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World Conference on Technology, Innovation and Entrepreneurship

## The Role of an Intermediary Agent in Technology Integration Within Developing Countries: A Film Industry Perspective

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### Abstract

The Bangladesh Film Industry has been attempting to move from traditional analogue film production to digital production during the last decade without much success. One major problem is that the digital technology has to be acquired from international donors in advanced countries and the Government's public procurement policy stipulates that this transfer of technology from the donor to the recipient must be expedited by a local 'intermediary agent' (e.g. business entrepreneurs). Our research findings have confirmed that the local film industry (recipient) requires support with installation of technology, film distribution/ exhibition, and maintenance (production level) and some management tasks. All of which is not usually provided because of incompetency on the part of the intermediary agents and because of limitations in the public procurement policy for this industry sector. One policy implication is whether government procurement policy should target more direct B2B contact between the technology recipient and the international donor. This could help upgrade innovation capabilities of local industry. Our empirical research findings are based on direct insights gained from six semi-structured face-to-face interviews with key respondents based in Bangladesh (e.g. Directors and Senior Management staff of the Bangladesh Film & Development Corporation and other key respondents). **Note:** findings reported here are from a larger study of 40+ interviews on the theme of digital technology integration in Bangladesh film industry. We report that policy makers should direct policy toward the development of technological system, infrastructure and technical training in the long run, rather than mainly focusing on boosting foreign technical assistance, which does not appear to help support manufacturing processes in film making to make a smooth transition from analogue to digital technology use. There should also be a sterner public evaluation body that pre-evaluates and post-evaluates the success or otherwise of the technology integration process.

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## **1. Introduction**

This paper will focus on the problem of limitations (or gaps) in a host LEDC's (less economically developed country) relatively young innovation policy, which seem detrimental to the development of a major industry sector in Bangladesh, which is the film making industry.

The Bangladesh Film Industry (BFI) has been attempting to move from traditional analogue film production to digital film production during the last decade or so without much success. Part of the problem is that the digital technology has to be acquired from international donors in MEDCs (more economically developed country) and the Bangladesh government's public procurement policy stipulates that this transfer of technology from the donor to the recipient must be expedited by a local 'intermediary agent' (e.g. business entrepreneurs).

This paper is based on the following main objectives:

- (a) to briefly review some key literature that helps us to understand how technology integration implementation is often affected by issues like social capability and role of key institutions that may help or sometimes hinder the technology integration process.
- (b) to analyse some key challenges faced by the BFI when attempting to move towards digital film production and the role of intermediary level agents, which instead of facilitating the process, have actually ended up hindering the process of technology integration.
- (c) to analyse some practical implications for the film making industry, for policy makers and other key actors.

## **2. Literature insights**

Social capability is often embedded within the political and economic subsystems where workforces can grow with skills, entrepreneurs can raise their business and organisations can excel operational equilibrium to mobilise developments (Huq, 2004). Stocks of social capital, such as trust, norms, and networks, tend to be self-reinforcing and cumulative. Virtuous circles result in social equilibria with high levels of cooperation, trust, reciprocity, civic engagement, and collective well-being. It is often through innovation, strictly (hard) technological and (soft) organizational, that key deficiencies in social capability can be made up (Putnam, 1993; Dyker & Radosevic, 2001).

As the social capability level amongst the MEDCs and LEDCs usually vary, it could be assumed that the progression of technology integration can be delayed or even failed from the donor to the receiver country (Xu, 2000; Intarakumnerd, 2005). The BFI does not possess the capability to originate and implement a new digital technology in replacement of traditional analogue technology in its film production, distribution and exhibition phases. According to Khan (2014) this might be attributed to the fact that underlying interventions such as political or bureaucratic corruption may well impede the capability of organisations like the BFI as this is not an uncommon social phenomenon found in many organisations inside LEDCs like for example Bangladesh and Pakistan.

