstream industry rather than that of the independent filmmakers. Bureaucracy and corruption were identified as the major barriers in integrating DT for *II*. He also indentified some reasons as to why there Bangladeshi films were not making the expected amount of business:

If the country is at peace, if the citizens are all financially solvent, if the law and order situation is proper and if people are in the mood to go and watch a film, only then will the film make some money.

When asked about the reality of making sequels for Bangladeshi films, *II* highlighted some very logical points. Sequels require the integration of a successful franchise of novels. However, according to *II*, because the majority of the Bangladeshi film audience are said to be of working class, reading novels is the least of their priorities. Hence, making sequels and

prequels a reality for the BFI would require a change in the attitudes and interests of the target audience.

Finally, with reference to the use of DT in screenwriting, *II* agreed to having no experience in this field but claimed that he would not find it too hard if given the opportunity.

Screenwriter 2 (Case Study 2)

Unlike screenwriter 1, even though **Priotomeshu** was *AAK's* first feature film, he has previously worked as a television screenwriter for two dramas. *AAK* has received formal training arranged by the Bangladesh Short Film Forum for six months in 2005. *AAK* has also devised his own method of determining the length of his scripts by using a stopwatch.

Whilst talking about the subject of DT integration, *AAK* voiced his doubts about the specific impacts DT would have on screenwriting because the majority of the audience - being of a working class - did not really take in anything else but the story. Hence, the DT integration would not affect the way of screenwriting for screenwriters. He explained:

The film audience in Bangladesh has been classified into three groups-upper class, middle class and working class- and there is a large existent gap between these three classes. The working class audience only take in the story of the film and nothing more. However, the smaller minority of the film audience (mainly middle class people who watch foreign movies) are more than likely to notice the technical sides of the film. They will often scrutinise the weaknesses within the script, the characterisation, the acting, the lighting and the story itself, as most of the storylines are repeated across many films.

AAK also found a similarity between the BFDC-made commercial films and the Bangladeshi traditional theatrical form (Jatra) in the way that the dialogue is presented, the way that the choreography of the dance routines is done, the tendency of the overacting and the blocking patterns. Therefore, he hoped that the integration of DT would bring about a gradual change in the impact on the Jatra form to develop a style more appropriate for modern films.

Finally, *AAK* also agreed that DT was not a threat because he had already had previous experience with using digital software. He did, however, wish that the integration of DT would bring some changes to the ways of the screenwriting software, making them more user-friendly by adapting the language to Bangla rather than English. *AAK* sees the bad picture and sound quality of the cinemas as the main barrier that could be overcome with the help of DT, as new technology would replace the current antiquated cinema systems.

Screenwriter 3(Executive)

The interview with screenwriter three was devised over a telephone call. *AA* confirmed the number of screenwriters working in the BFI as only 19. Secondly, when asked about screenwriters' payment method, *AA* confirmed it to be on a contract basis for per fiction film rather than on a shift basis. Thirdly, when asked about the remuneration of the screenwriters for each contract, *AA* asserted that the remuneration consisted of a range: ৳40,000 (£346.64) was known to be the lowest payment, with the highest averaging at ৳60,000 (£519.95).

Production Managers

- RR: Case Study 1, 35mm Celluloid Film, Member of the Production Unit, Dhaka, 4th May 2008
- MM: Case Study 2, Digital Film, Member of the Production Unit, Dhaka, 25th May 2008
- AAC: Executive, Bangladesh Film Production Manager Association, Dhaka, 29th April 2008
- VV: Staff, Bangladesh Film Artist's Association, Dhaka, 9th April, 2009

For this study, the three PMs mentioned were interviewed to get a balanced view of PMs and their opinions. More importance was placed on the interviews of the two PMs from both case studies. Screenwriter *AAC* was interviewed to collect information from the Bangladesh Production Manager Association's activities.

Production Manager 1 (Case study 1)

RR started his career in the film industry as a production boy in 1983. Being a HSC graduate (equivalent of A-levels), *RR* was soon promoted to being a set director where he worked for 6 months. Despite not receiving any formal training in his field, *RR* was able to accommodate his job through 'work-place learning'. He elaborated on his work experience:

Azizur Rahman (Film Director) picked me up one day and personally tutored me on artists' schedule maintenance, shooting locations, arrangement of negatives and positives for shooting, camera and equipment hiring etc. After 3 years of learning from 1983, I finally became a Production Manager in 1986 with my first movie as **Ali Baba and the 40 Thieves (1986*).***

RR also paid great thankfulness to the Director of **Rakkhushi** (Case Study 1) several times during the interview, describing *Matin Rahman* as an '*Ostad'*(guru). Even after 25 years, *RR* still seems to be learning.

With regards to the subject of his job description, some interesting information was deduced. Generally, the job of a PM consists of breaking down the script, location hunting, preparing

the schedule and budget, hiring artists and crew and equipments. However, when *RR* was asked to define his job, a lot of these roles were seen to be missing. For example, according to *RR*, location hunting was mainly down to both the director and the PM. It was not very often that *RR* got asked to carry out the task of location hunting alone. Furthermore, the script-breakdown and scheduling were also mainly jobs for the Director and Chief Assistant Director; *RR* considered himself to simply be a team member for this job and did not see it as one of his main roles. *RR* described his main roles:

Before the day of the shooting, the director or the chief assistant director will hand me a copy of the requisition. The artists and location for that shooting and everything else required for the shooting is mentioned in that requisition - whether that be a snake, a tiger, a deer or an elephant, I will have to collect that.

Therefore, the arrangements in accordance to the requisition - along with the payments needed for those roles - sum up his job description. Hence, through this interview with RR, very detailed information on the expenses of case study 1 was retrieved.

RR has had no experience with DT and could therefore not comment on those issues.

Production Manager 2 (Case study 2)

MM has been working for 22 years in this firm under the same director whom he referred to, several times during the interview, as one of his best friends. *MM* began his career as a set designer and was later promoted to a PM by his director. Secondly, even though he did not receive any formal training in his field, *MM* was able to accommodate his job through 'work-place learning'.

Thirdly, unlike *RR*, whose role as a PM was very different to that of an international PM, *MM* described his job to be that of international standards. He referred to his very close friendship with the director as the reason why he had been cast as a proper PM. Thus, in consultation with the director, he was able to play a fundamental part in breaking down the script, scheduling, budgeting, location hunting etc.

Next, while asked about the DT integration process that case study 2 adapted, *MM* confirmed that he had not any sort of previous experience with the Microsoft software or any other management-related software. However, his assertions about the degree to which DT integration was a reality for the film industry were very intriguing:

I don't think that our film industry community will want to integrate DT. The BFI is split into a lot of groups and I think that a majority of those groups still don't believe that integrating DT would be beneficial for them. When we can release 2 or 3 digital films, they will realise that the output is equivalent to 35 mm film technology or somehow better and perhaps be more attracted to DT.

MM mentioned groups with vested interests within the commercial industry as the main barriers to the integration of DT:

The people who are making money here will easily get away with it all because there are a lot of ways for them to do so. If DT is integrated, this will all change and that's why these people will do anything in their power to stop the integration.

Production Manager 3 (Executive)

The interview with PM 3 was also carried out via a telephone call. When asked about the number of PMs in the Bangladesh Production Manager Association, *AAC* provided a copy of the recently-held PM election sheet containing a list of all the PMs. Furthermore, *AAC* was also able to collect the member list for Production Boys in the film industry.

Artist's Association (Staff)

Where neither of the PMs were able to provide the study with a list of members of the artists' association, respondent *VV* was able to provide one.

Directors and Producers

- AAU: Case Study 1, 35mm Celluloid Film, Member of the all the Units, Dhaka, 27th April 2008
- ZZ: Case Study 2, Digital Film, Member of all the Units, Dhaka, 24th April 2008
- AAJ: Executive, Bangladesh Film Directors Association, BFDC, Dhaka, 2nd April, 2009
- DD: Executive, Cine Directorial Associates of Bangladesh, BFDC, Dhaka, 20th December 2009
- QQ: Member of the Production Unit, Captain Maruf, Dhaka, 3rd May 2008
- AAE: Case Study 1, 35mm Celluloid Film, Member of all the Units, Dhaka, 7th May 2008
- XX: Case Study 2, Digital Film, Member of all the Units, Dhaka, 2nd May 2008
- AAP: Executive, Bangladesh Producers and Distributors Association, Dhaka, 18th April 2009
- LL: Case Study 1, 35mm Celluloid Film, Member of the Production Unit, Dhaka, 23rd April 2008

A large number of producers and directors were interviewed, reflecting their huge role in the case studies and the filmmaking industry in general. Two producers and directors were interviewed from both case studies along with another pair of producers and directors from the Producer and Director's Association to retrieve some more quantitative data.

Director (Case Study 1)

AAU started his career in 1973 as an assistant director under the watchful eye of Azizur Rahman (a film director in the 70s). In 1974, *AAU* took a formal 8-month training course at the Dhaka Film Institute to boost in his career. This certainly proved useful as, with the help of 'work-place learning', *AAU* was able to release his first film as a director in 1981.Since then, he has so far directed a further 28 films.

All the films he has directed were made in the celluloid format for commercial use. Hence, he has had no experience with DT. Owing to the fact that there are some restrictions relating to the import of foreign films into Bangladesh, the market of the BFI is limited within the country. Hence, *AAU* thought there were no apparent challenges right now in this regard. However, he included that knowing the technology might also be a big challenge for the industry:

The machine is ready but the men behind the machine aren't. So we won't have the success.

AAU also mentioned that he saw the lack of infrastructure for digital screening and lack of trained people as the major barriers for technology integration. Hence, he claimed that help from the government was necessary along with the permission to import the equipment required for digitisation from private sources (something that is allowed in the TV industry).

Director (Case Study 2)

ZZ has so far directed 14 films in his career since 1982. He also admitted to having done two courses, one for 3 months (a basic course) and the other for six months (an advanced course) at the BFA in 1981. Unlike any of the interviewees mentioned so far, *ZZ* began his career as a Director straight away, rather than being a trainee first.

ZZ mentioned that the mentality for instant profit-making out of the film business (embraced by a lot of producers within the BFI) was propelling the industry towards decay. Changing this mentality in order to widen audience participation was hence seen as a challenge ahead of technology integration for *ZZ*. He elaborated on this matter:

In the hope of instant profit making, film businessmen nowadays make the films for a certain audience class to ensure the profit return. If they were real businessmen, they would create a stable and durable market for the audience and then perhaps try to bring back the middle class people - who have fled from the cinema halls - for the sake of their own business interests.

ZZ claimed that technology integration for the industry would be helpful even though the use of this technology to its optimum level was doubted. He specified three constraints in this regard: budget inadequacy, the lack of skilled manpower within the industry and the poor reputation for standards that the industry has, all of which are seen as obstacles to the creation of opportunities for job creation in the film industry for computer literates.

Directors (*AAJ*, *DD* and *QQ*)

Like most of the executive members interviewed, executive *AAJ* was also asked to contribute to the member's list of the Director's association, enabling this study to come up with the number of directors presently working. *AAJ* was indeed able to provide information on the number of directors. However, during the interview, *AAJ* recommended assistant director *DD* as a more appropriate source for collecting the member list of the number of assistant directors.

Respondent *QQ* was however interviewed to catch up on any additional information forgotten or unanswered by the director of the film, **Captain Maruf.**

Producer (Case Study 1)

AAE is the director of *Channel I* (a Bangladeshi TV channel) - a TV channel that has pioneered exceptionally in film production. Since 1999, *Channel I* has so far financed over 40 films.

AAE, unlike many, claimed that he did not see the integration of DT into the BFI as a challenge and claimed that it was a sure part of reality. Even though he was the producer for the first case study which was made with celluloid technology, *AAE* had taken part in producing many digital films. *AAE* produced one of the films in Bangladesh which used HDTV technology. Hence, his experience with DT had not been limited.

As *AAE* believed that his TV channel was more suited a middle-class audience, his films' target audience was the middle-class rather than working-class. So, in this regard, he saw the lack of government support in preventing film piracy and the lack of familiarity between the industry community and the new technology as the main barriers in successfully integrating DT.

Producer (Case Study 2)

Priotomeshu was *XX*'s first taste of being a film producer. However, *XX*'s experience with the film industry is not minimal. He owns the company, *Laser Vision*, which releases all the popular TV dramas and films as CDs and DVDs.

With regards to the subject of DT integration, *XX* identified film financing as the main challenge for DT integration. *XX* also identified other barriers to the expansion of the film business: the existing censorship policy, the lack of government support in expanding the cinema halls and the encouragement of new filmmakers.

Producer (Executive)

The interview with *AAP* was very concise in that he was simply needed to reveal the number of producers in the producer's association.

Cameramen

- AAD: Case Study 1, 35mm Celluloid Film, Member of the Production Unit, Dhaka, 30th April, 2008
- HH: Case Study 2, Digital Film, Member of the Production Unit, Dhaka, 24th April, 2009
- GG: Executive, Bangladesh Cinematographers Association, BFDC, Dhaka, 3rd May 2008

The interviews with the cameramen were important in that they gave very hands-on and practical knowledge from their field. The group of cameramen needed for this study included that of each case study, along with an executive cameraman.

Cameraman (Case Study 1)

Cameraman *AAD* began his career in 1973 as an Assistant Cameraman and became a fully-fledged cameraman after 3 years of 'workplace learning' in 1976. During the interview, in addition to the questions asked, *AAD* elaborated on his development from Assistant Cameraman to Cameraman:

Whilst one day of shooting the film as an assistant cameraman, my senior became very busy. So he decided to leave me with a whole shift to shoot, which was quite a big thing for me back in the day. After I finished shooting the whole shift on my own, my footage got taken to the lab by the director without even notifying me. In the lab, the footage was developed and the lab crew confirmed the director that they were 'ok'. Afterwards, the director as very confused but developed a rush prints from the negative and saw the footage himself. My work received his satisfaction and i was soon turned into an operational cameraman.

In 2008, shortly before the interview, *AAD* retired after working for a grand total of more than 150 films. Despite working for nearly 35 years, *AAD* had not received any formal training in his field. However, his experience in working with a camera had ranged from working with the 16mm format to the BetaCam SP video format. Similarly, even though he did not have any previous experience in using the BetaCam SP video format, a one-hour tutorial from a friend was enough to set him on his way.

