Management Information System

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Abstract: The pace by which information flows cross organizational boundaries is rapidly increasing. Individuals and groups in organizational contexts are exchanging more information across different – often isolated – platforms. Against a backdrop of conventional information management, present business ecosystem mandates more systematic management of information and hence holistic systems. This paper highlights how management information systems have come to be increasingly adopted. Initially rejected as of little relevance to companies' operations and strategy, information systems have shown more enhancements as to necessitate adoption. Therefore, management information systems have been widely adopted in many industries, most notably supply chain, environment stewardship and hospitality. User acceptance is one major consideration information system developers should integrate into conception and design. Three considerations, on a negative side, should be made in developing a management information system: (1) past usage behavior, (2) (national, organizational and group) cultural influences, and (3) company size. The paper concludes by recommendations.

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Information inflows and outflows in and across business contexts has been a management issue par excellence. Prior to introducing information systems into organizations – business and non-profits – information management practice, including (internal and external) communication and marketing functions, has fallen into senior managers' scope of responsibilities in limited consultation with junior staff. Information policy, put differently, has been mainly set up-down and has involved limited pool of inflows and outflows in usually isolated contexts of exchange. The advent of Internet and continuous emergence of advanced information systems has introduced major turnarounds in not only conceptualization of information in organizational contexts but also, more significantly, how information systems have come to play a central strategic role in present business ecosystem.

Initially management information systems have been received in resistance by upper management partly for mismatch between organizational needs and skills and existing systems (Lederer & Mendelow, 1988). That is, management information systems have been perceived, particularly by upper management, as supportive of business operations and goals. However, as business strategies and information management strategies have become increasingly aligned management information systems have come to play more strategic roles in organizational contexts (Henderson & Venkatraman, 1993). This alignment

as shown (Henderson & Venkatraman) is decided by strategic fit (interrelationships between external and internal components) and functional integration (integration between business and functional domains). That is, in pulling in organizational external and internal resources and adding value to how information is managed as to contribute strategically to business, management information systems become integral to business and are increasingly more aligned an organization's broader strategic goals.

The integration of management information systems into organizational contexts has made potentials for exiting and projected applications limitless. Indeed, in and across different business functions and organizations management information systems are being adopted broadly to meet different organizational goals. This paper aims, hence, to highlight areas of broad business interest in which management information systems have come to play more strategic roles as well as implications for users and management.

As noted, introduction of management information system has often been received with resistance. This can be generalizeable for almost every organizational activity. For example, in a study performed on implementing a broad-scale management information system in a New Zealand hospital, staff does not only show resistance to system but also implemented system is reinterpreted as to serve a less significant role than as originally intended (Doolin, 2004). In monitoring clinical activity of doctors, doctors feel

closely scrutinized and miss senior management's aim to improve organizational openness.

Unsurprisingly, user acceptance has increasingly been one critical component of introducing a new management information system. This has been extensively discussed in literature (Davis, 2002; Sabherwal, Jeyaraj & Chowa, 2006; Hong, Thong, Wong & Tam, 2015). That is, usefulness and design, according to Davis, are shown to influence usage patterns and frequency of management information systems, a finding which is confirmed by Hong et al. in an empirical study of frequency and usage patterns of 585 users of a university's award-winning digital library. In conceptualizing a model for understanding information system success, Sabherwal, Jeyaraj and Chowa identify success user related – i.e. user experience, training, attitude and contribution to develop a specific information system – and contextual – i.e. upper management support and offering adequate resources for more effective usage of an in-place information system – factors as critical for a successful implementation of an information management system.

Predictably, as management information systems gradually evolved into more interactive and collaborative platforms integration into core functions have become not only a recommendation for better service quality and more effective organizational workflow and operation but also a requirement. Notwithstanding debatable information system service quality and differences in perception between regular users and professionals (Jiang, Klein & Carr, 2002), management information systems continue to change how business is performed operationally, organizationally and, increasingly, strategically and, significantly, making conventional lifecycle models of information management hardly relevant (Irani, Themistocleous & Love, 2003). Indeed, as noted above, user behavior and usage patterns remain critical to fend off potential staff resistance and to integrate management information systems into fundamental business processes. Consequently, differences will continue to emerge as refinements are introduced into existing models and hence continuous development and orientation on new system updates. Thus, in adapting to emerging needs and requirements by complex business setups

management information systems respond accordingly. This should require Chief Information Officers (CIOs) and Knowledge Management Officers (KMOs) to reimagine how information – and, for that matter, knowledge – should flow in and out of in-place systems.

