

Exploring the mobile technology deployment process in a creative B2B service industry

Introduction

A strong information technology (IT) infrastructure is an essential element in building a competitive edge across industries and nations (Leonardi, 2011). The ubiquitous nature of mobile technology (MT) creates opportunities for flexible communication, development and delivery of value within space and within a time-independent context (Balasubramanian et al., 2002; Thompson, 2009). According to Tarasweich et al. (2002), the technical nature of all existing information technologies has an evolving character through continuous incremental and radical changes in networks and devices. Thus established scholarly work in the IT domain is applicable within the mobile context. In contrast, an opposing group of researchers (De Reuver et al., 2008; Feijóo et al., 2009) believe that mobile technology deployment (MTD) is fundamentally different to other ITs, business practices and services. This entirely new dimension of mobility drives new strategic and operational opportunities for companies (De Reuver et al., 2008).

A substantial amount of research on the use of MT within healthcare services, education and insurance industries (Hammed, 2003; Lee et al., 2007; Donnelly, 2009)[pic] demonstrates that MT is a tool that facilitates employees' mobility, reduces operational costs, drives innovations in service delivery and communication processes, and increases profit margins. Despite the fact that in practice creative firms occupy a top position in the expansion of MT's benefits (Molteni and Ordanini, 2003; Ha et al., 2007; Feijóo et al., 2009) through the emergence of new players, e.g. mobile advertising firms; so far academics have attempted to explore the B2C context of MT use, particularly to explain the relationships between MT adoption and consumers' attitudes towards creative mobile services. Hence, this study addresses the limited empirically grounded research to understand the process of the MTD in a different contextual setting, creative B2B industry in the UK.

This research therefore seeks to answer the question: how do creative B2B firms employ MT?. This paper aims to understand and explore the nature of MT not through analysis of MT functional and technical capabilities and features but in line with MT-in-practice analysis. A capabilities approach (Penrose, 1959; Day and Wensley, 1988; Teece et al., 1990; Day, 1994), in conjunction with the Resource-Based View (RBV) (Penrose, 1959), considers the organisational processes as a bundle of assets and competences where capabilities imply use in practice analysis of assets deployment.

The IT deployment process: A capabilities approach

In today's information age it is difficult to find businesses that do not use IT. Building an integrated IT infrastructure, strategically and operationally aligned with overall business processes, utilises firms' intentions to establish a competitive edge (Chen and Tsou, 2007; Bygstad and Aanby, 2010). Leonardi (2011) argues that although IT remains essentially part of the material 'agency' of organisations, human actions towards employment and use of IT establishes the competitive position of firms. Accordingly, the strategic management discipline came up with the term IT capability *"to describe state-of-the-art technology and its use for productive business purposes"* (Crook and Kumar, 1998, p. 78). The capabilities approach, in general, contemplates the strategic position of a firm in order to manage and adapt the operational

context by taking into account the company's strengths and weaknesses (Day, 1994). Originally, Penrose (1959) highlighted the significance of the analytical view on firm resources to identify unique, organization-specific competencies and skills that form a source of competitive advantage, the RBV of the firm. Today, RBV organizations are discerned as bundles of distinctive assets, competences, and capabilities that enhance a firm's position within the competitive arena as well as helping to identify sources that might assist an acquisition and generation of new assets and capabilities [pic](Day, 1994; Teece et al., 1990; Juga, 1999). Assets represent the tangible aspects of companies' resources such as technologies and buildings whereas capabilities are the invisible "*glue that brings assets together and enables them to be deployed advantageously*" (Day, 1994, p. 38). Therefore, organisational capabilities demonstrate the value or benefits of assets to be strategically used and developed within the processes and routines. The capabilities approach has become a serious academic issue based on our understanding of complex processes behind the convergence and interaction of resources, skills, competences and information, which lead to the sustainability of companies' competitive advantage.

The importance of acquiring and developing IT capabilities in order to effectively deploy IT resources and deliver superior value to customers appears to be a critical issue for both, manufacturing and service players (Miles, 2001). Several scholars (Bhatt and Grover, 2005; Tarafdar and Gordon, 2005; Lester and Tran, 2008; Huang et al., 2009; Chen and Tsou, 2012) turned their research focus towards understanding the role and composition of IT capabilities within organisational processes. Based on RBV, the IT systems comprise tangible and intangible assets and competences which can be analysed on three interdependent levels: resource level (IT infrastructure), organising level (IT personnel, governance and co-ordination mechanisms), and enterprise level (Huang et al., 2009; Tarafdar and Gordon, 2005). Enterprise level analysis, undertaken by Huang et al. (2009), demonstrates the value perspective of IT capabilities applying the combined view of IT 'materials' as bundle of interdependent elements: human factor [people], data, processes and technological artefacts (Leahmann and Fernandez, 2007; Kroenke, 2012). Hence, focus is on the benefits and services derived from the technology. The facets of IT deployment constitute the IT capabilities. Understanding IT capabilities allow companies to utilise strategic decisions regarding investments into IT infrastructure and skills base as well as organise operational processes (Huang et al., 2009).