With the recent increase of digital technology (DT), not only are the media industries facing challenges to integrate new technology in order to remain competitive, but are also facing the challenge of training a new media workforce. Workforce development (WFD) is a complex issue, that involves identifying the skill shortages to satisfy the demands of a range of new professions, by picking out the learners and the trainers acquainted with the new technology, and deciding how the development process can be accomplished (Bustamante, 2004). The complexity of WFD can be particularly multifaceted in developing countries such as Bangladesh, where political, economic, social, technological, environmental or legislative factors may impede progress.

Here we can learn from some insights from the innovation management literature regarding the role of intermediary agents (or brokers), which as reported in our findings later in this paper, is something that was missing within the services offered by the intermediary agents in the Bangladesh film industry sector. Howells (2006) states that intermediary agents who facilitate innovation in any industry sector can be described as organizations (or

agents) between two or more parties. These agents undertake such activities as: helping provide information about potential international collaborators (e.g. technology donors); brokering a transaction between two or more parties; acting as a mediator; help to find advice, funding and support for the innovation outcomes of such collaborations.

When adopting and integrating technological solutions from external partners (e.g. an international technology donor organization), companies mainly rely on an intermediary agent to help ensure that the new technology is integrated into the customer's organization (technology recipient) through ongoing technical support and coaching (Gassmann et al, 2011).

For technology intensive sectors such as the film making industry it would appear that intermediary agents need to be proving an intermediation function that does not solely restrict their role to just facilitating two parties to collaborate for a fixed fee. As indicated by Malik (2012), this role should mean that the intermediary agent should be responsible for more services to its client, especially in a developing country context, by providing a more comprehensive type of service that helps with technology integration. This means that the intermediary agent needs to employ the type of staff who possess a variety of background experiences and skills set, and who are adept at combining commercial experience with technical understanding. In some of the international technology transfer literature there have also been some efforts to try and understand why the technology donors need to get closer to the technology recipients via more direct knowledge transfer and communication (Borris et al, 2000), which can also be facilitated by intermediary agents. This appears especially important for recipient organizations based in developing and emerging countries, as they might possess relatively low level understanding of the technology being transferred to them.

### **3. Methodology**

#### *3.1. Research questions*

With this paper we aim to address the following key research questions from our project study:

Is it necessary to have an intermediary agent when transferring technology from an MEDC to an LEDC like Bangladesh in the film making industry sector?

Should government procurement policy facilitate more direct B2B contact between the recipient and the donor to overcome barriers to technology integration at the recipient's production units and to help improve the LEDC innovation capabilities?

#### *3.2. Research design*

The empirical research findings reported in this paper have been extracted from a larger five-year doctoral research study that was successfully completed in 2012 at the University of Manchester. Results presented here are directly linked to insights acquired from six semi-structured face-to-face interviews with respondents based in Bangladesh during 2008-10 (in total 40+ interviews were undertaken for the doctoral study). All interviews were transcribed and translated from Bangla to English. Our empirical findings utilized in this paper are based on insights gained from the following individuals:

- Managing Director of BFDC (Bangladesh Film Development Corporation)
- Executive Engineer in BFDC
- Chief of Editing in BFDC
- Director of Training in NIMC (National Institute of Mass Communication)
- President of Cinematographer Association of Bangladesh
- Executive Director of a private Film Camera/ Editing service providing company

The interviewees were drawn from the BFDC, which is a major stakeholder in the Bangladesh film making industry. It owns several film studios and this is a nationalised corporation that provides Production and Post-Production facilities for the private movie producers who would like to rent out BFDC facilities. The NIMC is part of the Bangladesh government's Ministry of Information, and it provides training to develop and upgrade the skills of the media workforce. The Cinematographer Association of Bangladesh is a private workforce that works for the private film production companies and hires facilities from the BFDC. This is one of the 26 associations of the workforce currently working in film production and film post-production phases.

The decision to use a qualitative research methodology was based on the fact that little is known about the phenomena under investigation, particularly in the Bangladesh context, indicating that a qualitative approach is more appropriate here.