With regards to his quick pace of learning a new camera's operations and how that could be applied to the current cinematographer community, *AAD* claimed that a month hands-on demonstration would be enough to enable a 35mm cameraman to operate digital cameras. Although he was not directly asked to comment about his perspective on barriers to successful DT integration in the wider film industry, *AAD* expressed doubts about the probable impact of integrating DT, since he considered the composition of the Bangladeshi cinema audience as a mix of bus helpers, rickshaw pullers and day labourers who would not really be able to distinguish between the two technologies.

AAD also concluded that the idea of privatising the industry would be a major mistake as the service charge would be highly expensive because the BFDC would not receive any more subsidies from the government.

Cameraman (Case Study 2)

HH happens to be one of the few interviewees for this research who did a training course in their field before beginning their career. He took part in two different training courses on film and video production. His first course was with an Australian academic from Latrobe University which lasted for 3 months: this was a basic training programme with a few hands-on practical sessions. *HH*'s second course was with another Australian, David Hannon, who gave him his first proper practical sessions. *HH* began his career in 1996 and has so far worked for over 2000 television productions.

Despite being the digital cameraman for this study, *HH* previously worked in 35mm films. When asked about his experience as a digital cinematographer, he described working with HD format cameras and claimed that it was very much compatible with the 35mm format. *HH* was really hopeful about the reality of HD cameras and DT integration:

The technology will keep changing and upgrading. There's no point in distancing ourselves from it. Really, we should be aboard that ship and flow with it.

HH also claimed that the cameramen serving the television industry in the digital format had a lot of potential and creativity. However, they were not able to use their creative talents within the BFDC because of the different formats. *HH* further explained his point:

I still work for the TV industry and the creative work we do there isn't really useful. There's a big difference in working for a small screen viewed by people sat on their sofas rather than for people who are capturing the large canvas in a cinema hall. If the digital process is integrated into the film industry, we will all flee there and you won't find a lot of creative cameramen working for the TV industry.

Finally, *HH* made a very good point in highlighting an original positive factor of using DT. He explained that DT would not only be integrated for cost-benefit reasons, but also for technical advantages such as animation and other visual effects which is much less complicated to create in the digital domain than in the 35mm film process.

Cameraman (Executive)

Owing to *GG*'s very long experience in cinematography and being the guru of many in the industry, he provided a lot of information which has been included in several parts of the thesis. However, unlike all the other executives, *GG* was also able to provide the member list detailing the number of cinematographers working in the industry. The member list retrieved from *GG* was seen to be quantitative information, but, when asked questions aimed at retrieving qualitative information, *GG* mentioned many points concerning the decrease in production quality within the industry (mentioned in great detail in the main body of the thesis).

Editors and Sound Designers

- SS: Case Study 1, 35mm Celluloid Film, Member of the Production Unit, Dhaka, 4th May 2008
- ABA: Government Official, BFDC, Dhaka, 22nd May 2008
- AAA: Case Study 1, 35mm Celluloid Film, Member of the Production Unit, Dhaka, 1st May 2008
- AAT: Case Study 2, Digital Film; Member of the Production Unit, Dhaka, 25th May 2008
- AAO: Government Official, BFDC, Dhaka, 28th April 2009

The interviews with the editors for this study were supposed to include two editors from both case studies and an executive. However, because case study 2 was still being edited during the field work, it was not possible to ask for an interview which would be productive. This section also includes the two sound designers from the respective case studies to fully understand the post-production process.

Editor (Case Study 1)

SS started his career in the year 1976 as an assistant cameraman and, after two years serving as a member of the camera crew, he decided to change his vocation. In January 1979 SS started his career as an assistant editor and later became a full editor in the year 1981. Like most of BFDC crew, SS also did not receive any formal training other than workplace knowledge and skills from his Ustad (Guru) Nurunnabi. He has worked in over 260 films as an editor. However, despite being the editor of 35 mm films, he also had experience with using DT. In 2007, when the NLE setup was integrated into the post production unit of the BFDC, *SS* was one of the first pioneers to develop the skills on how to edit digitally through 'work-place learning.

Although *SS*'s decision to learn how to use the NLE was not well received by his fellow colleagues, their criticism did not stop him from becoming engaged with the new editing technology. Therefore, *SS* claimed that the motivation of the 35mm film editors to learn NLE operations represented a major challenge that the film industry would perhaps have to face during the DT integration process.

SS opined that the completion of the additional digital editing system equipments - such as a digital sound recording/mixing console and Reverse Telecine machine - could be helpful in overcoming the barriers to DT integration. However, when *SS*'s attention was drawn to the 'piracy problem' of digital film content, he claimed that piracy was a controllable problem. He argued:

If we use a non-recordable code, it would prevent any computer devices from any further copying of the original movie. Even if anyone would like to make a copy, then the visual will become foggy and sound will be noisy. Therefore, anyone would be able to identify a pirated copy of a movie.

Finally, *SS* also saw the positive aspects of integrating the DT as a very promising factor. He further explained that integrating DT would decrease production costs because the foreign currencies needed to import raw materials would be saved and the film would be much clearer in picture and sound due to the DT.

Editor (Case Study 2)

During the field work, the editing job for **Priotomeshu** had just begun. Despite the complications it could cause, I persisted in seeking out the editor of **Priotomeshu** – only to have it later confirmed by the director that he himself had edited the movie along with the help of an editorial operator. Therefore, since no separate editor was specifically hired to do this job, that ruled out the possibility of a significant interview.

Editor (Official)

During the field work, it was discovered that the editing crew working for the BFDC was divided into two: a government-employed editorial crew and a privately-employed editorial crew. Editor *ABA* was part of the government-employed editorial crew and was therefore constrained with the actual amount of information he could give. However, with his further support, member lists of both divisions were collected.

As members of the editorial crew, the opinions and expertise of people like *ABA* were not considered as valuable during the DT integration process:

When the DT was being integrated, I suggested that a Mac-based editing software would be best if included. However, the experts suggested the PC-based editing setup to be integrated instead. A lot of editors in Bangladesh are very familiar with running 'Avid's Final Cut Pro' (software), but wanting to go with a cheaper option, the BFDC decided to integrate 'Lightworks' (a UK based software) which not many editors were familiar with at all.

Even though the desired technology and equipment were not imported, *ABA* claimed to be hopeful that, in the next year or so, the BFDC would be able to materialise 80% of the planned integration in the post-production unit. However, regardless of being hopeful about the reality of the DT integration, *ABA* still expressed his doubts about the integration of HD cameras for shooting:

T***he BFDC ground is not ready for HD shooting. HD cameras could be a feasible option for a private firm but not for a government organisation like the BFDC. HD is still not recognised worldwide as a professional shooting gadget. If that were so, then 35 mm technology would have risen very high by now.***

Regarding barriers, *ABA* saw the existing procurement system of the BFDC as the biggest barrier in integrating the DT:

Despite being an autonomous organisation, the BFDC has to follow the government's rules and regulations. The procurement policy is very strict. For example, if one of my hard-drives becomes out of order, what I

would usually do is throw it away and get a new one. However, for this instance, in reality it would take at least 6 months through the tender process for it to procure.

ABA also pointed out the ignorance about the latest technology amongst the industry workforce as the second most vital barrier to DT integration. To overcome this barrier, *ABA* therefore suggested that the entire workforce should be restructured:

We need a fresh and educated workforce. By educated, I do not mean a master's degree holder, but someone who is technically sound. At the same time, we also need people who are sincere, committed and understand the media.

Not commenting directly on whether DT would increase the quantity of film production, *ABA* also suggested placing more emphasis on quality. He argued that if there was a policy that ensured the development and maintenance of quality in the film industry, then the BFCB would not need to impose any bans.

Sound Designer (Case Study 1)

Sound Designer *AAA* began working in 1970 as a government staffer at the BFDC and retired in 2006. In his 36-year career, he worked as a sound designer for 95 productions. He also received formal training twice - when new machinery was installed – as well as the usual 'work-place learning'.

Defining his experience with the 35 mm technology, he elaborated on five particular stages that summed up his job (dubbing, effects, background music, re-recording and optical sound transfer). Furthermore, on the topic of DT integration, *AAA* mentioned an observation similar to that made by me during the fieldwork:

The new BSc engineers that have joined the BFDC have intelligence. They have a strong theoretical knowledge bank but their practical experience is poor. Therefore, I tried my best at all times to assist them with the practical things. However, some of my other colleagues feel much more reluctant upon doing this. If these BSc engineers take over the sound department, the DT integration would be easier.

AAA also raised an original complaint. *AAA* claimed that many of his colleagues have suffered heart-related problems and ear problems and therefore asked for the health and safety precautions to be taken more seriously during the new integration.

Sound Designer (Case Study 2)

AAT has proved to be one of the few sound designers who have a formal training. After a 3 - year diploma from Pune Film Institute (India), in 1997, *AAT* began working as an independent sound designer. So far in his career, *AAT* has worked for 15 productions.

On the subject of DT integration, *AAT* claimed that the current work culture of the BFDC was its biggest barrier as it is seen by him to be inferior to the professional work culture. He referred to the lack of professional microphones, speakers and literate technicians as a few examples.

Lab Supervisor (Case Study 1)

The interview with Lab Crew member *AAO* revealed the stages in post-production (e.g. developing sound and picture negatives, positives and final prints). Moreover, *AAO* was also able to provide the employee list that made up the Lab crew as well as their job descriptions and roles.

Distributors and Exhibitors

- KK: Case Study 1, 35mm Celluloid Film, Member of the Distribution Unit, Dhaka, 5th May 2008
- AAS: Staff, Bangladesh Film Distributors Managers Association, Dhaka, 20th April, 2009
- FF: Booking Agent, Association of Bangladesh Film Booking Agents, Dhaka, 23rd April 2009
- AAM: Executive, Bangladesh Film Exhibitor's Association, Dhaka, 18th April 2009
- AAG: Ex Executive Director, Star Cineplex, Dhaka, 11th April 2009
- AAI: Executive, Purnima Cinema Hall, Dhaka, 8th January, 2011
- UU: Staff, Bangladesh Film Exhibitor's Association, Dhaka, 7th April, 2009

For this section, a number of external executives, as well as the case studies, were interviewed as distribution and exhibition offer a significantly wider insight into the film industry. The opinions of these executives were really helpful in understanding the current nature of the Bangladeshi cinema halls, their audience and how DT integration would affect it all.

Distributor (Case Study 1)

KK is a distributor for Channel I (a Bangladeshi TV channel). He has distributed 40 films through Channel I (28 made by Channel I and the other 12 purchased separately).

Through his experience, a segmented audience is the largest challenge that DT integration will face. He claimed that the majority of the current audience are people from rural areas and that urban people hardly ever go to the cinemas. He identified three major barriers to DT integration: a) the rural cinema halls are not digitally equipped; b) they do not have enough money to finance this digitisation and c) being segmented, the audience is still limited. Hence, to overcome these barriers, a government policy was therefore suggested by *KK* along with the need to provide loans to refurbish these rural cinema halls and equip them with DT.

KK also saw piracy as a huge problem concerning distributors:

Many distributors are quite reckless about claiming copyright for the films before they are released. Therefore, when piracy takes place, the distributors can't ask for lawsuit.

KK therefore suggested that producers should establish copyright for their own creative productions before any commercial or business release, which would, in the event of piracy, give them bullet-proof legal protection.

Distributor (Case Study 2)

During the fieldwork, Case Study 2 was still in its post-production stage and hence getting hold of a distributor was difficult. Moreover, interviews with the producers and directors revealed that the film's TV premiere would be given high priority, thereby guaranteeing greater profit when distributing it to cinema halls.

Distributor (Executive)

AAS revealed the total number of distributors in the Distributors' Association. Moreover, he was also able to provide contact details of the Booking agents.

Booking Agent (Executive)

In addition to providing the member list of booking agents, *FF* described the role his job played in acting as a mediator between the distributors and the exhibitors. *FF* detailed two types of business patterns (rental basis and a contract basis) within the industry. In addition, FF also revealed that a lot of the booking agents had changed their careers (owing to their jobs being rendered redundant when DT is finally integrated).

FF expressed his agony regarding DT integration, explaining that when the DT was fully integrated into the cinema halls, some of the rural cinemas unable to afford the digital transition would cease to exist. He also raised concerns about his own career:

We are definitely scared at the thought of DT integration. When DT is integrated, we will have to change our profession. There is nothing we can do to stop this. No one can avoid the integration of a new technology. The world won't stand still for us.

Exhibitor (Executive)

Exhibitor *AAM* expressed very positive hope for the integration of DT. However, *AAM* also saw the businesses of established cable operators as one of the biggest challenges facing the film business. *AAM* further elaborated on what is perceived to be double standards:

Two different policies can't be maintained in the same country. I can watch Amitabh Bacchan's (a very famous Bollywood actor) films sitting at home every day without the least of it being censored through the cable operators. However, when it comes to watching a Bangladeshi movie for a cinema audience, the government decides to make very strict rules on making it pass the BFCB. There is no censoring required for the TV audience but there is a heavy maintenance for the cinema audience. We are not branding the cable TV industry as our enemy, but in our opinion, the Hindi movie channels should be banned. If Hindi movies can broadcasted for the Bangladeshi TV audience, they should also be allowed to be exhibited for the cinema audience.

The interview with *AAM* also revealed that, in a one-off event where the broadcast of cable-operated channels was suspended as a result of exhibitors' protests, their cinema revenue increased by 5%. Therefore, in this regard, *AAM* recommended either the banning of Hindi films via TV broadcast or the removal of the existing ban that currently prohibits the exhibition of films from the SAARC countries for the Bangladeshi audience.

Exhibitor (Executive)

With regards to the expansion of DT, exhibitor *AAG* thought that the Bangladeshi cinema halls were not yet ready for digital screening. The level of finance required to create this digital screening capacity, was seen by *AAG* as a very real barrier (his thoughts on how to finance the digital transition for cinema halls are effectively detailed throughout the thesis).

It was discovered that the multiplex cinema hall for which *AAG* used to work as an executive cost over ৳1,500,000,000 (£12,998,830.11). Such a huge investment was claimed to be viable for an urban area but not for rural areas. Therefore, *AAG* suggested that a careful

investment plan should be devised for cinema halls to facilitate the development of their digital screening capability.