Past studies on IT capabilities underline the significance of technological capabilities at both strategic and operational levels. MT, a new evolutionary stage in technological advancements, offers new business opportunities for effective anticipation and quick response to market needs as well as survival in highly competitive and uncertain environments (Rochford, 2001). Hence, the MTD may require distinctive practices and strategic behaviour for firms to successfully exploit MT.

Method

This study employs an interpretive analytical methodology adapting the evolved grounded theory (GT) (Corbin and Strauss, 1990) data analysis approach to a case study research strategy (Eisenhardt, 1989) to establish in-depth understanding of organisational processes in a single industry context, creative companies. Constant comparison, compatible with both case study and GT studies, facilitated a cross-case display of patterns grounded in the data (Miles and Huberman, 1994; Crook and Kumar, 1998). Given the contemporary nature of mobile technology adoption within the business context, exploratory inquiry in the form of case study helps to describe the

MTD process and extract generalisable patterns across cases (Yin, 2009). Case study strategy appears to organically comply with Strauss' GT approach to systematically analyse interview data (Mills et al., 2006; Walker and Myrick, 2006).

The creative industry consists of thirteen sub-sectors divided into three major sub-categories: content, services and artefacts (see Appendix 1). This paper focuses on service creative firms in the UK: advertising, media and creative agencies. 30 face-to-face and web-based interviews via Skype were conducted. Moreover, asynchronous communication in the form of e-mails supported further interaction with respondents in relation to aspects under question. Each interview lasted about one and a half hours. Due to the focused nature of this study the interview questions were derived from the existing literature that is consistent with the evolved GT approach (Corbin and Strauss, 1990). Nevertheless, the data collection process maintained theoretical flexibility and remained open to discussion of the emerged issues. Respondents were asked to define MT and describe the MTD, particularly, the required structures, processes, routines, HR-related aspects and strategic orientation of the MTD, - aspects explored by Dutta et al. (2003) in relation to pricing capability. We applied qualitative data analysis software NVivo 9.1 to code, categorise and systemise findings. In addition to the interviews, secondary sources and technical documentation (firms' credential reports, written project-management guidelines, internal reports for mobile-specific projects) were analysed.

In-depth GT analysis of thirty interviews with key decision-makers identified negative cases (four firms out of thirty) where firms do not currently use MT in their practices and suggested three behavioural patterns or clusters towards the MTD process among twenty-six companies, which deploy MT. From twenty-six creative B2B companies that are involved into the MTD process, three firms (see Appendix 2) have been selected to highlight the differences in the three MTD behavioural patterns. Selected firms maintain the sampling homogeneity across a variety of factors such as geographical (Dorset county) and business contexts (B2B), and key portfolio of service offerings.

Findings and Discussion

This study found that creative B2B companies extensively deploy MT with varying degrees of MT integration into business practices. Data analysis identified seven dimensions that characterise the process of MTD (see Table 1 and Appendix 3). Three dimensions were considered operational: MTD routines, learning and working styles. Four dimensions were found to be strategic: MT infrastructure, MTD skills in the organisation, impact of the MTD to organisational strategy, and strategic outcome.

Table 1. MTD Dimensions: Detailed Overview

Dimensions	Definition [Interpretation]	Representative Quotations
I. Operational		
- MTD routines	A particular kind of procedure, activities performed on a customary basis and key organisational capabilities that are involved in the MTD process.	"Our employees have access to the entire agency database via their mobile devices...available on the move... We created the rules" (Case III).
- MTD learning style	The learning style used for MT-involved projects and tasks. Two types have been determined: organisational type of learning (knowledge generation/dissemination process embedded into organisational culture)	"You learn how to maximise the use of mobile technology... it is individual, however" (Case II).

	and individual type of learning (learning process based on individual motivation and interests).	
- MTD working style	The way a firm adopts working processes and performs tasks due to the MTD.	"It is just more to do with people's freedom, allowing people to do more through being mobile, rather than being in one place" (Case II).
II. Strategic		
- MT infrastruct ure	MT framework and basis of the organisation the form of MT hardware and MT software.	"We have lots of PDAs, and tablets ... there is a cost reduction associated" [Case I].
- MTD skills	Expertise of personnel to employ and use MT. Two sources of MTD skills have been determined by the respondents: in-house (abilities to internally develop and implement skills for MTD) and external (abilities to acquire new set of skills for MTD).	"We just taught ourselves because you kind of have to keep pace with things ... in order to bring that in house ... a lot just trial-and-error" (Case I).
- Impact of the MTD to organisatio nal strategy	The value of MTD process to the overall strategic direction of the firm.	Digital mobile team was established... traditional side has got smaller" (Case III).
- MTD strategic outcome	Strategically important performance outcomes as a result of the MT use and deployment.	"We employ and partner with the companies that develop the QR codes... if client requires it" (Case I).

