A Review of Literature on the Role of ICT in Development of Business Management Practices

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Abstract: Better management practices coupled with effective ICT (Information and Communications Technologies) play a vital role in enhancing business performance. This paper builds on the literature on management practices of firms which suggest that ICT are significantly related to organization's overall management. An attempt is made to review the interrelationship of two seemingly different disciplines – Management and ICT. An attempt is also made to address some questions like - How far is it possible in present times for these two vital disciplines to survive without each other?, How does ICT, coupled with various managerial practices provide value to an organization?

Key Words: Management Practices, Business-IT alignment, IT Literacy, Knowledge Sharing, Organizational Learning, Training, Groupware

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I. INTRODUCTION

Managing organizational activities economically and efficiently to achieve different objectives depends, largely, upon the acquisition and use of information and communication technologies (ICT). It is believed that ICT hold transformative and value-adding potential. By value, we mean all types of contributions from investments in ICT. ICT help in developing dynamic and new organization structures, organization specific systems and interorganizational systems. Reference [5] argues that while a number of management fads came and went in the 1990s, top management did not give due attention to ICT. They were unable to exploit the potential in productivity, flexibility and quality that were possible with an ICT initiative.

ICT is not a single function, operating in isolation, but comprises a wide variety of activities ranging from design & development, procurement, manufacturing processes, sales and distribution till customer services. Therefore, value from ICT resides in the harmonious integration of various business processes including monitoring and control of operations and people management. Relationship between management and ICT is dynamic and keeps evolving over time. A lack of understanding of this relationship results in failure in efficient usage of ICT. This creates a fundamental gap between firms using ICTs efficiently and firms using ICTs in operating silos. Successful application of ICT is often accompanied by significant organizational change including organizational structure, policies and rules, workplace practices and culture. Reference [22] mentions IT-driven concepts such as supply chain management, enterprise application integration, knowledge management and customer relationship management have remarkable impact on companies. It requires coherent approach in combining various objective measures spread across the entire organization.

II. DEVELOPMENTS IN INFORMATION AND COMMUNICATIONS TECHNOLOGIES (ICT)

Reference [6] illustrates how IT's position in competitive advantage has changed over time. He juxtaposes ICT to other game-changing technologies of previous decades like electricity and railroads. Though ICT has become a commodity now, Carr conceded that finding innovative ways to employ a technology is the only way organizations can realize performance gains. According to [19], "IT is seen as a critical system within the institutional organism – the circulatory system that moves the information that is increasingly the lifeblood of many organizations".

ICT is a combination of technical as well as behavioural aspects in any organization. Technical aspects cover hardware, software, and networking whereas people and processes form the behavioural aspects. As a result, studies of recent past in ICT tend to focus more on behavioural aspects and less on software and hardware assets and infrastructure. Reference [11] agrees that Information Management puts the management into IT which includes the policies, procedures, aims and actions. Reference [16] suggests business design through IT is an essential agenda item for management. IT properly aligned with key business goals simplifies decision making process at all levels in an organization. According to [13] , "Effective IT …. is a compilation of time-tested IT management tools and techniques, albeit with a more enterprise-wide perspective."

Reference [21] lists some of the contributions of ICT:
- Provides new ways to design organizations and new organizational structures
- Presents the opportunity for electronic commerce, which reduces purchasing cycle times, increases the exposure of suppliers to customers, and creates greater convenience for buyers.
- Enables tremendous efficiencies in production and service industries through electronic data interchange to facilitate just-in-time production.

- Provides mechanisms through groupware for coordinating work and creating a knowledge base of organizational intelligence.
- Contributes to the productivity and flexibility of knowledge workers.

However, organizations are still finding it hard to exploit the full potentials of ICT. Malone (2004) observes that organizational practices have not yet evolved to take full advantage of technologies that enable collaboration. Reference [8] warns management against the culture of information sharing suspicion and suggests that if issues such as oversight and misunderstanding are not taken care of technology alone cannot necessarily improve the effectiveness of an organization.

III. ICT IMPROVES ORGANIZATIONAL LEARNING AND PERFORMANCE

Technology changes quickly and continuously, providing capabilities that may be applied for business advantage. Management must understand how well the technology fits the needs of the people for whom it is intended. A new technology is generally, always a few steps ahead of our ability to use it; hence managers must strive to manage its impact on those people. The rate at which ICT grows is much faster than management's ability to learn how to use it. ICT also involve end-users' intellectual capabilities. ICT has reinforced a shift in demand from low-skilled to skilled professionals which leads to a demand for further training. Even the information-intensive products in the market reinforce the need for people-embodied skills.