Exhibitor (Executive)

The interview with exhibitor *AAI* was mainly designed to learn the typical staff and business patterns of a cinema hall and to provide information relating to the number of staff working in various positions, their typical salary patterns and cinema ticket prices.

Exhibitor (Staff)

Respondent *UU* provided information on the number of cinema halls in Bangladesh.

Internet Service Providers

- AAN: Chief Operating Officer, Escenic Bangladesh Limited, Dhaka, 18th March 2009
- YY: Local Internet Service Provider, Horizon & Associates, Dhaka, 26th March 2009
- JJ: Government Official, Bangladesh Telegraph & Telephone Board, Dhaka, 27th April 2009
- EE: Official Staff, National Phone Limited, Dhaka, 4th April 2009
- AAV: Executive, Bangladesh Tele Centre Network, Dhaka, 28th April 2009

A large group of ISPs were interviewed with a view to understanding their potential for distributing films through the internet.

Content Management System (Executive)

Respondent *AAN* has developed websites for very renowned national and international business organisations and, in interviewing a person with such expertise and experience, the aim was to establish whether or not a computerised content management system would be of help to the Bangladesh film industry. Regarding this, *AAN* explained that developing a website for the local market would be very expensive, estimating its cost at somewhere in the region of ৳150,000,000 (£1,299,883.01). Although *AAN* considered it an easy task to develop a centralised website with information for the audience on all the forthcoming movies, he explained that developing an intranet system for the distributors to upload the digital film content for the exhibitors to use might not be such an easy task.

The number of mobile phone users in Bangladesh has increased rapidly. In this regard, *AAN* saw the conveyance of film content to the audience using a mobile phone as a possible and viable option. He claimed that the FLV (Flash Video) technology was a known universal

technology capable of displaying a low resolution film content that required a very low bandwidth. Therefore, he hoped that, through the FLV technology, the Bangladeshi film content could easily be outspread to Bangladeshi mobile users.

Local Internet Service Provider

Respondent *YY* was mainly interviewed to understand how the ISPs provide their services to the urban internet users. In this regard, *YY* interestingly explained that the service a customer received heavily depended on the amount of money they paid to the ISPs. Furthermore, he also explained that all of his users had a shared connection with a certain bandwidth in common. Speaking of the limitations this connectivity possessed, he stated that when all the users connect with the internet around the same time, the speed will likely to be slow; whereas, when only a few people are using the internet, the speed will be much faster.

YY explained that on average, a user paid ৳600 (£3.43) for his/her internet service. However, if home-users were to watch films on the internet on the basis of DT integration, the average payment would have to be quadrupled to pay for the 64 KB/ps and allow them to watch films online in 'real-time' without any buffering. Alternatively, he therefore suggested the government could consider decreasing the price for the bandwidth to make users' payment viable. The ISPs would then also have to update some of the software currently being used to procure this new change.

Bangladesh Telecommunications Company Ltd. (Executive)

Respondent *JJ* was mainly interviewed to receive a brief outline of how the government in Bangladesh facilitates the internet service process. *JJ* stated that on a commercial level, only the BTCL provided the Digital Date Network (DDN) service which gave the commercial users connectivity from city to city. On the other hand, on a home user level, the BTCL provides users with an Asymmetrical Digital Subscriber Line (ADSL) allowing users to use a broadband internet service.

Another commercial level service that the BTCL provides is the International Private Lease Circuit (IPLC) which allows users to have a dedicated 64 KB/per sec connectivity. *JJ* claimed that the IPLC service was currently used from Dhaka to London, but could be further extended to a worldwide service through other operators. Therefore, *JJ* assumed that this service could be an effective way to distribute Bangladeshi films globally.

Regarding the issue of being able to watch films via the internet at home, *JJ* thought that the higher-class ADSL users would more likely be able to afford to pay enough to watch the films rather than lower-class ADSL users.

National Phone Limited (Official Staff)

The National Phone Limited has recently taken the initiative to convert some of the cinema halls in Bangladesh with digital connectivity. Therefore, respondent *EE* was interviewed to briefly understand this process. *EE* consequently confirmed that they had signed a MOU which stipulated that they would update the existing cinema halls with digital screening and sound projection. *EE* explained that project was planning to use the DTH technology to distribute the films to the cinema halls that are located all around Bangladesh.

In regards to how this DTH technology would function, *EE* explained that the processes used by the TV stations, to uplink and downlink TV content through a satellite, would also similarly be used to distribute films around the country. Film content generally has a higher resolution than TV content, so he was asked to elaborate on how the DTH technology would manage this change in resolution and still stream the content. However, *EE* was unable to provide any specialist knowledge on this field.

Bangladesh Tele-centre Network (Executive)

Respondent *AAV* works as an executive for a NGO and part of his job is to establish an information centre for rural areas through the internet. Therefore, this interview sought to establish whether these centres would be willing to help digitally distribute films. In response, *AAV* claimed that this process would require more time to implement as the development of a more extensive infrastructure was needed.

TV Cable Operators

- AAF: Local Television Cable Operator & Executive Member, COAB. Dhaka, 19th April 2009
- WW: Programmer, SSL Wireless, Jahangir Tower, Dhaka, 18th April 2009

The TV cable operators were mainly interviewed to fully understand whether the claim made by respondent *AAM* about the expansion of the foreign films through TV affecting the film industry was accurate.

TV Cable Operator

Bangladesh first saw its integration of the TV cable operation in June 1993, when respondent *AAF* also began working for this process. Therefore, it was very important to interview him to understand the organisation's full potential. Even though the cable operation organisation only began with 5 foreign channels and 1 national channel, they have since expanded their range to broadcasting over 85 TV channels for the Bangladeshi audience. At the same time, AAF also asserted that the Bangladeshi government does not allow more than 60 channels to be broadcast, so, to accommodate this regulation, COAB usually uses a permutation and combination of the 85 channels at different times of the year. However, typically, a popular setting mainly revolves around 68 of the 85 channels. *AAF* elaborates:

Out of 68 channels, there are 12 Bangladeshi channels, 30 Indian channels, 5 Pakistani channels and 21 channels with genres from around the rest of the world (e.g. BBC, CNN, HBO etc).

A large percent of the Bangladeshi TV audience watch Indian content, which is represented by the number of channels COAB broadcast compared to channels of other genres. *AAF* explained that the majority of the 30 Indian channels were pay channels and that COAB subscribed to those Indian channels through the Bangladeshi agents of Zee Network and Star Group. However, elaborating on the content that these Indian channels provide, *AAF* also confirmed that a lot of the Indian channels are in fact English/American channels (e.g. Disney, Cartoon Network, Nickelodeon etc) which have merely been dubbed in Hindi through audios that have been sent from India and broadcast to the Bangladeshi audience around the country.

AAF confirmed that out the 30 Indian channels, 14 of them (Zee cinema, Zee TV, Zee Cafe, Sat Max, Sony, Zee Premiere, Zoom, Zee Studio, Star Plus, Zee Bangla, Akash Bangla, Channel H, SAAB) all showed Hindi movies of some sort throughout to the Bangladeshi audience. Moreover, as part of their service, some of the COAB operators also illegally play the DVDs of the latest Indian movies and broadcast them through their set-up to the customers. Therefore, when asked whether they also illegally broadcast the latest Bangladeshi films, *AAF* reasserted that on the request of the Bangladeshi Film Producer's Association, they did not do this.

During the interview, it was also revealed that the COAB organisation had a slightly conflicting relationship with the TV channel owners. Apart from 2 TV channels in

Bangladesh (BTV and ETV), the rest of the channels broadcast their programmes via satellite. This makes them very heavily dependent on the COAB organisation. However, these TV channels are now thinking of initiating the DTH technology to broadcast their channels so that they can avoid the current distributing intermediaries also known as COAB. COAB is, therefore, certainly against the idea of a DTH service. In this case, when the cinema halls begin to exhibit their films through the use of DTH technology, what impact this will have on COAB was not revealed through the interview with *AAF*.

Programmer

The growing use of mobile phones in Bangladesh has created a demand among the users to watch the TV channels through their mobile. *WW* was interviewed to gain knowledge of his working experience in developing a programme suitable to run the TV contents on mobile phones. The beginning of the mobile TV venture in Bangladesh was inspired by the success of audio broadcasts of TV news. *WW* elaborated upon the groundwork of the mobile TV scheme:

When we first thought of associating TV channels with mobile phones, the mobile users claimed to enjoy listening to TV news clips through making a phone call to their mobile operators. During the call, the mobile users had the access through IVR (Interactive Voice Response). The audio clips were usually 2-3 minutes longs and would cost those users only ৳ 4 to 6 (£0.03 to £0.05).

It was revealed in the interview that, on an average, the TV news sold from 150000 to 200,000 minutes every month. This figure inspired *WW* to work further on developing software for mobile TV. Within the Bangladeshi mobile operators, only one operator was using the CDMA (Code Division Multiple Access) technology (which is more functional in data transfer) rather than the GSM (Global System for Mobile-Communication) technology other operators were using. The dominance of GSM technology-based mobile operators using 2G (2^{nd} Generation) network with less data transportation capacity was considered by *WW* as a major barrier to the effective design of appropriate software for mobile TV, but he claimed that his team was finally successful in developing local software which was capable of streaming TV programmes for mobile users.

The journey of mobile TV has just begun. *WW* confirmed that the cell phone operators will still be required to upgrade their servers to be more compatible to operate mobile TV smoothly. Moreover, he emphasised that watching TV on a mobile phone is still very costly, so a business policy will be needed to popularise this mobile TV. *WW* hoped that, if the

mobile TV became a feasible reality, then it would be possible to release the movie content through mobile TV.

Government Officials

- TT: Government Official, BFA, Dhaka, 20th May 2008
- AAR: Government Official, BFCB, Dhaka, 21st May 2008
- CC: Government Official, BFDC, Dhaka, 22nd May 2008
- BB: Government Official, BFDC, Dhaka, 20th April 2009
- PP: Government Official, BFDC, Dhaka, 22nd April 2009
- NN: Government Official, NIMC, Dhaka, 16th May 2008
- AAH: Government Official, NIMC, Dhaka, 20th May 2008

The above government officials were interviewed to get a very broad and wide-ranging idea of how government dynamics work in terms of the film industry.

BFA (Official)

In order to understand the activities of the BFA and assess the value of its contribution to the film industry, it was important to interview respondent *TT*. According to *TT*, collecting the celluloid or digital versions of films produced at home and abroad and preserving them appropriately was identified as the prime job of the BFA. In his estimation, since 1978, the BFA authority has collected a total of 2169 films (including feature and non-feature ones) and only 400 of them are nationally-produced Bangla movies. Although *TT* believed that the number of BFI film productions would be more than 2600, the lack of consciousness of Producers about the state law of submitting a copy of their films and its production costs have identified by *TT* as the cause of this low collection. Therefore, attention should be given to increasing and enriching the collection of film in all formats. In this regard, *TT* explained that they have planned to integrate a film scanner, which would allow them to convert the 35mm celluloid films into digital format.

In addition to archival tasks, *TT* claimed that the BFA also contributed to research, publications and training courses focused on film. He claimed that since its establishment, the BFA had arranged ten film appreciation courses and trained up 417 trainees. Talking about the philosophy of those courses, he further elaborated:

The aim of the film appreciation course was to create a better understanding about film within the film audience. We want to develop awareness through our training about 'how to read a film'. The ultimate goal is to develop a better film audience community.

BFCB (Official)

Respondent *AAR* was interviewed to understand the activities carried out by the BFCB organisation. *AAR* confirmed that there is a government-elected committee which is mainly in charge of censoring the films that are sent to the BFCB. On average, the BFCB censor 2 to 4 films per week. *AAR* explained that content in the films that use sexually-explicit imagery, anti-social elements and/or anti-national elements were usually scenes that are 'cut' out manually from the celluloid prints. After these scenes had been cut by the BFCB committee, some producers still try to reel the scenes back in. In such a case, *AAR* stated that these films were then re-scrutinised in cinema halls to re-check whether they are exhibiting the censored print or not. However, because there is not a big group of such inspectors with the BFCB, *AAR* claimed this process was not very effective and some producers took advantage of showing uncensored prints in order to make some extra profit.

Discussing the measures of censoring digitally-made films, *AAR* asserted that a seven-member committee has already been established to modify the existing law in order to accommodate the censoring of digital films.

BFDC (Official)

The purpose of the interview with respondent *CC* was to gain a clear understanding of the challenges and barriers the industry faces during the DT integration process and how the BFDC deals with them.

CC firstly asserted that there were no policies or guidelines for the film industry within the BFDC. Although he confirmed that there was an IT policy, this IT policy carried no reflection on integrating digital equipment or machinery needed for the film industry. In discussing the thin rationale as to why the BFDC had taken up the challenge to integrate DT, *CC* explained that the current mechanical technologies being used by the BFDC are slowly becoming obsolete. Hence, it was crucial to keep up with the global trends and integrate the new DT.

Speaking of barriers, *CC* stated that because the majority of the employees within the BFDC had been working for forty years or more, they had become very familiar with the celluloid technology. Hence, integrating the DT would require a lot of theoretical and practical knowledge on DT especially, which few of these employees have. Most of these employees have devoted a lot of their careers to understanding the celluloid technology and they therefore constitute a barrier towards to integration of DT. Furthermore, although he did not refer to it explicitly, *CC* hinted that the BFDC management also had some weaknesses regarding the new integration, which may also be a potential barrier. In order to overcome this barrier, a lot of these management workers have therefore tried to visit foreign countries to acquire up-to-date knowledge while implementing the DT project in the BFDC.

In order to overcome these barriers effectively, *CC* recommended the training up of the workforce, the recruitment of a new and educated workforce and the recruitment of consultants for the privatisation of the BFDC.

BFDC (Official)

The interview with respondent *BB* was arranged mainly to understand the administrative side of the BFDC organisation. *BB* claimed that, through the implementation of the existing rules and regulations, he ensures the efficiency of the BFDC administration. *BB* also asserted that even though, according to the organogram, there are 591 posts allocated for the BFDC, only 360 of them are currently filled and functional.

BFDC (Official)

The interview with respondent *PP* was arranged mainly to understand the procurement process of the BFDC organisation. *PP* claimed a very important side of the procurement process. The BFDC does not allow any of the enlisted producers from the BFI to import raw materials or equipment needed for their production. PP further confirmed that, according to the Public Procurement Act (PPA) in 2008, the BFDC can only procure raw materials and equipment through Tender.