#### 4. Key findings and analysis

Our research findings show that the intermediary agent's main motivation is profit maximization by procuring new digital technology from international donors for the local film manufacturers at the lowest price possible. As the intermediary agents have very little technical knowledge to understand the advantages and limitations of any new technology that is proposed by the receiver, this often results in some major problems for the technology recipients. Procuring technology based on better value for money overlooks some fundamental flaws in the process of transferring technology from the MEDC donor to the LEDC recipient that relates to lack of knowledge transfer to help integrate the newly acquired technology into the film production environment. Here the recipient also requires support with installation of technology, film distribution/ exhibition, and maintenance (production level) and some management tasks. All of which is not usually provided because of incompetency on the part of the intermediary agents and because of limitations in the public procurement policy for this industry sector. Another issue that is often overlooked when procuring technology from an international donor is related to human resources. The human resource input from the technology donor needs to be incorporated into the technology transfer agreement and more importantly within the public procurement policy for the film industry sector in Bangladesh. Hence this should help to facilitate better integration of technology at the receiver end via improved technical skills training of staff at the technology receiving organization.

Our research findings also confirm that new technology provides an opportunity to improve the film production quality up to comparable international standards in an LEDC. Although new jobs were created, some of the existing workforce was replaced by new entrants. The problem is that during the long 'transition phase' of moving from analogue to digital technology (2003 to 2014) the process has been very slow, because BFI managers did not consider retaining most of the existing workforce who hold significant tacit knowledge about their manufacturing environment, which the newly hired staff did not possess, or will need to eventually learn, but this takes a very long time.

In this paper we now present a '**flowchart diagram**' (Figure 1) to help us understand the technology integration process from an LEDC perspective. This assists us to highlight why in some scenarios, like the one described in this paper, intermediary agents can actually be a barrier to technology integration, as opposed to an aid for transfer of technology from the donor organization to the receiver organization. We can also gain some understanding into the different steps taken to implement the process of technology integration as well as key criteria that needs to be considered at some of the stages. This specific issue does not appear to have been adequately researched in the literature to date. Hence this contribution is well positioned in terms of existing theoretical frameworks like for example, international technology transfer, improving innovation capabilities in LEDCs and how some national policy measures should help local industry to improve innovation in production processes and workforce training.