Today, although it appears that technology has taken over, the dependency on people and the multiple facets of their skills is on the rise. Technical change in an organization may require a significant change in the skill composition of the workforce. As technology changes, fresh and unproven approaches may be required for which past experience and solutions may be largely irrelevant. Technical change may also require management to consider re-skilling manpower at all levels. Developing capabilities involves organizational learning- learning how to combine and use resources. For the firms to develop dynamic capabilities, learning is crucial. Reference [10] and [20] note that employees at all levels are expected to contribute value by what they know and the information they can provide. Investing in, managing, and exploiting the knowledge of every employee has become critical to the success of organizations. Reference [16] warns that a "business cannot afford technology-illiterate managers any more than it can afford business- illiterate IT professionals". Reference [7] report that employee skill levels, competence, motivation, and performance levels determine whether they or their managers are more likely to be the drivers of technical innovation

IV. MANAGEMENT PRACTICES

In the past, there was an emphasis on the unmeasurable 'soft skills' attributes of the leader /manager like ability to inspire, charisma etc. In the modern times, there has been a change in the focus towards more measureable and specific management practices like Lean Manufacturing, Quality improvements, Inventory Management, HRM and so on. Reference [15] and [4] measure many of these management practices and find a strong association between better management practices and higher productivity. There has been an ongoing debate on various views of management practices. One of the views is "best-practice" which suggests that some management practices are good in general and every firm adopting it would benefit. Another "contingency view" suggests that every firm is already adopting most favourable practices but management practices are different for every firm. It is important to note here that higher productivity is linked, in larger part, with how a particular work practice is put to use in the organization and less with organization adopting a particular work practice at all. Previous research show vast differences in productivity and reveals that productivity differences are due to variations in management practices. Reference [4] survey puts 18 "best practices" in a grid and then scores along each of the eighteen dimensions. These practices, according to [4], "tries to measure management practices in three key areas. First, monitoring: How well do organizations monitor what goes on inside the firm, and use this information for continuous improvement? Second, targets: Do organizations set the right targets, track the right outcomes, and take appropriate action if the two are inconsistent? Third, incentives: Are organizations promoting and rewarding employees based on performance, prioritizing hiring, and trying to keep their best employees?"

Reference ([1], [17], [18]) conclude that the adoption of a coherent system of new human resource management practices such as flexible job roles, cross-functional work groups, and work training, along with extensive dependency on incentive pay results in substantially higher levels of productivity. Reference [14] looks at the factors such as the proportion of the workforce in quality circles or other forms of employee participation, the number of hours of training a typical employee will get in a year and conclude that a firm's HR strategy is associated with gain in cash flow and firm market value.

V. ICT IMPROVES MANAGEMENT PRACTICES

One of the approaches to look at relationship between ICT and Management is resource based view (RBV) of the organization ([2], [24]). This theory states that organizations are a framework for combining of resources in a unique way. Technology is a vital tool within this framework by which those resources are combined. Hence, the methods and ways by which organizations manage technology and information have a vital impact on organizational performance. Reference [12] asserts that knowledge management and information organization is a management responsibility and critical to keeping a firm competitive.

Reference [9] suggests document management, information maps, information guides and groupware are technologies that can help an organization handle the problem of changing information culture, but the change must be encompassing the organization and must originate in management and not in technology. Reference [27] claims that "IT creates value for the organization by improving individual business processes, or inter-process linkages, or both". Reference [3] finds that as management practices improve; firms decentralize decision making. This is because better management practices improve information collection and dissemination. Decentralization could be complementary with skills because more educated workers are better able to analyse and synthesize new pieces of knowledge so that the benefits of the local processing of information are enhanced. It is also found that the cost of training them for multi-tasking is lower and they are more autonomous and less likely to make mistakes. Reference [4] found that "firms were not implementing the better practices on their own because of lack of information and knowledge, and that to really improve quality firms needed detailed instruction in how to implement better practices. This suggests a need for better knowledge and training programs. Management practices that encourage employees to think and interact with the purpose of improving functions have a direct and positive impact on firm productivity." When employees share task-level information or know-how, it can improve employee performance. It can enhance the employee's ability with which they handle routine problems and thus even difficult routines are managed smoothly, "Knowledge sharing on difficult recurring situations improves effectiveness" [26].

VI. CONCLUSION

It is quite clear that management practices coupled with ICT have a direct and positive relationship with firm performance. Technology is viewed not just as providing a technical capability, but also as altering the social fabric of the organization. Due to these multifaceted interactions, making assumption about the relationship between technology and social norms becomes very difficult. It requires full understanding of both the proposed use and features of ICT and the evolving organizational processes around the use and implementation of technology. Most of the literature has traditionally been case-study based which makes it even hard to bring in some consensus in the management literature.

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