NIMC (Official)

Regarding the issue of technology transfer, respondent *NN* claimed that there are no transparent technology transfers policies currently present within the NIMC organisation. This is because the people who create the policies for the NIMC are mostly non-technical

and, understandably perhaps, have no comprehensive awareness of what is happening around the world technology-wise. *NN* believed that the dissemination of these technologies was therefore rather slow within the government organisation. In terms of adopting the new technology, the success of the private sectors was therefore considered revolutionary because they did not lack bravery, knowledge and responsibility. So, *NN* believed these three factors were the main barriers for government organisations in terms of technology integration.

NIMC (Official)

Respondent *AAH* considered the lack of motivation within the organisation to be the biggest barrier that the NIMC faces.

Film Professionals

- AAW: Faculty Member, Independent University of Bangladesh, Dhaka, 18th May 2008
- AAZ: Faculty Member, School of Social Sciences, University of Liberal Arts, Dhaka, 25th March 2009
- AAB: Faculty Member, Shahjalal University of Science and Technology, Sylhet, 5th April 2009
- AAX: Executive, Motion Cine Club, Dhaka, 25th March 2009
- AAL: Independent Film Director, Dhaka, 12th & 13th May 2008
- AAY: Film Director, Monpura, BFDC, Dhaka, 2nd April 2009
- OO: Film Director, Captain Maruf, BFDC, Dhaka, 3rd May 2008
- AAQ: Film Journalist, Dhaka, 23rd April 2009

A large number of film professionals (Academics, Independent Filmmakers and Film Journalists) were interviewed to understand how the integration of DT is being viewed by film-related persona outside the industry.

Faculty Member (IUB)

Respondent *AAW* was interviewed to understand the extent of any interaction between the academic institutes of Bangladesh working with film media and the film industry. In response to this issue, *AAW* replied that due to differences in (a) the style of knowledge acquisition, (b) organisational culture and (c) community outlooks, the interaction between the film industry and the academic institutes is very limited. He elaborated:

The amount of knowledge that our undergraduate students here spend a mere 3 years learning, take the BFDC employees 6-10 years.

AAW therefore thought that such a situation would slow down the process of DT integration within the BFI, whereas the IUB had already established (in 2002) a NLE system and digital cameras to give hands-on practical knowledge to the students.

Faculty Member (ULAB)

The interview with respondent *AAZ* was designed to understand relationship of the university students in media with the film industry. Regarding this issue, *AAZ* firstly highlighted two main problems that beset students interested in this field. He explained that studying film is still not a popular academic course choice. Students who would like to study film always have to face pressure from parents to choose other subjects like medicine, business or computing. Moreover, the parents do not understand the potential of the growing media industry. *AAZ* claimed that currently in Bangladesh there are more than 250 small production houses which could eventually provide many successful job opportunities. Secondly, he also explained that the film industry itself is not really interested in university students and seem quite "sceptical" about media students.

Interestingly, *AAZ* also confirmed that unlike this commercial film industry, the independent filmmakers have really stepped forward to make sure that these potential students gain at least the basics of media production. Explaining the process of internships that the university offers, he mentioned that a lot of students have been taken on as interns by independent filmmakers and the TV industry.

Faculty Member (SUST)

Respondent *AAB* was interviewed to understand how the public universities' ICT departments were contributing towards film education. *AAB* claimed that his department provided modules on Multimedia, Graphics Design and Animation. However, no separate modules had yet been designed, on film media in particular, due to the lack of equipment. Furthermore, the aesthetic knowledge support required for the modules available has also been absent from the university, which has been seen as a weakness in being able to proceed with the development of a film media module.

Motion Cine Club (Executive)

The interview with respondent *AAX* was devised to reveal information on how short film-training courses or workshops were being carried out throughout the country for beginner-

level students. However, information retrieved from the interview was inconclusive with regards to the validity of such programmes.

Independent Filmmaker

Respondent *AAL* was one of the pioneers in working with digital films and it was therefore important that he was interviewed. Information about his personal experience as a digital filmmaker and his opinion about the integration process of DT within the BFI have been mentioned in many parts of this thesis.

AAL highlighted the unreadiness of the 'men behind the machines' as a big problem facing the successful integration of DT. However, he pinned his hopes on the integration process of Bangladesh by comparing it to the expansion of the Indian Film Industry:

If you want to replace the Bollywood industry with DT, it would be really tough because they have a huge analogue/traditional technology establishment which is working in a good condition. However, in our country, the fact is the opposite. For example, if we import a re-recording machine, everyone here will laugh because nowadays, it is really to mix sounds digitally. The re-recording machine has become obsolete.

Furthermore, regarding the future aspects of the industry, *AAL* suggested providing a subsidy to the cinema halls rather than during the production of the films. *AAL* claimed that this would hopefully increase the participation from the audience and stabilise the industry in the long run.

Commercial Filmmaker

The interview with respondent *AAY* was mainly designed to find out the costs and other quantitative data related to his super box-office hit film, *Monpura*.

Commercial Filmmaker

Respondent *OO* is the first person in Bangladesh to have shot a commercial digital film. An interview with him was therefore important to understand how he converted his digital film into a 35 mm film format. Information about the shooting costs of the film and other related experiences were also key questions during the interview.

Film Journalist

Respondent *AAQ*, having had a long career in film journalism and having been an author of two books, was a really important interviewee. *AAQ* firstly mentioned that, even though

cine-journalists have been working with cinema for a very long time, not many of them have any training in filmmaking. Therefore, when a film is produced, the journalists often don't look critically at the production quality and instead focus their articles on the stars in the film. Furthermore, because a lot of them lack specific technical film production knowledge, there have been no "thought-provoking" reports on the new integration of DT within the industry.

Bibliography

Abubakar, Umar. *The Technology Transfer Application in the Republic of Indonesia*. MSc Thesis, Indonesia: Bandung Institute of Technology.1990.

Acutt, B. Becker, K. Hyland, P. & Miller, L. 'Minimum and Preferred Entry Qualifications and Training Provision for North Australian Workers', in *International Journal on Training and Development*, Volume 10 , Issue 3, 2006, p.195-211.

Adams, B. & Venkatesh, S. MM'03, Conference Proceedings, Berkeley, California, USA, 2003.

Aiman-Smith L. & Green S.G. 'Implementing New Manufacturing Technology: The Related Effects of Technology Characteristics and User Learning Activities', in *The Academy of Management Journal*, Volume 45, Number 2, April 2002, p.421-430.

Aksoy, A. & Robins, K. 'Hollywood for the 21st Century: Global Competition for Critical Mass in Image Markets', in *Cambridge Journal of Economics*, Volume16, Issue 1, 1992, p.1-22.

Alam G.M. 'The Role of Technical and Vocational Education in the National Development of Bangladesh', in *Asia-Pacific Journal of Cooperative Education*, Volume 9 Issue 1, 2008, p. 25-44.

Ali, M.N. 'Technical and Vocational Teacher Training in Bangladesh', in: Latif, A.H. ed., *Bangladesh Education Journal*. Volume 8, Number 1, Bangladesh Forum for Educational Development and BRAC University of Educational Development Publication, June 2009, p. 29-55.

Alvardo, M. & Bradshaw, W. 'The Creative Tradition: Teaching Film and TV Production', in: Manuel, A. & Boyd-Barrett, O. ed., *Media Education*: *An Introduction*. London: British Film Institute.1992.p.186-198.

Angell, Robert. *Getting into Films & Television How to Spot the Opportunities and Find the Best Way In*. Oxford: How to Books Limited, 1999.

Appleby, J.A. *Training Programs and Placement Services: Vocational Training and Placement of the Severely Handicapped*. Olympus Pub. Co. 1978.

Argote, Linda, 'Group and Organizational Learning Curves: Individual, System and Environmental Components', in *British Journal of Social Psychology*, Volume 32 Issue 1, March 1993, p.31-51.

Ascher, S. & Pincus, E. *The Filmmaker's Handbook A Comprehensive Guide For Digital Age*. Plume Book. March, 1999.

Ashbury, R. Hisby, W. O'Brien, M. *Teaching African Cinema*. British Film Institute.1998.

Association of Teachers in Colleges and Departments of Education, *Film and Television in Education for Teaching*. British Film Institute. 1960.

Atique, N. A. *Notun Cinema,Shomoyer Proyojon*, Dhaka: Pandulipi Karkhana. 2009.*

Au, Y. A. & Kauffman, R. J. 'Information Technology Investment and Adoption: A Rational Expectations Perspective' in: Sprague, R. ed., *Proceedings of the 36th Annual Hawaii International Conference on System Sciences*, Los Alamitos, CA: IEEE Computing Society Press. January 2003.

Azad, Mahabub. *Khan Ataur Rahman*. Dhaka: Bangla Academy. 2000. *

Azgor, Soykot. *Abdul Jobbar Khan*. Dhaka: Bangla Academy. 2002. *

Azgor, Soykot. *Hira Lal Sen*. Dhaka: Bangla Academy, 1993. *

Backer, T.E., 'Assessing and Enhancing Readiness for Change: Implications for Technology Transfer', in: Backer, T.E, David, S.L, Saucy, G, ed, *Reviewing the Behavioral Science Knowledge Base on Technology Transfer*. National Institute on Drug Abuse Monograph 155, Rockville, MD 20857,1995.

Bakker, Gerben. *Building Knowledge about the Consumer: The Emergence of Market Research in the Motion Picture in Business History*. London: Routledge. 2003.

Bandura Albert,'Self-efficacy: Toward a Unifying Theory of Behavioral Change', Psychological Review, Volume 84, 1977, p.191-215.

Bandura, Albert. *Social Foundations of Thought and Action: A Social Cognitive Theory*. NJ: Prentice-Hall. 1986.

BFDC, Prkolpo Sarpotro BFDC te Digital Projukti Proborrton Prokolpo, March, 2002*

Barnes Verle, 'Eight Basic Considerations for the Teaching of Film', in *College Composition and Communication*, Volume 27, Number 1, February 1976, p.32-35.

Bass B.M., & Avolio B.J., 'Transformational Leadership and Organizational Culture', in *International Journal of Public Administration*, Volume 17, Issue 3 & 4, 1994, p.541-554.

Batt, Rosemary, Work Organization, Technology, and Performance in Customer Service and Sales, Human Research Studies, Paper 5, Cornell University, ILR School, USA, 1999.

Behrman, N. Wojak, A. & Hudz. M. *Spark Your Career in Film*. Spark Publications.2007.

Belton John, 'Digital Cinema: A False Revolution', in *October*, Volume 100, Spring 2002, p.98-114.

Benett, Andrew. 'Case Study Methods: Design, Use, and Comparative Advantages' in Sprinz, D.F. and Wolinsky-Nahmias,Y.ed., *Models-Numbers-Cases- Methods for Studying International-Relations* University of Michigan Press. 2004. p.19-47.

Bessant John, & Rush Howard, 'Innovation Agents and Technology Transfer', in: Boden , M. & Miles, I. ed., *Services and the Knowledge Based Economy*. Taylor & Francis, 2000. p.155-169.

BFI Education, 'Media Education and the National Curriculum', in: Manuel, A. & Boyd-Barrett, O. ed., *Media Education*: *An Introduction*. London: British Film Institute.1992. p.135-139.

Bhagavan, M. *Technological Transformation of the Third World*. ZED Books. 1990.

Bhuiya, Sofdor Ali. *Studio Porichiti*. Dhaka: 1974. *

Bielby, W.T. & Bielby, D. D. 'Organizational Mediation of Project-Based Labor Markets: Talent Agencies and the Careers of Screenwriters', in *American Sociological Review*, Volume 64, Number 1, February 1999, p.64-85.

Billups, Scott. *Digital Moviemaking 3.0*. CA, USA: Michael Wise Productions. 2007.

Blakeney, Michael. *Legal Aspects of the Transfer of Technology to Developing Countries*. Australia: Law Book Co of Australasia .1989.

Blanchard, Tim., Media Studies at 16, Education Department, British Film Institute, 1989.

Blassnigg, Martha. 'Documentary Film at the Junction between Art and Digital Media Technologies', in *Convergence: The International Journal of Research into New Media Technologies*, Volume 11, Number 3, Sage Publications 2005, p.104-112.

Blunch, N-H. & Castro, P. 'Enterprise-level Training in Developing Countries: Do International Standards Matter?', in *International Journal on Training and Development* Volume 11, Issue 4, 2007, p.314-324.

Bogdan, R. & Taylor, S, *Introduction to Qualitative Research Methods a Phenomenological Approach to the Social Sciences*. New York, London: John Willey & Sons.1975.

Bonfadelli Heinz, 'The Internet and Knowledge Gaps A Theoretical and Empirical Investigation', in *European Journal of Communication*, Volume 17, Number 1, March 2002, p.65-84.

Bose, Derek. *Brand Bollywood a New Global Entertainment Order in India*. London: Sage Publications Ltd. 2006.

Boyatzis R.E., 'Beyond Competence: The Choice to be a Leader', in *Human Resource Management Review*, Volume 3, Number 1, Spring 1993, p.1-14.

Brancato, Sergio. 'Italy in the Digital Age: Cinema as New Technology', in *Modern Italy*, Volume 6, Issue 2, 2001, p. 215-222.

British Industrial and Scientific Film Association, BISFA Guide to Films on Education. 1st Supplement. B.I.S.F.A, 1971.

Britton, Peter. 'First the Silents then Talkies Now, the Digitals the Wow Factor', *in Popular Science*, November 1993, p.86-91.

Brooks, Kevin. 'Do Story Agents Use Rocking Chairs? The Theory and Implementation of One Model for Computational Narrative', in: Hall, W. & Little, T.D.C. ed., Proceedings of ACM Multimedia ,Boston , 1996.

Brunner, Hans-Peter. *Closing the Technology Gap: Technological Change in India's Computer Industry.* London: Sage Publications Ltd. 1995.

Buhr, Walter. 'What is Infrastructure?', Siegen Discussion Paper No. 107-03, University of Siegen: Department of Economics, 2003.

Burkett Ingrid,' Beyond the Information Rich and Poor: Futures Understandings of Inequality in Globalising Informational Economies' in *Futures*, Volume 32, Issue 7, September 2000, p. 679-694.