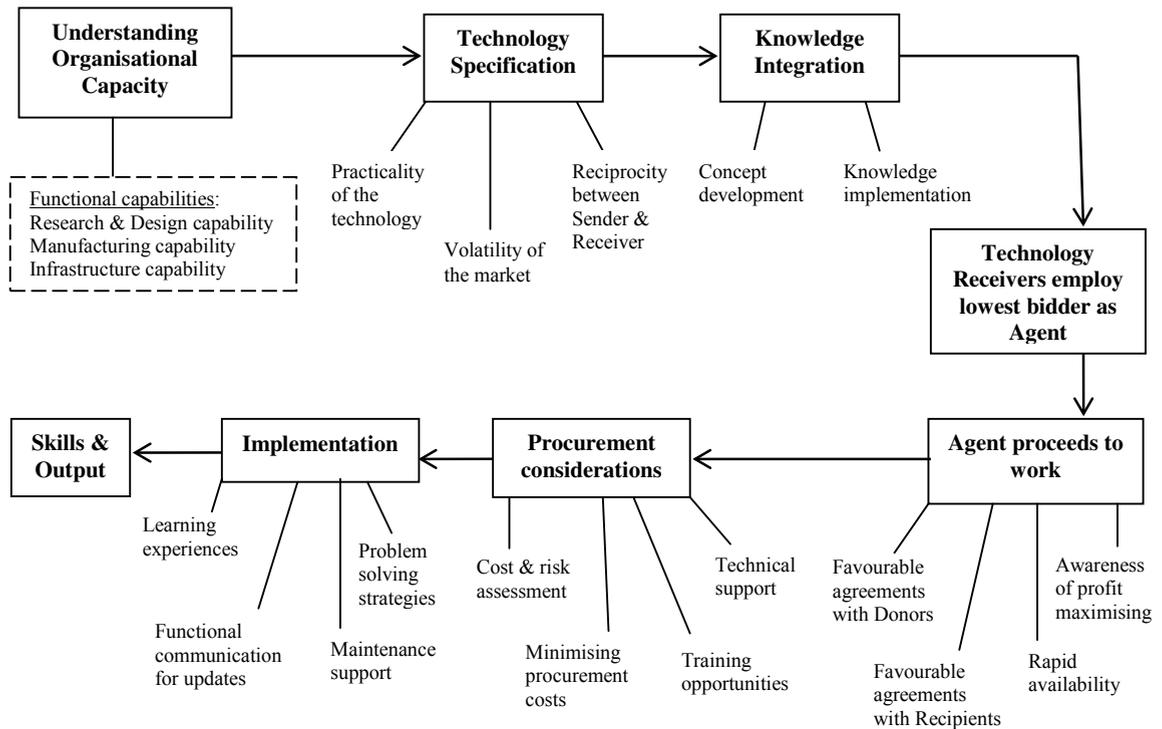


Fig. 1 Process of technology integration

The Central Procurement Technical Unit (CPTU) under Bangladesh government’s Ministry of Planning has recently attempted to evaluate procurement practices, which should focus on economy, efficiency, transparency, fairness and better value for money. However, our findings show that it may not be possible to achieve ‘efficiency’ and ‘better value for money’ at the same time.

For example, efficiency cannot be attained as this is more complex as many senior managers in the BFI fail to appreciate the intricacies of the film industry manufacturing processes. To ensure a multi-faceted process of knowledge transfer from the donor to the end receiver, this should include assistance from the donor with design, production, installation, film distribution/ exhibition and maintenance activities. Here *maintenance* in production refers to adequate spare parts provision or film camera repair and in the operational function of the cameras and post production facilities (e.g. editing and printing). Maintenance can also include adequate provision of online distribution and digital exhibition facilities (e.g. screening, projection and sound system). Here *installation* is a major issue because when the receiver is in a ‘transitional phase’ (moving from Analogue to Digital technology for the Film production, distribution and exhibition) it is facing the challenge of having to maintain a ‘dual technology’ offering for the production of a new film. When a receiver is moving to *digital technology* production, this also requires investment in new equipment (e.g. Tele Cine Machine and Reverse Tele Cine Machine) to convert analogue content into digital for editing and digital content into analogue prints.

Hence these types of technical complexities are often overlooked in the procurement process when the intermediary agents place contracts for new digital technology with international donors. Our interviews confirmed these agents usually have no technical knowledge to appreciate the advantages and limitations of any new

technology that is to be secured for the technology recipient firms. In recent years hundreds of agents have been blacklisted by the CPTU (CPTU website: [www.cptu.gov.bd/](http://www.cptu.gov.bd/) accessed 05-03-2015) because they did not fulfil the tender criteria.

## 5. Conclusion

We conclude with some practical implications. One important implication for the BFI is that local firms need to proactively interact with the technology donors and ensure local staff can improve technical competencies that help them to fully understand the benefits and the limitations of the technology being transferred to their firms. This also requires some procurement policy amendments to promote more B2B communication between the technology recipients and donors and less involvement of intermediary agents who do not appear to work in the best interests of local firms.

For policy makers in Bangladesh, they need to direct policy toward the development of technological system, infrastructure and technical training in the long run, rather than mainly focusing on boosting foreign technical assistance, which does not appear to help support manufacturing processes in film making to make a smooth transition from analogue to digital technology use. There should also be a sterner public evaluation body that pre-evaluates and post-evaluates the success or otherwise of the technology integration process.

We have learned that intermediaries analyzed within our research study are providing a limited service offering for their clients, which are the film industry companies of Bangladesh. The intermediary agents should provide a more varied role for their clients by enhancing their own understanding of the end user needs. There is evidence to suggest that intermediation in other countries is helping to support and build innovation capabilities of firms whereby the client can take advantage of a range of services being offered by the intermediary agent. This can also be closely aligned to public procurement policy where the Government can play an important role by pre-evaluating and post-evaluating the performance of intermediary agents to see if they have actually added much benefit and value for the local film manufacturing industry sector.

Our paper has attempted to contribute to a better understanding of the phenomenon and concept of the intermediary agent in a film industry setting. However, a better theoretical understanding of the determinants, enablers and barriers to effective intermediation within a developing country context is still required.

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