Despite the fact that differences across the cases appear to be critical for comparative analysis, all three cases have similarities worthy of mention. B2B creative companies demonstrate correspondence within the MTD routines. Particularly, planning the MTD is embedded within the MTD process in all three firms. Moreover, planning involves market intelligence generation, assessment of resources available to firms as well as diagnostics of organisational capabilities. Importantly, benchmarking capabilities to follow and learn from best practices of the MTD across industries exist in all selected firms. According to Day (1994), planning performed in the illustrated cases in conjunction with competition tracking forms a market-sensing capability. As a result, it is evident that the MTD process requires initial market-driven strategic orientation.

However, Case I sees MT more as an operation-enabling tool. "You have to plan the application of mobile technologies at an operational level" (Case I). This approach is consistent with Leahmann and Fernandez (2007) tool view of IT where organisations consider MT as a single aspect of the varied enterprise functions. On the other hand, cases II and III re-design and re-define organisational routines around the MT resulting in remote cross-functional communication and decision-making. Lu and Ramamurthy (2011) emphasised that fixed networked and stationary character of IT infrastructure poses an obstacle for a firm to develop organisational agility. Cases II and III demonstrate that an 'ensemble' view of MTD that connects technical, people and data facets of the process facilitates development of organisational, particularly operational, adjustment agility (Lu and Ramamurthy, 2011) that allows creative firms to physically manage rapid changes in the market and demand structures through internal flexibility of business processes.

In addition, Cases II and III prioritise market-sensing and technology-sensing capabilities. "You have to remember what makes MT different from just ordinary digital and online" (Case III).

Cases II and III organise the creative process where “creativity is the only legal thing to get an advantage” (Case II), based on innovation orientation that takes formalised and focused direction, “focus is on experimentation and exploration” (Case III). According to Belderbos et al. (2010) firms that employ IT for explorative purposes tend to build external collaborations for resources and capabilities interchange. However, Cases II and III aim to develop an ‘intrapreneurial’ culture (Menzel et al., 2007) empowering employees in the organisation to seize opportunities for value creation in the form of innovation rather than purely relying on benchmarking as well as forming partnerships.

All three creative firms emphasise the learning process in MTD. Case I practices an organisational learning style based on formally planned and organised training for employees. Individual learning style is the means to acquire new MTD knowledge for Case II. However, based on specific project requirements there are mechanisms to disseminate individual knowledge across the organisation. Case III practices a combined learning style with emphasis on continuous mode of the learning process. These findings correspond with IT capabilities development where learning is the only means to sense and integrate technology in the organisation (Andreu and Ciborra, 1996). Referring to working styles affected by the MTD, employees in all three cases practice ‘mobile’, remote way of performing tasks. However, Case III demonstrates the tendency to organise mobile, flexible working process on a strategic basis. “Our employees work from home... their office is at home” (Case III). Once again, operational adjustment agility is developed in the firm III where remote and flexible working allows prompt decisions irrespective of contextual settings.

Considering investments into MT infrastructure and building MTD skills in the organisation, Case III exercises internally-driven MTD where the firm attempts to develop in-house skills for the successful MT employment, investing heavily in purchasing and developing own MT hardware and software that drives building innovation capacity (strategic outcome of the MTD) aiming to develop radical solutions. Whereas Cases II and I endeavour to develop strategic collaborations (strategic outcome) for gaining access to scarce resources, external MT (MT infrastructure) and skill basis (MTD skills). “We employ and partner with companies that develop MT and campaigns” (Case I). However, for Case I, collaboration does not trigger explorative practices as in the situation with IT deployment (Belderbos et al., 2010).

One of the strategic dimensions that attracted our interest is the impact of MT on firm strategy. Although, all three firms achieve competitive advantage through the MTD, the employment of MT was found to affect the firm’s overall strategies in distinctive ways. Case I deploys MT based on cost-efficiency business strategy. Case II demonstrates a shift towards building aligned strategic orientation incorporating the MTD: the firm has already integrated specific MTD strategic options, i.e. ethical and simplification strategies. Finally, as a result of the MTD firm III transformed the overall strategic orientation of the company towards proactive strategic thinking and building integrated digital business.