Buscombe, Edward. 'Television Studies in Schools and Colleges', in: Manuel, A. & Boyd-Barrett, O. ed., *Media Education*: *An Introduction*. London: British Film Institute.1992.p.41-44.

Buytendijk F, Hatch T, & Micheli P, 'Scenario-based Strategy Maps', in *Business Horizons*, Volume 5, 23,Issue 4, July-August 2010, p.335-347.

Campbell, L.G. Corte, S. & Carlos E. *Film as a Revolutionary Weapon: A Pedagogical Analysis.* Riverside: University of California.1977.

Carlsson L. & Berkes F., 'Co-Management: Concepts and Methodological Implications', in *Journal of Environmental Management*, Volume 75, Issue 1, April 2004, p.65-76.

Cassels, John. *Britain's Real Skill Shortage and What to do about it*. Policy Studies Institute. 1990.

Catty, Nancy. *Training in Appreciation Art: Literature: Music*. Sidgwick & Jackson.1921.

Chao, H. J. & Lam, C. H. *Broadband Packet Switching Technologies: A Practical Guide to ATM Switches and IP Routers*. New York: Wiley. 2001.

Chang, B-H.& Ki, E.J. 'Devising a Practical Model for Predicting Theatrical Movie Success : Focusing on the Experience Good Property' , in Compaine, B. and Cunningham, B. ed., *Journal of Media Economics*, Volume 18 , 2005, p.247-269.

Chang, J.; Chang, K-W; Chu, J.; Lee, Y. and Zhao, Y. 'Technology Induced Change in Film/Television Distribution', in: Karmarkar,U. & Mangal, V. eds. *The Business and Information Technologies (BIT) Project A Global Study of Business Practice.* Singapore: World Scientific Publishing Co. Pte. Ltd.,2003. p.167-240.

Chen, Jin. *How Does China Obtain Technology Transfer Through Foreign Direct Investment?* Ph.D Thesis, University of Manchester: School of Economic Studies. 2004.

Christensen Rhonda, **'**Effects of Technology Integration Education on the Attitudes of Teachers and Students', in *Journal of Research on Technology in Education*, Volume 34, Number 4, 2002, p.411-433.

Christopherson Susan, 'Project Work in Context: Regulatory Change and the New Geography of Media', in *Environment and Planning*, Volume 34, Issue 11, 2002, p. 2003-2015.

Cinema Consultative Committee (ENGLAND), The Teaching of Film. A Report and Some Recommendations: British Board of Film Censors, 1958

Clevé, Bastian. *Film Production Management*. Focal Press. 2002.

Cohen, Goel. *Technology Transfer: Strategic Management in Developing Countries*. London: Sage Publications Ltd. 2004.

Cohen W.M. & Levinthal D.A., 'Absorptive Capacity: A new Perspective on Learning and Innovation', in *Administrative Science Quarterly*, Volume 35, Number 1, March, 1990,p.128-152.

Cole R. E., 'Participant Observer Research: An Activist Role', in: Whyte, W.F., ed., *Participatory Action Research.* CA: Sage Publications Ltd, 1991.p.159-166.

Compaine B.M., 'Information Gaps: Myths or Reality? ', in *Telecommunication Policy*, Volume 10, Issue 1, March 1986, p.5-12.

Cook, J. & Hiller, J. 'The Institutionalisation of Film and Television Study', in: Manuel, A. & Boyd-Barrett, O. ed., *Media Education*: *An Introduction*. London: British Film Institute.1992.p.18-20.

Cooper, D.R. & Schindler, P.S, *Business Research Methods*. New York: McGraw Hill. 2003.

Corbett L. M., & Claridge G. S., 'Key Manufacturing Capability Elements and Business Performance', in *International Journal of Production Research*, Volume 40, Number 1, 2002, p.109-131.

Costanzo, William, Teaching Film with Laserdiscs, In Cinema Journal, Volume 34, No 4, 1995

Creswell, J.W. *Research Design: Qualitative and Quantitative Approaches*. CL: Sage Publications Ltd.1994.

Culkin Nigel, 'Digital Cinema: No Country for Old entrepreneurs?', in *Journal of Retail Marketing Management Research*, Volume 1 , Number 2, 2008 , p.44-58.

Cyhn, Jin W. *Technology Transfer and International Production: The Development of the Electronics Industry in Korea*. Cheltenham: Elgar. 2002.

Daly, K. M. *Cinema 3.0: How Digital and Computer Technologies are Changing Cinema.* Ph.D Thesis, Columbia University: University Microfilms International (UMI) Microform 3305212. 2008.

Dewar R.D., & Dutton J.E., 'The Adoption of Radical and Incremental Innovation', in *Management Science*, Volume 32, Number 11, November, 1986, p.1422-1433.

Dijk, J.V. & Hacker, K., 'The Digital Divide as a Complex and Dynamic Phenomenon', in *The Information Society An International Journal*, Volume 19, Issue 4, September 2003, p.315-326.

Dixon, W. W. *Film and Television after 9/11*. Southern Illinois University Press. 2004.

Donikian S. & Portugal J.N., 'Writing Interactive Fiction Scenarii with Dra Machina Technologies for Interactive Digital Storytelling and Entertainment', in *Lecture Notes in Computer Science***,** Volume 3105, 2004, p.101-112.

Donnellan, B., Larsen, T. J., Levine, L., & DeGross, J.I., 'The Transfer and Diffusion of Information Technology for Organizational Resilience', Boston, MA: International Federation for Information Processing, 2006.

Dony R.D., Mateer J.W. & Robinson J.A., 'Techniques for Automated Reverse Storyboarding', in *IEEE Proc.-Visual Image Signal Process*, Volume. 152, Issue 4, August 2005, p.425-436.

Dosi, G. & Marengo, L. 'Some Elements of an Evolutionary Theory of Organizational Competences', in England, R.W., ed., *Evolutionary Concepts in Contemporary Economics*. Ann Arbor, MI: University of Michigan Press. 1993. p.211-235.

Dudrah, Rajinder Kumar. *Bollywood Sociology Goes To the Movies*. London: Sage Publications Ltd. 2006.

Duke Sheree, 'Phenomenological Methodology in the Human Sciences', in *Journal of Religion and Health*, Volume 23,Number 3, Fall 1984, p.197-203.

Dry Chris, *Film and Television in Education: The Handbook of the British Universities Film & Video Council*. Blueprint. 1995.

Dzyak, Brian. *What I Really Want To Do on Set in Hollywood: A Guide to real Jobs in the Film Industry.* Crown Publishing Group. 2010.

Edgerton, G.R. *American Film Exhibition and Analysis of the Motion Picture Industry's Market Structure, 1963-1980.* Michigan and London: University Microfilms International. 1982.

Elasmar, M.G. & Bennett, K.'The Cultural Imperialism Paradigm Revisited: Origin and Evolution in: Elasmar, M.G. , ed., *The Impact of International Television A Paradigm Shift*, New Jersey, London: Lawrence Erlbaum Associates, Inc, Publishers, 2003. p.1-16.

Enos, J.L. & Park, Woo-Hee. *The Adoption and Diffusion of Imported Technology: The Case of Korea*, Kent: Croom Helm. 1988.

Estache, Antonio & Fay, Marianne. *Current Debates on Infrastructure Policy*. The World Bank. 2009.

Fehlman R. H., 'Teaching Film in the 1990s', in *The English Journal*, Volume 83, Number 1, January 1994,p.39-46.

Fichman R.G., 'Information Technology Diffusion: A Review of Empirical Research' Proceedings of the International Conference, MIT Sloan School of Management, Cambridge, MA, 1992.

Finlay, I. Niven, S. & Young, S. *Changing Vocational Education and Training an International Comparative Perspective.* Routledge. 1998.

Firth, Brian. *Mass Media in the Classroom*. Mc Milan. 1968.

Flores-Koulish, S. A. *Teacher Education for Critical Consumption of Mass Media and Popular Culture.* Routledge Flamer. 2005.

Flyvbjerg Bent, 'Five Misunderstandings about Case-Study Research', in *Qualitative Inquiry*, Volume 12, Number 2, April 2006, p.219-245.

Franz, K. and Nischelwitzer, A.K, 'Adaptive Digital Storytelling: A Concept for Narrative Structures and Digital Storytelling build on Basic Storytelling Principles, Adaptive Story Schemas and Structure Mapping Techniques', in: Zimmermann, L. ed., *MM Appl. in Education Conference Proceedings.* Graz, 2004. p.25, 28–33.

Fuller-Love, Nerys, The Impact of Digital Technology on Small Businesses in the Media Industry, International Small Business journal, Volume 18(4), Sage Publications,2000

Galperin, Hernan. *New Television, Old Politics the Transition to Digital TV in the United States and Britain*. Cambridge: Cambridge University Press. 2004.

Ganz A, Khatib L, 'Digital Cinema: The Transformation of Film Practice and Aesthetics', in *New Cinemas: Journal of Contemporary Film*, Volume 4, Number 1, 2006, p.21-36.

Gellert F. J. & Kuipers B. S,' Short and Long-term Consequences of Age in Work Teams An Empirical Exploration of Ageing Teams', in *Career Development International*, Volume 13, Number 2, 2008, p.132-149.

Glass A.J. & Saggi Kamal, 'International Technology Transfer and the Technology Gap', in *Journal of Development Economics*, Volume 55, Issue 2, April 1998, p.369-398.

Godkin Lynn, 'Institutional Change, Absorptive Capacity, and the Organizational Zone of Inertia', in *Human Resource Development Review*, Volume 7, Number 2, June 2008, p.184-197.

Goldman, William. *Adventures in the Screen Trade a Personal View of Hollywood and Screenwriting.* London: Abacus. Reprint 2003.

Gordon, Sandra. *Action!: Establishing Your Career In Film and Television Production.* Applause Theatre Book Publishers.2002.

Goransson, Bo. *Catching up in Technology: Case Studies from the Telecommunications Equipment Industry*. London: Taylor Graham. 1993.

Gramlich E. M., 'Infrastructure Investment: A Review Essay', in *Journal of Economic Literature*, Volume 32, Number 3, September, 1994, p. 1176-1196.

Grant R.M. 'Prospering in Dynamically-Competitive Environments: Organizational Capability as Knowledge Integration', in *Organization Science*, Volume 7, Number 4, July-August 1996, p.375-387.

Gray, C. K. & Herr, E. L. *Workforce Education: The Basics*. Allyn and Bacon. 1997.

Green Andy, 'Core Skills, Participation and Progression in Post-Compulsory Education and Training in England and France', in *Comparative Education*, Volume 31, Number1, March 1995, p. 49-67.

Green, A. & Ainley, P. Greiner,G, *Teaching Film*. British Film Institute.1955.

Greiner, Grace. *Teaching Film: A Guide to Classroom Method*. London: British Film Institute. 1955.

Gupto, D.D., *Cholochitro Nirmane Digital Projukti*. Calcutta: Mitro & Ghosh Publishers. 2005. *

Hackett, Penny. *Training Practice*. Chartered Institute of Personnel and Development. 2003.

Hakim, C. *Secondary Analysis in Social Research*. Allen and Unwin. 1982.

Halas, J. & Martin-Harris, R. *Audio-Visual Techniques for Industry*. United Nations Industrial Development Organization. 1978.

Hamid, A. *Muslim Separatism in India A Brief Survey 1858-1947*. Oxford: Oxford University Press. 1967.

Hampton, B. B. *History of American Film Industry from its beginnings to 1931*. New York: Dover Publications. 1970.

Hanthaner, E.L. *The Complete Film Production Handbook*, MA, USA: Elsevier INC. 2010.

Haq, Fahmidul. *Digital Film in Bangladesh Call for a New Cinema?* Germany: Lambert Academic Publishing. 2011.

Haq, F. and Moon, S. eds., *Cholochitrer Somoy Somoyer Cholocitro*. Dhaka: Oitijhya. 2006.*

Hark, I.R. *Exhibition The Film Reader*. London and New York: Routledge. 2002.

Hayat, Anupam. *Bangladesher Chalachitrer Itihash*. Dhaka: Bangladesh Film Development Corporation. 1987.*
Hayat , Anupom. *Cholochitrer Khola Janalay*. Dhaka: Runa Prokashoni.1983.*

Hayat, Anupam. *Cholocitro Jogote Nazrul*. Dhaka: Nazrul Institute, 1998.*

Hayat, Anupam. *Sekaler Kojon Cholochitro Kormi*. Dhaka: Bangla Academy. 1999.*

Haythornthwaite, Caroline. *Strong Weak and Latent Ties and the Impact of New Media in The Information Society.* London :Taylor & Francis. 2002.

Herold Anna, 'The Future of Digital Cinema in Europe: A Legal Challenge for the EU?', in *Convergence The International Journal of Research into New Media Technologies*, Volume 9, Number 4, December 2003,p.99-118.

Herzog, C. K. *The Motion Picture Theatre and Film Exhibition 1896-1932.* Ph.D Thesis, North-western University, Michigan and London: University Microfilms International, 1982.

Hinde, Andy. 'Secondary Analysis', in: Graham, A. and Skinner, C. ed., *Handbook for Research Students in the Social Sciences*. The Falmer Press. 1993.p.248-257.

Hoek Lotte, 'Cut-Pieces as Stag Film: Bangladeshi Pornography in Action Cinema', in *Third Text*, Volume 24, Issue 1, 2010. p.135.148.

Hoek Lotte, 'Unstable Celluloid: Film Projection and the Cinema Audience in Bangladesh', in *Bioscope: South Asian Screen Studies,* Volume1, Issue 1, 2010, p.49-66.

Holding, D. H. *Principles of Training*. Pergamon Press. 1965.

Hossain, Dildar. *Colochitro Sangbadikota Somalona O Bishleshon*. Dhaka. 2002.*

Hossain, Dildar. *Japan O Bharoter Cholochittro Utshoobe*. Dhaka. 2002.*

Hossain, Dildar. *Pochish Bochorer MuktiJudder Cholochittro*. Dhaka: Onik Prokashoni. 2002.*

Hossain, Dildar, *Pranaito Cholochiro*. Dhaka:Pothik Prokashoni. 1990.*

Hurwitz, A. R. & Hurwitz, S. *Choosing a Career in Film, Television, or Video*. Rosen Publications Group. 1996.

Hyland, Terry. *Competence, Education and NVQs*. Cassell. 1994.

Iansiti, Marco. *Technology Integration: Making Critical Choices in a Dynamic World*. Boston, Mass.: Harvard Business School Press.1998.

