

Frontier of Business Management in the Dynamics of Big Data

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Existing big data research, based on information technology, focus mainly on issues of technical aspects, such as data acquisition, data storage, data privacy, data security, data processing, data mining and pattern recognition. There is little work from business management viewpoint, at organizational, industrial and international level, from operational, tactic and strategic perspectives, explore the challenge and opportunity brought by such technology advance on modern business; expose the profound impact of big data on dynamics of enterprise organization, value creation, marketing channel; guide technology research direction choice, business structural decision making and ongoing business model innovation. The transformations currently occurring in the knowledge economy cannot be fully understood and firmly steered without considering both the technological changes and the social contexts shifts that are reshaping economic and organizational activity. Thus, greater interaction between the fields of information technology and management studies should be viewed as more than a matter of enrichment. In the intellectual engagement of these two fields lies the potential for an important fusion of perspectives, a fusion more carefully attuned to explaining the nature and consequences of the techno-social phenomena that increasingly pervade our lives

Although there are still technical challenge, we can foresee the possibility big data provided of streamlined temporal-panorama of real world activities through three key capabilities of big data: 3T (Real Time, All the Time, Right Time) (Che, 2015). There is enormous, untapped potential of 1)capture of the fresh digitalized events in real time for critical scanning, 2)storage of the streamlined data all the time to form a seamless-joint panoramic picture of the whole event, 3)making decision for action at right time. Feng et. al. (2013) identify three promising lines of development of new form of business enabled by evolving ICT technology, namely, socialized value creation, network-embedded business operations, and real-time market discovery. However, technology alone cannot handle the emerging challenges in business management in the context of Big Data competently – technology can succeed in finding correlation and pattern in big data, but fail to recognize the important aspects of social causation, complex interaction and human motivation behind the phenomenon (Armstrong, 2014).

Based on comprehensive examination of current literature on digital business, Feng et. al. (2013) further identify four research topics of great potentials, including user behaviour and social capital structure in socialized networking environments, enterprise network embedded ecosystems and their co-evolution, consumer insights and marketing strategy in the context of Big Data, and overall business model innovation based on Big Data. All the above topics are highly dynamic, interactive with social background, and dramatically different from traditional view of business. A world of global networking (technological, individual and organizational) requires a critical reflection and re-evaluation of prior assumptions,

norms, values, choices, and interactions of old form. Recognition of the institutional implications of complex issues such as the blurring of corporate boundaries, physical location and distance reducing to click-away, outside-in customers' involvement in designing and marketing product, all these require new way to organize and control business as an unprecedented open social system other than old machine image of organization. Without an institutional lens, IT research might focus only narrowly on technological designs, economic imperatives, or psychological impacts, thus missing important social, cultural, and political aspects of electronic commerce. Central to understanding issues such as human decision making, group dynamics, and social impact of organizational structure, Organization Study (OS) can steer the innovation process better than only from technology availability and capability perspective (Orlikowski, 2001).

To understand dynamic nature of digital business, we'd better start with tracing important insights on organization provided by classic leading texts on organization theory (Scott, 1987; Hall, 1999;Mogan, 1997)

Scott (1987) provides a meta-theoretical framework for classifying the existing organization theories. According to this framework, three major perspectives are recognized to analyse businesses as social organizations: the rational system, natural system, and open system, in which the rational perspective has been the most widely employed approach in classic business management. In rational system perspective, organizations are oriented to pursue specified goals with formalized social structures. The formal social structures exhibit relatively static and stable attributes which can be standardized. The research and industry practice of business process management in traditional business models mainly follow this perspective to pursue rule conformity and efficiency of business operation under a specific structure. Without disruptive business structure change, the business process management effort can have permanent lasting effects, e.g. a bottle neck problem in business process can be solved once and for all. This perspective forms the basic characteristics of Morgan's machine image of organization (Morgan, 1997), in which organizations are viewed as technical instrument used to produce some outcome, the elements of the organization, include humans, are part of a stable structure that work together with machine-like efficiency to achieve a particular goal. Under rational view and machine image of organization, organizations are conceptualized as psychic prison- the organization's stiff structure and rule not only limit freedom of body and thought of whom working in it, but also eventually strangle the innovation and inquisition ability of their souls. Following procedures and rules are the only intelligence requirement for the human component.