Currently, management information systems are widely adopted across industries. This is attributed, of course, to perceived operational benefits but also for financial and strategic edges. In a supply chain context, for example, an empirical study performed on a U.S. supply chain introducing management information systems innovations into company's in-place system has helped boost information exchange and coordination activities (Kim, Cavusgil & Calantone, 2006). Thus, by enhancing information flows and communication channels as well as workflow in an updated system management information systems can introduce organizational changes which, in a supply chain context, should minimize costs and cut back on processing periods. In an environmental context, management information systems are shown to enhance environmental sustainability and economic performance (Melville & Ross, 2010). By implementing a management information system which is responsive to environmental needs in broader community, businesses can be more environmentally responsible as internal stakeholders, i.e. company's staff, engage external stakeholders, i.e. partners and community, in practices which steward for environment. Further, by continuing to engage in environmentally responsible practices environment stewardship becomes gradually an unstated, adopted practice central to a company's mission.

Tourism is another interesting area for management information system growth. Based on a literature review study (Buhalis & Law, 2008), hospitality industries are expected to adopt management information systems – particularly ones over Internet – as to enhance service quality, minimize processing periods and, not least, to cut back on costs. Indeed, management information systems hold unprecedented potential for hospitality industry as preferences and choices of flyer and tourist base continues to change whimsically and hence more dynamic and responsive information ecosystems. Further, an

increasing demand on mobility applications management information systems in hospitality industry should be adapted as to cater for more dynamic customers, increasingly younger and, not least, susceptive to information consumption across different platforms.

The recent advances in management information systems and growing reliance on Internet-based applications show, moreover, further potential for companies. One study constructing a model examining how pulling in a company's resources leads to online informational capabilities and hence improved operational and financial performance (Barua, Konana, Whinston & Yin, 2004) shows how by enhancing a company's capacity for resource planning informational capabilities are built which, consequently, lead to further operational and financial enhancements. Given present practice ecosystems, examples are numerous. Based on crowdsourcing, sharing economy and peer-to-peer companies are harnessing Internet-based capabilities for more effective management of information assets.

In a more cautious note, some considerations should be made in putting management information systems into actual use.

Given how significant usability is for system development and design, a longitudinal study (Bajaj & Nidumolu, 1998) shows past usage and attitude towards a management information system significantly impacts on future usage and (hopeful) adoption of a more advanced system. Thus, in developing a management information system for better operational and financial performance main stakeholders particularly staff – should be oriented in advance on features and usability options of any new management information system.

A second consideration system developers should plan for is cultural influences. That is, in developing a management information system national, organizational and group cultures – as a synthetic paper shows (Leidner & Kayworth, 2006) – impact on system usability and user behavior. Consequently, system developers should consider for existing or potential ethnocentrisms or cultural biases in developing a management information system. This cannot be more valid since organizations are working in increasingly diverse, online or physical ecosystems.

Thirdly, company size is shown to impact on how management information systems are introduced into a business ecosystem. Based on an empirical study performed on 114 small businesses (Thong, Yap & Raman, 1996), results show – notwithstanding upper management's support for system implementation and integration into company – external, high quality information system expertise is required most critically for small businesses which lack adequate resources for more effective information resourcing, let alone management.

To wrap up, management information systems are becoming increasingly integral to different business operations and goals. Notwithstanding resistance, information systems show perceived advantages to render adoption a necessity. User acceptance is one critical factor in developing and implementing a management information system. Thus, usability orientations and development are required for actual usage and better usability patters by regular users. Further, management information systems are broadly applied in different industries including supply chain, environment and hospitality. Perceived benefits of adopting management information systems include enhanced online informational capabilities, more effective operational practices and better financial performance. In developing and implementing a management information system considerations for past usage and attitudes toward system adoption, cultural influences and company size should be made. As interactivity and mobility are increasingly being broadly adopted by regular users, management system developers should integrate features which cater for user needs and can be embraced in far less resistance.

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