Iansiti Marco, 'Technology Integration: Managing Technological Evolution in a Complex Environment', in *Research Policy*, Volume 24, Issue 4, July 1995, p.521-542

Iansiti Marco, & Clark K.B., 'Integration and Dynamic Capability: Evidence from Product Development in Automobiles and Mainframe Computers', in *Industrial and Corporate Change*, Volume 3, Number 3, 1994, p. 557-605.

Imam, Ali. *Rupoli Fite*. Dhaka: Bangladesh Shilpokola Academy.1981.*

Islam, Shoraful. *Mukh O Mukhosher Cherapata*. Dhaka: Nagorik Prokashaloy ,1990.*

Islam, Aminul. *Post Independent Film History of Bangladesh (1970-80): In The Light Of Socio Economic Perspective*. Ph.D Thesis, Dhaka: Jahangirnagar University, Department of Drama and Dramatics, 2007.

Johnson G., Schloes K. and Whittington R. *Exploring Corporate Strategy Text and Cases*. Prentice Hall. 2008.

Jokinen Tina., 'Global Leadership Competencies: a Review and Discussion', in *Journal of European Industrial Training*, Volume 29, Issue 3, 2005, p.199-216.

Jones, D. Barlow, J. Finlay, S. and Savage, H.' NZ film: A Case Study of the New Zealand Film Industry', Report, Victoria Management School, Victoria University of Wellington, New Zealand, 2003.

Jones Oswald, 'Developing Absorptive Capacity in Mature Organizations The Change Agent's Role', in *Management Learning*, Volume 37, Number 3, September 2006, p.355-376.

Kabir, Alamgir. *Film in Bangladesh*. Dacca(Dhaka): Bangla Academy. June 1979.

Karlsen, J.I. 'Action Research as Method: Reflections from a Program for Developing Methods and Competence', in: Whyte, W.F. ed., *Participatory Action Research*. Thousand Oaks, CA: Sage Publications Ltd. 1991. p.143-158.

Kekre Sunder, & Mukhopadhyay Tridas, 'Impact of Electronic Data Interchange Technology on Quality Improvement and Inventory Reduction Programs: A Field Study', in *International Journal of Production Economics*, Volume 28, Issue3, 1992, p.265-282.

Kellie Deborah, 'The Australian Way: Competency-Based Training in the Corporate Sector', in *International Journal on Training and Development*, Volume 3 , Number 2,June 1999, p.118-131.

Kemp, Chris. *Music Industry Management and Promotion*. Huntingdon: ELM Publications. 2000.

Ketter, P-M., Petzold, H-J. & Schlegel, W., *Training for Everyone: A Guide to the Planning Of Innovative Training and Employment Projects for Unemployed Young People in the European Community*. Washington: European Community Information Service. 1986.

Klein S., Frazier G.L., &. Roth V .J., 'A Transaction Cost Analysis Model of Channel Integration in International Markets', in *Journal of Marketing Research*, Volume 27, Number 2, May 1990, p.196-208.

Korris James, & Macedonia Michael, 'The End of Celluloid: Digital Cinema Emerges, in *Computer'*, Volume 35 , Issue 4, April, 2002, p.96-98.

Kothari S. & Handscombe R.D., 'Sweep or Seep? Structure, Culture, Enterprise and Universities', in *Management Decision*, Volume 45, Issue 1, 2007, p.43-61.

Knol W.H.C. & Stroeken J.H.M., 'The Diffusion and Adoption of Information Technology in Small-and Medium-Sized Enterprises through IT Scenarios', in *Technology Analysis & Strategic Management*, Volume 13, Number 2, 2001, p.227-246.

Kranenburg, H.V & Hogenbirk, A., 'Multimedia, Entertainment and Business Software Copyright Piracy: A Cross National Study', in: Compaine, B. & Cunningham, B. ed., *Journal of Media Economics*. Volume 18, Issue 2, London: Routledge, 2005.p.109-129.

Kumar Nagesh, 'Cost of Technology Imports: The Indian Experience', in *Economic and Political Weekly*, Volume 20 , Number 35, August 1985, p. M103-M114.

Kumar, R.L. & Crook, C.W. 'Using Information Technology to Enhance Industry Effectiveness: The Case of the Textile Industry', in: Liebowitz, J. & Khosrowpour, M. ed., *Cases on Information Technology Management in Modern Organizations.* London: Idea Group Publishing.1997. p.83-93.

Labarca Guillermo, 'Education in Basic Skills and Training for Productive Work', in *International Review of Education*, Volume 44, Number 5-6, 1998, p.413-439.

Laal Sanjaya, 'The Technological Structure and Performance of Developing Country Manufactured Exports, 1985-98', in *Oxford Development Studies*, Volume 28, Number 3, 2000, p.1-39.

Lancaster, G. & Massingham, L. *Marketing Management*. London, New York: McGraw-Hill Publishing Company.2001.

Lange, A. & Renaud, J-L. *The Future of the European Audiovisual Industry.* Manchester: European Institute for the Media. 1989.

Lee Keun, Emerging Digital Technology as a Window of Opportunity and Technological Leapfrogging: Catch up in Digital TV by the Korean Firms', in *International Journal of Technology Management*, Volume 29, No1/2, 2005, p.40-63.

Lee M.S.D. & Allen T.J., 'Integrating New Technical Staff: Implications for Acquiring New Technology', in *Management Science*, Volume 28, Number 12, December, 1982, p.1405-1420.

Leif, S.B., Aha, S.H.L. & Leif, R.C., 'Setting Up a Pre-production Quality Management Process in the Medical Device Industry', in: Ross, M. Brebbia, C. A. Staples, G. Stapleton, J.

ed., *Software Quality Management II,* Volume I, Southampton, Boston: Computational Mechanics Publications, 1994, p.63-78.

Leonard-Barton D, 'Core Capabilities and Core Rigidities: A Paradox in Managing New Product Development', in *Strategic Management Journal,* Volume 13, Special Issue, Summer 1992, p.111-125.

Lehmann, D. R. & Weinberg, C. B, 'Sales through Sequential Distribution Channels: An Application to Movies and Videos', in: Kohli, A. K ed., *Journal of Marketing*. Volume 64, Issue 3, 2000, p.18-33.

Li L.L.X., 'Manufacturing Capability Development in a Changing Business Environment', in *Industrial Management & Data Systems,* Volume 100, Number 6, 2000, p.261-270.

Liao, S-H, Fei, W-C & Chen, C-C, 'Knowledge Sharing, Absorptive Capacity, and Innovation Capability: An Empirical Study of Taiwan's Knowledge Intensive Industries', in *Journal of Information Science,* Volume 33, Number 3, June 2007 , p.340-359.

Li-Hua Richard, *From Technology Transfer to Knowledge Transfer- A study of International Joint Venture Projects in China*, Proceedings of the 12th International Conference on Management of Technology, 13–15 May 2003, Nancy, France, 2003

Lobman, Carrie, & Ryan Sharon, 'Creating Effective System of Teacher Preparation and Professional Development: Conversations with Stakeholders', in *Educational Policy*, Volume 22, Number 4, 2007, p.515-540.

Lombardozzi Catherine, & Casey Andrea, 'The Impact of Developmental Relationships on The Learning of Practice Competence for New Graduates', in *Journal of Workplace Learning*, Volume 20, Number 5, 2008, p.297-315.

Lowther D.L., Inan F.A., Strahl J.D. and Ross, S.M., **'**Does Technology Integration "Work" When Key Barriers are Removed?', in *Educational Media International*, Volume 45, Number 3, September 2008, p.1-46.

Mabey, Christopher.& Finch-Lees, Tim. *Management and Leadership Development*. London: Sage Publications Ltd. 2008.

Mahdavi-Adeli, M. H. *The Process of Transfer Of Technology Between Developed And Developing Countries: The Petrochemical Industry In Iran*. Ph.D Thesis, Manchester: UMIST. 1982.

Mak, Monica. *Digital Cinematic Technology and the Democratization of Independent Cinema.* Ph.D Thesis, McGill University: Department of Art History and Communication Studies. August 2007.

Makris, Christodoulos. *Hollywood: Technological and Cultural Issues in International Film Distribution*. MSc Thesis, University of Manchester: School Of Management, 1995

Marshall, Harriette. 'Discourse Analysis in an Occupational Context', in: Cassell, C. & Symon, G. ed., *Qualitative Methods in Organizational Research*. London: Sage Publications Ltd, 1994.p.91-106.

Martin Adrian, 'Kind of a Revolution, and Kind of Not: Digital Low-Budget Cinema in Australia Today', in *Scan Journal* Volume 3, Number 2, October 2006.

Martin, G.P., 'The New Manager: Transition to Tyrant', in *Training and Development in Australia*, August 2002, p.1-4.

Martin Philippe, & Rogers C.A., 'Industrial Location and Public Infrastructure', in *Journal of International Economics*, Volume 39, Issue 3-4, 1995, p.335-351.

McDougall M., & Beattie R.S., 'The Missing Link? Understanding the Relationship between Individual and Organisational Learning', in International *Journal on Training and Development*, Volume 2, Number 4, 1998, p.288-299.

Miller L., Acutt B., & Kellie D., 'Minimum and Preferred Entry Qualifications and Training Provision for British Workers', in *International Journal on Training and Development*, Volume 6, Number 3, 2002, p.163-182.

Mooij, Wim 'Advances in Conditional Access Technology', International Broadcasting Convention Conference Publication No 447, IEE, 1997.

Muhammad Mazanah & Idris, Khairuddin, 'Workplace Learning in Malaysia: The Learners Perspective', in *International Journal on Training and Development*, Volume 9, Issue 1, 2005, p.62-78.

Murdock, G. & Phelps, G. 'Teaching in the Classroom: Using Mass Media Material', in: Manuel, A. & Boyd-Barrett, O. ed., *Media Education*: *An Introduction*. London: British Film Institute.1992.p.14-17.

Musgrove, Jan. *Make-up, Hair and Costume for Film and Television*. Oxford: Focal Press. 2003.

Muthshuddi, Chinmoy. *Bangladesher Cholocitre Samajik Ongikar*. Dhaka: Bangladesh Shilpokola Academy. 1987.*

Narayan, Anupama & Steele-Johnson, Debra, 'Relationships Between Prior Experience of training, Gender, Goal Orientation and Training Attitudes', in *International Journal on Training and Development*, Volume 11, 2007, p.166-180.

Nas, T.F., *Cost-Benefit Analysis Theory and Applications*. Thousands Oak. Ca: sage 1996.

Nasreen,G. A. and Haq, F. *Bangladesher Chalochchita Shilpo Sangkote Janosangskriti*. Dhaka: Shrabon Prokashoni. 2008.*

Nath P., Nachiappa S., & Ramanathan R., 'The Impact of Marketing Capability, Operations Capability and Diversification Strategy on Performance: A Resource-based View', in *Industrial Marketing Management*, Volume 39, Issue 2, February 2010, p.317-329.

Nightingale, Virginia & Ross, Karen ed., *Introduction in Critical Readings: Media and Audiences.* Open University Press. 2003.

Nirod, F.U, *Bangladesher Cholocitro*, Dhaka. 1972.*

Nonaka I., Toyama R. and Konno N., 'SECI, Ba and Leadership: A unified Model of Dynamic Knowledge Creation', in *Long Range Planning*, Volume 33, Issue 1, February 2000, p.5-34.

Ohanian, T.A. & Phillips, M.E. *Digital Filmmaking: The Changing Art and Craft of Making Motion Pictures.* The Avid Handbook. 2000.

Oldham, Joanna. *Classroom Classics to the Silver Screen: A Guide to Teaching Classic Texts through the Medium of Film*. Film Education. 1999.

Oliver Christine, 'Determinants of Inter organizational Relationships: Integration and Future Directions', in *Academy of Management Review*, Volume 15, Number 2, April 1990, p.241-265.

Omgreen Rikke, 'The Design Sketching Process, IFIP International Federation for Information Processing', in: Clemmensen, T. Campos, P. Omgreen, R. Petersen, A. and Wong, W. ed., *Human Work Interaction Design*, *Designing for Human Work*, Volume 22 , Number 1, 2006, p.185-202.

Ontario Institute for Studies in Education, *The Uses Of Film in the Teaching of English*. Ontario Institute for Studies in Education. 1971.

Orpen Christopher, 'The Influence of the Training Environment on Trainee Motivation and Perceived Training Quality', in *International Journal on Training and Development*, Volume 3, Issue 1, 1999, p.34-43.

Ouma-Onyango, Richard. *Information Resources and Technology Transfer Management in Developing Countries*. New York: Routledge. 1997.

Oxtoby Robert, 'Barriers to the Provision of Cost-effective Technical Education in Bangladesh', in *International Journal Educational Development*, Volume 17, Issue 1, January 1997, p.91-99.

Pace R.W. Regan L. Miller P. & Dunn L. 'Natural Growth Goals and Short-term Training: A Booming Effect', in *International Journal on Training and Development*, Volume 2 , Number 2, June 1998, p.128-40.

Parasuraman A. & Grewal D., 'The Impact of Technology on the Quality-Value- Loyalty Chain: A Research Agenda', in *Journal of the Academy of Marketing Science*, Volume 28 Number 1, 2000, p.168-194.

Payne, G. & Payne, J. *Key Concepts in Social Research*. Sage Publications Ltd. 2004.

Pettigrew, A. M., ‘Strategy Formulation as a Political Process’, in: Faulkner, D. ed., *Strategy: Critical Perspectives on Business and Management*. Routledge. 2002. p.78-87.

Picard, R. G. 'A Note on Economic Losses Due to Theft, Infringement, and Piracy of Protected Works’, in: Compaine, B. & Cunningham, B. ed., *Journal of Media Economics*. Volume 17, London: Routledge, 2004. p.207-217.

Points, Jeremy. *Teaching TV Drama*. British Film Institute. 2006.

Potter, W. J., *Media Literacy*. Sage Publications, Inc. 2001.

Pratt, Brian. & Loizos, Peter. *Choosing Research Methods Data Collection for Development Workers*. Oxfam. 1992.

Quader, T. M. *Bangladesher Chalachitra Shilpa*. Dhaka: Bangla Academy. June 1993.*

Rahman, M.U. *Cholochitrer Karigori Maan*. Dhaka: Marina Z Enterprise. 1972.*

Rahman, Badal. *Chala Chitrer Bhasa*. Dhaka: Bangla Academy. 1985.