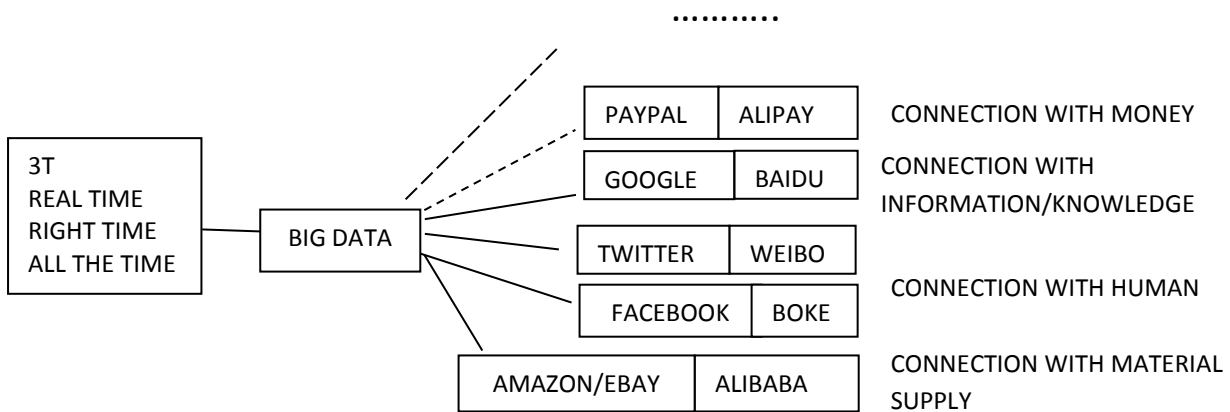
Following industry revolution, factory with machine enabled mass production line provides the early prototype of rational system. However, in post-industrial modern economy, service oriented sector gradually surpasses industry oriented sector and becomes dominant source of contribution in overall economy. Looking forward, the global economy is in transition to a "knowledge economy", in which "production and services based on knowledge-intensive activities that contribute to an accelerated pace of technical and scientific advance, as well as rapid obsolescence" (Powell, 2004). The transition requires that the rules and structures that determined success in the industrial economy need rewriting to match the characteristics of

knowledge economy: a greater reliance on individual’s intellectual capabilities of creativity and thinking than following instructions.

We can elucidate the evolving economic organizational trend from Scott’s (1987) natural and open system perspectives of organization, and further look into inherent volatile aspects of modern business. The natural system perspective views organization as “collectivities whose participants share a common interest in the survival of the system and who engage in collective activities, informally structured, to secure this end” (Scott 1987:24). Under this perspective, formal roles and rules often do not shape organizational or individual action. This perspective is more sociological with its emphasis on the informal activities of participants, the way participants behave deviates from formal rules and structures, and the role human participants play in creating organizational values and cultures (Jaffee, 2004). Further away from structure formalism, the open system perspective regard organizations as “ coalitions of shifting interest groups that develop goals by negotiations; the structure of the coalition , its activities, and its outcomes are strongly influenced by environmental factors” (Scott 1987:23). Organizations in open system perspective are no longer closed collectivities as other two perspectives indicated; instead, organization and its components are regarded as parts of the greater environmental outer loop, interacting with environmental agents by negotiation and adjustment.

The open system and natural system perspectives are consistent with Morgan’s culture image and organism image of organization: rigid structures yield to flexible ones; passive procedure-following gives way to active innovation-initiation, fixed goal and one-way command change to flexible goal, cooperation and negotiation.

Baden-Fuller and Haefliger (2013) define business model as a system that solve the problem of identifying who are the customers, engaging with their needs, delivering satisfaction, and monetizing the value. Denning (2015) recognize that customer need is the critical driving force of long term ongoing business success. But how to find the concealed customer needs which some even the customers themselves are not aware of ? If there are many directions a business can choose from, which direction (section, industry) it should go? Should we head on with established competitors or should we explore new underdeveloped field? Socio-economic studies are better equipped to make these decisions.



Safety, security, privacy, respect, care, autonomy, health, curiosity, creativity, recognition, leadership, solidarity, belonging, entertainment, adventure, individualism, sharing, achievement, generosity- the list of human needs can keep going. Same is the opportunity of business equipped with new digital capacity. Digital capacity and digital insight are not end result of ICT project by ICT personnel, rather, this calls for visionary and far-sighted management team with built-in wisdom of both ICT and management.

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