The three-exemplar cases demonstrate three distinctive strategic behavioural patterns in relation to the MTD. Hence, there is a possibility to group creative service firms that deploy MT within three clusters. These have been named according to the competitive posture framework (Kotler and Singh, 1981) that defines companies’ strategic position vis-à-vis industrial competition across four competitive positions: market leader, follower, challenger and nicher. The first group (typified by Case I) is, therefore, named ‘follower’ and is characterised by risk avoidance and a cost

efficiency approach to the MTD. The second, 'challenger' (Case II), is driven by market opportunities. The third, 'leader' (Case III), is a risk taker and demonstrates high desire to delivering unique experiences to clients.

In answer to the research question: how do creative B2B firms employ MT, the findings from this research suggests that the MTD process is structured as a bundle of interdependent elements such as technological base or infrastructure, employees' expertise in exploiting MT and managerial processes for integrating 'material' agency with 'human' agency. This is similar to the IT deployment process (Leahmann and Fernandez, 2007; Kroenke, 2012). However, MTD is a distinctive process to stationary IT use depending on the strategic aim of the firm. Firstly, organisational agility is evident in all three clusters, which is a problematic aspect for stationary IT deployment but a normal condition in the MTD (Lu and Ramamurthy, 2011). Secondly, building an innovative capacity is based on a firm's orientation to build and develop in-house internal resources rather than gain access to external resources that is the case with employing stationary IT.

Implications of the research

This study provides insights into the practices of MTD in creative B2B companies, describing strategic paths that firms follow in order to build competitive positioning through employment of MT. The seven dimensions framework of the MTD can be practically applied to strategy and operation planning in companies currently employing and potentially willing to deploy MT. It is critical, however, to highlight the limited nature of this case-study research due to the low number of cases included for final cross-comparative display. As a result, incorporating additional cases would improve reliability and validity of findings maximising the generalisability of results. So far, the findings display a three-stage continuum of the MTD due to MT usage by all sample firms as well as continuous, dynamic and adaptive nature of the MTD process.

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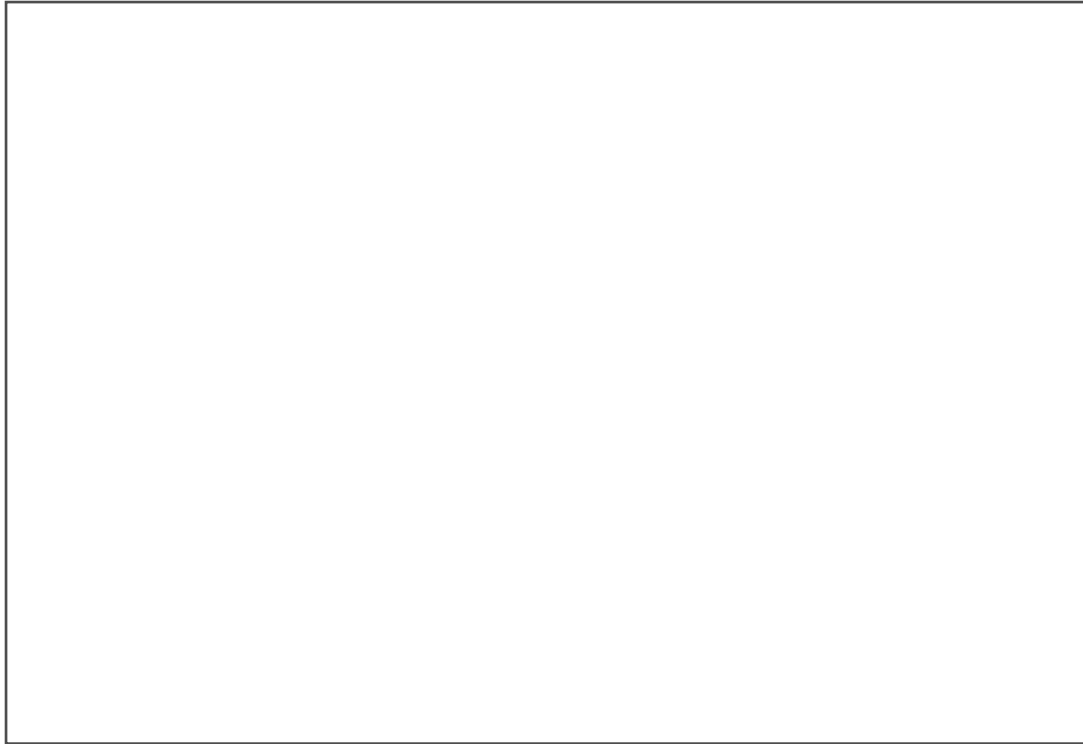
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Appendices.

Appendix 1. Segmentation of the Creative Industries



Source: The Technology Strategy Board (2009). *Creative Industries: Technology strategy 2009-2012*. Swindon, UK: The Technology Strategy Board, p. 7.

Appendix 2. Case Selection Criteria

Appendix 3. Summary of Findings