Reiser R.A. ‘A History of Instructional Design and Technology: Part 1: A History of Instructional Media’, in *Educational Technology Research and Design*, Volume 49 Number 1, 2001, p.53-64.

Raju, Z. H. ‘Cinema in Bangladesh: A Defiant Survivor’, in Vasudev, A., Padgaonkar, L. and Doraiswamy, R. ed., *Being & Becoming: The Cinemas of Asia*. Delhi and London: Macmillan. 2002. p.1-25.

Raju, Z. H. *National Cinema, Cultural Identity and Public Sphere: Rewriting Bangladesh Film History*. Ph.D Thesis, Australia: Department of Cinema Studies, La Trobe University. 2004.

Raju, Z. H. ‘Bangladesh: Native Resistance and Nationalist Discourse’, in: Ciecko, A.T. ed, *Contemporary Asian Cinema Popular Culture in Global Frame*, Oxford, New York: Berg Publishers, 2006. p.120-132.

Ray, P.C. *Autobiography of a Bengali Chemist*. Calcutta: Orient Book Company.1958.

Reddy, P. S, Moodley, S. & Maharajj, S, ‘Human Resources Capacity-Building in Local Government A Case Study of the Training and Development Scheme in Durban’, in *Public Personal Management*, Volume 29 Number 2, June 2000, p.293-304.

Reid, L.N., King K. W., Martin H. J. and Soh H. , ‘Local Advertising Decision Makers Perceptions of Media Effectiveness and Substitutability’, in *Journal of Media Economics*, Volume 18, Issue 1, 2005, p.35-53.

Rembiesa, D. S. *Stained Glass: Filmmaking in the Digital Revolution.* MA Thesis, Michigan State University: Department of Telecommunication. 2001.

Rogers D.L., 'A Paradigm Shift: Technology Integration for Higher Education in the New Millennium', in *AACE Journal*, Volume 1, Issue 13. 2000, p.19-33.

Rogers, E. M. *Diffusion of Innovations*. New York: Free Press. 2003.

Rogers E. M., 'The Nature of Technology Transfer', in *Science Communication*, Volume 23, Number 3, Sage Publications 2002, p.323-341.

Rodgers, T. S, Language Teaching Methodology, Issue Paper, Centre for Applied Linguistics, September 2001.

Rogers E.M., Takegami S. & Yin J., 'Lessons Learned about Technology Transfer', in *Technovation* , Volume 21, Issue 4, Elsevier Science Ltd 2001. p.253-261.

Rowlingson R., 'A Ten Step Process for Forensic Readiness', in *International Journal of Digital Evidence* , Volume 2 , Issue 3, Winter 2004, p.1-28.

Rudin Richard, 'The Development of DAB Digital Radio in the UK: The Battle for Control of a New Technology in an Old Medium', in *Convergence: The International Journal of Research into New Media Technologies*, Volume 12, Number 2, May 2006, p.163-178.

Russ-Eft, D. F. Dickison, P. D. & Levine, R. 'Instructor Quality Affecting Emergency Medical Quality (EMT) Preparedness: A LEADS Project', in *International Journal of Training and Development*, Volume 9, Issue 4, December 2005, p.256-270.

Sapru, R.K. 'Enhancing Administrative Capabilities of Administrative Systems in Developing Countries', in: Sharma, R.D. ed., *Administrative Systems of Developing Societies*, New Delhi: Mittal Publications, 2000. p.37- 48.

Sawhney Harmeet, 'Universal Service Expansion: Two Perspectives', in *The Information Society An International Journal*, Volume 19, Number 4 , September 2003, p.327-332.

Seawright, J. & Gerring, J. 'Case Selection Techniques in Case Study Research: A Menu of Qualitative and Quantitative Options', in: *Political Research Quarterly*, Volume 61, Number 2, Sage Publications Ltd, June 2008. p.294-308.

Schunk D.H., 'Self-Efficacy and Academic Motivation', in *Educational Psychologist*, Volume 26, Issue 3, 1991, p.207-231.

Schlamovitz, Jesper., 'Uncertainty in Film Production Management: Production Planning and Social Uncertainty', Conference on 'Cultural Production in a Global Context: The Worldwide Film Industries', Stern School of Business, New York, 2007.

Shirai D. Kawano T. Fuji T. Kaneko K. Ohta N. Ono S. Arai S and Ogoshi T, 'Real Time Switching and Streaming Transmission of Uncompressed 4K Motion Pictures', in *Future Generation Computer Systems*, Volume 25, Issue 2, February 2009, p.192-197.

Shiu, E.C-C and Dawson, J.A. 'Cross-national Consumer Segmentation of Internet Shopping for Britain and Taiwan', in *The Service Industries Journal*, Volume 22 Issue1, 2002. p.147-166.

Shrum Wesley, 'Digital Video as a Research Practice: Methodology for the Millennium', in *Journal of Research Practice*, Volume 1, Issue 1, 2005, p.1-19.

Shuldman Mitchell, 'Superintendent Conceptions of Institutional Conditions That Impact Teacher Technology Integration', in *Journal of Research on Technology in Education*, Volume 36, Number 4, Summer 2004, p.319-343.

Silver J. and Alpert F., 'Digital Dawn: A Revolution in Movie Distribution?', in *Business Horizons*, Volume 46, Number 5, September/October 2003, p.57-66.

Silverman, E.O. *Films for Teaching in Social Work and Social Studies*. Selly Oak Colleges (Department of Social Studies). 1971.

Singley, M. K., & Anderson, J. R. *Transfer of Cognitive Skill*. Cambridge, MA*:* Harvard University Press. 1989.

Skinner Wickham, 'Manufacturing-Missing Link in Corporate Strategy', in *Harvard Business Review*, May-June, 1969, p.136-145.

Smith Erica, 'Ten Years of Competency-based Training: the Experience of Accredited Training providers in Australia', in *International Journal on Training and Development*, Volume 3, Issue 2,June 1999, p.106-117.

Sohn, Seunghe. 'Inter industry and Intra industry Competition in Satellite Broadcasting: A Comparative Case Study on the United States, Japan, England and France', in: Compaine, B. and Cunningham, B. ed., *Journal of Media Economics*, Volume 18, Issue 3, London: Routledge. 2005, p.167-182.

Song J.H. & Chermack T.J., 'Assessing the Psychometric Properties of the Dimensions of the Learning Organization Questionnaire in the Korean Business Context', in *International Journal of Training and Development*, Volume 12, Issue 2, June 2008, p.87-99.

Stafford, Roy. 'Redefining Creativity: Extended Project Work in GCSE Media Studies', in: Manuel, A. & Boyd-Barrett, O. ed., *Media Education*: *An Introduction*. London: British Film Institute.1992, p.69-77.

Stake, R. E. *The Art of Case Study Research*. London: Sage Publications Ltd. 1995.

Starka G. A., 'Perceived Work Conditions and Self-Directed Learning in the Process of Work', in International *Journal on Training and Development*, Volume 3 Issue 4, December 1999, p.240-249.

Strauss, A. L. & Corbin, J. M. *Basics of Qualitative Research: Grounded Theory Procedures and Techniques*. London: Sage Publications Ltd.1998.

Stenhouse L. *An Introduction to Curriculum Research and Development*. Heineman.1975.

Stephan, Michael. 'Diversification Strategy of Global Media Conglomerates: A Comment', in: Compaine, B. and Cunningham, B. eds. *Journal of Media Economics*, Volume 18, Issue 2, Routledge, 2005, p.85-103.

Subrahmanian K.K., 'Technology Import: Regulation Reduces Cost', in *Economic and Political Weekly*, Volume 21, Number 32, August, 1986, p.1412-1416.

Sultan, A.R. *Jiboni Gronthomala: Ashis Kumar Loho*. Dhaka: Bangla Academy. 1999.*

Swami, S. Eliashberg, J. and Weinberg, C.B. 'Silver Screener: A Modelling Approach to Movie Screens Management', in: Bradlow, E. T ed., *Marketing Science*. Volume 18, Number 3, INFORMS 1999, p.352-372.

Swartz, C.W. ed, *Understanding Digital Cinema*. Focal Press. 2005.

Szakonyi Robert, 'Coordinating R&D and Business Planning', in *Technology Analysis and Strategic Management*, Volume 2, Number 4, 1990, p.391-411.

Tomasulo F. P, 'Teaching Film Production and Cinema studies' in *Cinema Journal*, Volume 36, Spring 1997, p.106-107.

Tornatzky, L.G. & Fleischer, M. eds. *The Process of Technological Innovation*. Lexington, MA: Lexington Books.1990.

Tucker, Patrick. *Secret of Screen Acting*. Routledge. 2003.

Tunstall, Jermey. *Media Occupations and Professions: A Reader*. Oxford: Oxford University Press. 2001.

Turner, Dawn-Marie. *Clinical Readiness for Transition to a Fully Integrated Electronic Health Care Delivery System*. A Ph.D Thesis, Walden University. 2007.

Uddin, S. and Hopper, T, Accounting For Privatisation, In Bangladesh: Testing World Bank Claims', in *Critical Perspectives on Accounting*, Volume 14, Issue 7, October 2003, p.739-774.

United Nations: Conference on Trade and Development, *Transfer and Development of Technology in Nepal: Policy and Institutional Issues* / Report by an UNCTAD Mission. United Nations, 1985.

Vogt, Peter *Career Opportunities in the Fashion Industry* Checkmark Books. 2007.

Vorhies D.W., 'An Investigation of the Factors Leading to the Development of Marketing Capabilities and organizational Effectiveness', in *Journal of Strategic Marketing*, Volume 6, Number 1, March 1998, p.3-23.

Voss C.A., 'Alternative Paradigms for Manufacturing Strategy', in *International Journal of Operations & Production Management*, Volume 15, Number 4, 1995, p.5-16.

Vaucelle, C. Davenport, G. and Jehan, T. 'Textable Movie: Improvising with a Personal Movie Database', SIGGRAPH Conference Paper, ACM Digital Library, 2004

Ward, P. T, Keong, G. K., and Synder, D. L., 'Manufacturing Strategy: A Review of Current Content and Process Models', in: Ettlie, J. E., Burstein M. C., and Fiegenbaum A., eds., *Manufacturing Strategy*. Boston: Kluwer, 1990, p.337-358.

Walter, Bhur, What is Infrastructure?, Discussion Paper Number 107-03, University of Siegen, Germany, 2003.

Warr Peter, & Birdi Kamal, 'Employee Age and Voluntary Development Activity', in *International Journal on Training and Development*, Volume 2, Issue 3, September 1998, p. 190-204.

Weales Gerald, 'Teaching Film Drama as Film Drama', in *The Quarterly of Film Radio and Television*, Volume 11, 1957.

Wengraf, Tom, *Qualitative Research Interviewing Biographic Narrative and Semi-Structured Methods.* Sage Publications Ltd. 2006.

Wentling R.M. & Palma-Rivas N., 'Components of effective Diversity Training Programmes', in *International Journal on Training and Development*, Volume 3 , Issue 3, September 1999, p.215-226.

Whannel Paddy, 'Film Education and Film Culture', in: Manuel, A. & Boyd-Barrett, and O. ed., *Media Education*: *An Introduction*. London: British Film Institute.1992, p.21-23.

Wheeler, P. *High Definition and 24P Cinematography*. Oxford, UK: Focal Press. 2003.

Williams, M.R. *Training in Performance Appraisal*. Association of Teachers of Supervisory Studies.1969.

Williams, R. Barry, B. and Singh, P. 'Comic Kit: Acquiring Story Scripts using Common sense Feedback', Proceedings of the 10th International Conference on Intelligent user Interfaces, 2005.

Wimmer, R. D. and Dominick, J. R. *Mass Media Research an Introduction*. Thomson Wadsworth. 2006.

Wyatt, R. B. 'The Emergence of a Digital Cinema', in *Computers and the Humanities*, Volume 33, Number 4, Netherland: Kluwer Academic Publishers, 1999, p.365-381.

Xu Bin, 'Multinational Enterprises, Technology Diffusion, and Host Country Productivity Growth', in *Journal of Development Economics*, Volume 62, 2000, p.477-493.

Yager, Fred & Yager, Jan. *Career Opportunities in the Film Industry*. Ferguson Pub. 2003.

Yin, R. K., *Case Study Research Design and Methods*. Sage Publications Ltd. 1989.

Yin, R. K., ‘Applications of Case Study Research’, in: Bickman, L. & Rog, D.J.ed., *Applied Social Research Method Series*, London: Sage Publications Ltd.1993.

Young, M. E. *Technology Transfer: General and Theoretical Studies*. Springfield, VA: National Technical Information Service. 1977.

Zander Udo, & Kogut Bruce, ‘Knowledge and the Speed of the Transfer and Imitation of Organizational Capabilities: An Empirical Test’, in *Organization Science*, Volume 6, Number 1, January-February 1995, p.76-92.

Zhang W., Halang W. & Diedrich C., ‘An Agent-based Platform for Service Integration in E-Maintenance’, in *Industrial Technology*, Volume 1 , December 2003, p.426-433.

Zinkeviciute Virgilija, ‘Strategic Decisions of Tourism Companies in the Context of Sustainable Development’, in *Issue of Business and Law*, Volume 1 , Number 1,2009, p.54-62.

Zolingen, S.V, Streumer, J. N. & Stooker, M. ‘Problems in Knowledge Management: A Case Study of a Knowledge-Intensive Company’, in *International Journal of Training and Development*, Volume 5, Issue 3, September 2001, p.168-184.

Zulu S.F.C., ‘Africa’s Survival Plan for Meeting the Challenges of Information Technology in the 1990s and Beyond’, in *Libri* , Volume 44, Number 1, 1994, p.77-94.

*Text originally written in Bangla (Bengali); Used information has been translated by me

Endnotes

[i] Rahman, Avik Sanwar; FDC Goes High-Tech; *The Daily Star*; Volume 4 Number 232; 19th January, 2004 http://www.thedailystar.net/2004/01/19/d401192501103.htm (accessed on 12th January, 2011)

[ii] http://www.boi.gov.bd/about-bangladesh/government-and-policies/digital-bangladesh-overview (accessed on 12th January, 2011)

[iii] http://www.fcb-bd.org/ (accessed on 27th April, 2011)

[iv] http://www.bfa.gov.bd/ (accessed on 27th April, 2011)

[v] http://www.nimc.gov.bd/ (accessed on 27th April, 2011)

[vi]http://www.publicacions.ub.es/bibliotecadigital/cinema/filmhistoria/2006/Ensayo_TheSpanishFilmIndustry_NewTechnologies_2.htm (accessed on 20th January, 2012)

[vii] Project Synopsis; Implementation of the Digital Technology in the BFDC; BFDC; March, 2002

[viii] http://competitionregimes.com/pdf/Book/Asia_Pacific/4-Bangladesh.pdf (accessed on 16th January 2012)

[ix] ৳=The Symbol for the currency of Bangladesh: Taka/BDT

[x] 1GBP = 115.395 BDT (this rate has been applied as a conversion rate throughout the entire thesis http://www.xe.com/ict/?basecur=GBP&historical=true&month=9&day=22&year=2011&sort_by=name&image.x=74&image.y=6 (accessed on 22nd September, 2011)

[xi] ৳ 1 Crore is equal to £10 million.

[xii] £=The Symbol for the currency of Great Britain: Pound Sterling/GBP

[xiii]Bdoza, Bangladesh Budget 2009-10 and Public-Private Partnership; http://bdoza.wordpress.com/2009/07/17/bangladesh-budget-2009-10-and-ppp/ (accessed on 28th May, 2011)

[xiv] This diagram was developed from Dale H Schunk (1991)'s article on 'Self-efficacy and Academic Motivation'.

[xv] Most of the Interviews taken were in Bangla. Thus, the researcher therefore had to translate all the quotes and references used to English to assist this thesis.

[xvi] According to the Project Proposal of BFDC 2002.

[xvii] http://votebd.org/newsarchive/?p=1355 The Daily Prothom Alo (13th June, 2008)

[xviii] ibid

[xix] 1 SGD= 0.497 http://www.xe.com/ucc/convert/?Amount=1&From=SGD&To=GBP (accessed on 13th December, 2010)

[xx] http://www.hawker.com.bd/news_details.php?news_id=145385&news_category_id=9&val_lan=1 The Daily Bangladesh Protidin (10th July, 2011)

[xxi] http://www.probenewsmagazine.com/index.php?index=2&contentId=5896 Probe Magazine (4th July, 2011)

[xxii] ibid

[xxiii] This diagram was developed from Dale H Schunk (1991)'s article on 'Self-efficacy and Academic Motivation'.

[xxiv] This information was gathered from the NIMC office in 2009.

[xxv] BTV is a government organisation TV channel dedicated to broadcasting government views.

[xxvi] http://www.apc.org/en/news/governance/world/snaking-under-sea-submarine-cable-link-launched-ba (accessed on 9th January, 2011)

[xxvii] Dhaka is one of the most densely populated cities in the world. http://mastraveller.com/Features/2010/10/20/Getting-to-know-Dhaka/1600/ (accessed on 9th January, 2011)

[xxviii] In 2006-07, the national allocation for Educational development in Bangladesh was ৳714,100,000,000. http://www.moedu.gov.bd/index.php?option=com_content&task=view&id=279&Itemid=281 (accessed on 10th January, 2011)

[xxix] http://www.perdanacollege.com/academic/sch_arts.html (accessed on 16th June, 2009)

[xxx] The Government Official learnt the use of the Non-Linear Editing programme from the software supplier when he came to the UK.

[xxxi] http://www.qppstudio.net/public-holidays-news/2009/bangladesh_003102.htm (accessed on 5th July, 2010)

[xxxii] The figures were found whilst interviewing about the production cost of the films (Analogue and Digital) during case studies 1 and 2.

[xxxiii] Price of 1 unit of 24P HDcam = £48549 http://www.bhphotovideo.com/bnh/controller/home?O=productlist&sku=633399&Q=&is=REG&A=details(accessed on 18th November, 2009)

[xxxiv] International Intellectual Property Alliance (IIPA); 2009 Special 301 report on Copyright Protection and Enforcement on Bangladesh

[xxxv] http://www.mzamin.com/index2.php?option=com_content&do_pdf=1&id=1171 (22nd January 2011)

[xxxvi] The income shown with * marks denotes their monthly income.

[xxxvii] http://www.bbs.gov.bd/WebTestApplication/userfiles/Image/Latest%20Statistics%20Release/report_CMI.pdf

[xxxviii] Strikes have paralysed all types of activities at the BFDC. The Chalachchitra Oikya Parishad went on strike last month and has decided to continue it till the demands raised by them are met. The Parishad also filed a written petition with the High Court on November 19. The organisation called the strike to back a 13-point demand and it will continue until the demands are met, said president of the film producers' association president Nasiruddin Dilu on Monday. The points include: removal of the managing director of the BFDC, no print copy of any film to be issued without recommendation of the producers' association, removal of all the corrupt officers at BFDC, end to import of all faulty machineries and raw materials, installation of digital sound complex and cinemascope machine for better cinema, a formation of a technical committee with representation from all the film-related organisations and the members of the committee to be engaged in the tender committee and the members to certify the materials whether they are faulty or not and no money to be given without their approval, use of kit chemical at the lab, stock of all sorts of raw materials at BFDC and to be delivered according to the demand of the producers, enhancement of the facilities of lighting and camera department, inclusion of a member in the film negative damage examine committee, new machineries for editing panel and end corruption at the editing department, end to lighting problems in the make-up rooms and bathrooms and a healthy environment at the BFDC for shooting.

Khan, Shawkat Marcel: Strike paralyses BFDC. http://www.newagebd.com/2006/dec/05/time.html (accessed on 23rd July, 2010)

[xxxix] http://en.wikipedia.org/wiki/Hartal#cite_note-1 (accessed on 16th October, 2009)

[xl] Mithu, Ariful Islam; BFDC Rolls with Insufficient Lights, Cameras; The New Age Newspaper (21st July, 2010)

[xli] "The Textable Movie application thus came to serve as a platform for multiple video-oriented interactions along the lines of the play described in the scenario. By encouraging associative thinking in the verbal domain, the application leads participants into a new realm of story making. (For example) A set of commands (can) modify in real-time the video segments, e.g. [close up], [winter]. The author types [close up] and the rock instantly becomes bigger, then [winter] and the RGB values of the movie changed to a" winter" tone."

[xlii] "The concept of Adaptive Digital Storytelling offers the possibility to realise interactivity on two levels. The first one is pre- interactivity. The other one is a nearly classic one: The different phases of the story can be realised in any possible way. As a simple text-window or a complex real-time 3D Dungeon"

[xliii] "DraMachina can also be regarded as a linear screenplay laboratory as it allows the author to first describe the atomic components of the story, before experimenting several dramatic developments and conclusions."

[xliv] "The suggestion engine bases its suggestions on the content of the story as the user creates it, and referencing a sizeable body of existing common sense knowledge. For example, the system knows that if a character were near a phone, a phone call would be a sensible next action and presents that suggestion to the user. In the future, we intend to study how often people take the suggestions and how often they create their own content.

[xlv] Typically, a DV format offers 450-500 lines of resolution. In contrast, HD format produces more than 1000 lines of resolution. http://manifesttech.com/media_pc/dv_tech.htm(accessed on 17th November, 2009) http://www.layersmagazine.com/hdv-is-the-new-dv.html

[xlvi] http://www.fcb-bd.org/act.html (accessed on 21st September, 2009)

[xlvii] http://www.amardeshonline.com/pages/weekly_news/2011/01/17/3435 The Daily Amar Desh Newspaper (17th January, 2011)

[xlviii]http://www.samakal.com.bd/details.php?news=28&view=archiev&y=2009&m=11&d=23&action=main&option=all&menu_type=tabloid&pub_no=169&type= (accessed on 12th January, 2011)

[xlix] http://174.120.152.66/~pratidin/index.php?view=details&archiev=yes&arch_date=23-9 2010&type=gold&data=Loan&pub_no=149&cat_id=3&menu_id=12&news_type_id=1&index=2 The Daily Bangladesh Protidin Newspaper (23rd September, 2010)

[l] http://www.thedailystar.net/2007/07/06/d707061401104.htm The Daily Star Newspaper (6th July, 2007)

[li]http://www.samakal.com.bd/details.php?news=28&view=archiev&y=2009&m=11&d=25&action=main&menu_type=tabloid&option=single&news_id=29774&pub_no=165&type The Daily Somokal Newspaper(25th November 2009)

[lii] The Daily Ittefaque published on 12th October, 2009

[liii]According to the Bangladesh Film Exhibitor's Association, in 1990, there were a total of 1435 cinema halls running within Bangladesh. Currently, only 618 cinema halls are operational. http://dainikcomilla.com/index.php?option=com_content&view=article&id=1235:2011-07-03-07-39-30&catid=37:2011-05-29-18-15-23&Itemid=17 The Daly Comilla Newspaper (3rd July, 2011)

[liv] http://www.apc.org/en/blog/strategic-priorities-digital-bangladesh-equitable- (accessed on 11th January 2011)

[lv] "The French company (Christe) is already a big player in the European digital cinema market, and now plans to control over 75-percent of the American box office by installing some 15,000 digitally equipped screens in the United States and Canada over the next 10 years, according to Julian Waldron, Thomson's Chief Financial Officer."
http://digitalcontentproducer.com/displaypres/revfeat/Sonys_4K_Saves_Hollywood112205/ (accessed on 5th July, 2009)

[lvi] Hence, by the time 50-60 percent of the shooting schedules are completed, producer's advance money would be exhausted. Then, to complete the rest of the work, a distributor would enter the scene with cash in lieu of outright exploitation rights of the film for a period extending to anything from 3 to 10 years. (Kabir, Alamgir; 1979; Film in Bangladesh; page 79, Bangla Academy, Dacca (Dhaka))

[lvii] Data revealed from the official voter list (2008-2010) of the Association of Bangladesh Film Producers and Distributors. 175, Syed Nazrul Islam Shoroni (8th Floor), Dhaka

[lviii] http://www.bangladeshshowbiz.com/news/cinema_hall_closingdown.htm (accessed on 21st July, 2010)

[lix] http://www.bmet.org.bd/BMET/stattisticalDataAction (accessed on 19th September, 2011)

[lx] Information revealed from the Bureau of Manpower, Employment and Training (BMET), Ministry of Expatriates and Overseas Employment. http://www.bmet.org.bd/Reports/Flow_Migration.htm (accessed on 5th August, 2009)

[lxi] http://www.amardeshonline.com/pages/weekly_news/2011/05/14/4401 The Daily Amar Desh Newspaper (14th May, 2011)

[lxii] Bashar, Liton; 2 of the 4 Cinemas are Closed!; Daily Ittefaq; 9th December, 2010

[lxiii] Islam, Morshedul; Filmmaker; Round Table Discussion on Problems and Prospects of Commercial and Independent Films
http://www.samakal.com.bd/details.php?news=28&view=archiev&y=2009&m=11&d=25&action=main&option=all&menu_type=tabloid&pub_no=171&type The Daily Samakal (25th November, 2009)

[lxiv] Enamul Kabir Nirjhor; Round Table Discussion on Problems and Prospects of Commercial and Independent Films
http://www.samakal.com.bd/details.php?news=28&view=archiev&y=2009&m=11&d=25&action=main&option=all&menu_type=tabloid&pub_no=171&type The Daily Samakal (25th November, 2009)

[lxv] Shams, Abu; The Daily Independent, Dhaka. http://www.indiaforums.com/forum_posts.asp?TID=755837 (accessed on 11th January, 2011)

[lxvi] For example, Balughori, Captain Maruf. Ontorjatra, Unadittya are the digital films made in early 2006 and onward. http://www.bracnet.net/default.aspx?si=default&debug=&xid=544&m=web (accessed on 5th August, 2009)

[lxvii] http://www.internetworldstats.com/asia/bd.htm (accessed on 28th August, 2011)

[lxviii] http://www.ispabd.org/content.php?content.19 (accessed on 6th July, 2009)

[lxix] "The term "cell-phone movie/film" encompasses the range of lightweight videos that are watched on mobile telephones. These can either be downloaded directly on to the cellular phone during a wireless surf or on to a computer and then transferred to the cell phone via a universal serial bus (USB)."

http://www.atimes.com/atimes/China_Business/HJ07Cb03.html (accessed on 6th July, 2009)

[lxx] http://www.thefinancialexpress-bd.com/more.php?news_id=121220&date=2010-12-28 (accessed on 28th December, 2010)

[lxxi] http://www.btrc.gov.bd/newsandevents/mobile_phone_subscribers/mobile_phone_subscribers_july_2011.php (accessed on 28th August,2011)

[lxxii] According to web information - Direct-to-Home (DTH) is a wireless digital audio / video service delivered to a consumer through satellite. DTH transmission is received directly on the consumer's TV set through a small dish antenna unlike a regular cable connection. The encrypted transmission is decoded by a 'set-top box' (STB). http://www.domain-b.com/marketing/media/20041023_dth.htm (accessed on 5th July, 2009)

[lxxiii] http://www.thefinancialexpress-bd.com/search_index.php?page=detail_news&news_id=82392 (accessed on 15th July, 2010)

[lxxiv] Even though this research is the first doctoral research to use the PESTEL model in a film industry, a term paper for a post graduate research has been found which also used the PESTEL model to address the film and animation industry in India. http://www.scribd.com/doc/28337429/PESTLE-analysis-of-Film-and-Animation-Industry (accessed on 10th September, 2011)

[lxxv] http://votebd.org/newsarchive/?p=1355 The Daily Prothom Alo (13th June, 2008)

[lxxvi] "Someone who is integral in the diffusion of scientific and technical information from the environment into the R&D firm." http://www.springerlink.com/content/u873410132h8q110/ (accessed on 10th September, 2011)

[lxxvii] http://www.moi.gov.bd/Training%20Statistics%20from%201980%20to%20September%202003.htm (accessed on 8th September 2011)

[lxxviii] http://www.internetworldstats.com/asia/bd.htm (accessed on 28th August, 2011)

[lxxix] In 2011 within the 618 Cinemas in Bangladesh the highest possible number of admissions was calculated as 55.6 million. If the 78.075 million mobile user are counted as potential film audience then the number of film audience would rise up to 155.54%

[lxxx] http://www.statpac.com/surveys/sampling.htm (accessed on 11th September, 2011)