JOURNAL OF CREATIVE WRITING
VOLUME 6 ISSUE 1
2022, Pp 01-40
ISSN 2410-6259

EoT (Excellence of Things™): Digital Transformation Model for Business Excellence

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ABSTRACT

The entire digital ecosystem is disrupted due to disruptive innovation. Digital Transformation (DT) is the way of enabling businesses with innovative technology to either disrupt others in the ecosystem or protect the digital firm itself from disruption. Digital firms can either be failures or successful based on how they approach DT because DT is now at the heart of the business model of a digital firm. In the 21st century, organizations incline to implement DT, which is an exceptional means of achieving business excellence (BE) to achieve outstanding quality. Inspired by IoT's "of the things" concept, DT-based excellence framework, "EoT – Excellence of Things™" can be developed that utilizes frameworks, platforms, services, and best practices related to BE to add value to digital firms. Thus, this study explores a theoretical model of DT-based BE. Also, the meaning of EoT™ for digital firms and DT-based BE components is explored through an in-depth interview. The Delphi method has been applied as a tool for data collection from a panel of experts from different educational and professional backgrounds. They are from several industries too.

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The Nvivo application analyzed the responses acquired from the open-ended questions. The analysis generated a few 'drivers' that influence a digital firm to achieve EoT™. Moreover, based on the EoT™ framework discussed in this article, there are three enablers such as Corporate of Things (CoT), Lean of Things (LoT) and Data of Things (DoT). As per the participants' responses, the significant aspects of EoT™ that have to be taken care of during the implementation of EoT™ to add value to a digital firm are supportive Organizational Culture (38%), Process Driven (23%), Strong Leadership (14%), Employee Motivation (8%), Quality Management (6%) and Excepting Digital Transformation (6%). However, other factors such as Management Commitment (2%) and Transparency (3%) are also considered aspects of EoT™ implementation. Finally, the relationship between drivers and the three enablers' integration is discussed elaborately. The findings have implications for four principles of the EoT™ framework. Lastly, an EoT Reference Model (ERM) has been generated from the analysis. Other implications have been discussed too.

INTRODUCTION

While excellence does not come suddenly, it is a continuous process toward achieving a 'state of excelling' in a field (Ionica, Baleanu, Edelhauser, & Irimie, 2010, p.125). Therefore, to achieve excellence, disruptive innovations are made to adapt to the dynamics of the contemporary environment (Mihić et al., 2015). In the era of digitalization, business firms accomplish excellence by enabling technology for business, i.e., by Digital Transformation (DT). Digital firms can either be failures or successful based on how they approach DT because DT is now at the heart of the BE models of the digital firms. Eighty-seven percent (87%) of the business leaders' top priority is a digital transformation for BE because of ease of interconnection and access to capabilities, resources, and talent anywhere (Gartner, 2018). Moreover, DT utilizes people, processes, and technology to gather and share information; make data-driven decisions; automate the process to remove human errors; and increase business processes' accuracy, speed, and reliability (Matthews, 2017). Thus, DT is also one of the necessary means of changing the way of achieving BE (Bongiorno et al., 2018).

However, a partially or entirely digitally transformed organization can be called a 'digital firm' with the best technologies such as mobile technologies, Big Data, cloud computing, the Internet of Things (IoT), blockchains and Artificial Intelligence (AI). Even though digital transformation occurs in these digital firms, they may not achieve BE if 'people' and 'process' are not focused on and combined with emerging technologies. Field Porter (2001) also argues that the usage and integration capability to produce unique products or services in emerging technologies boost a digital firm and add value to the business by creating a competitive advantage.

Moreover, DT may add value to the business due to enormous potential digital disruption incumbents reshaping the market faster than any force in history (Bradley et al., 2015). The authors also argue that 25% of executives believe there are "high" barriers to digital disruption in their industries, and it is higher (37%) in oil and gas industries while 36% in financial services industries (Bradley et al., 2015). According to PwC, among the five key disruptors, the customers (71%) are topmost due to their evolving needs based on innovative technologies (PwC, 2017).

Porter's value chain (M. E. Porter, 1985) can radically be digitalized to appropriately utilize it in the 'era of digitalization' to add value to the digital firms. The primary and support activities of the proposed *modified* Porter's value chain, as shown in Figure-1, shall be radically digitalized to transform a firm digitally. Such radical digitalization finally results in disruptive innovation that touches the digital firm's bottom line and ensures sustainability. Any weaker chain in an industry such as supplier, partner, customer, and customer's customer can be automatically removed by another more substantial digital firm if that more inadequate digital firm cannot perform well due to a lack of digital capabilities.

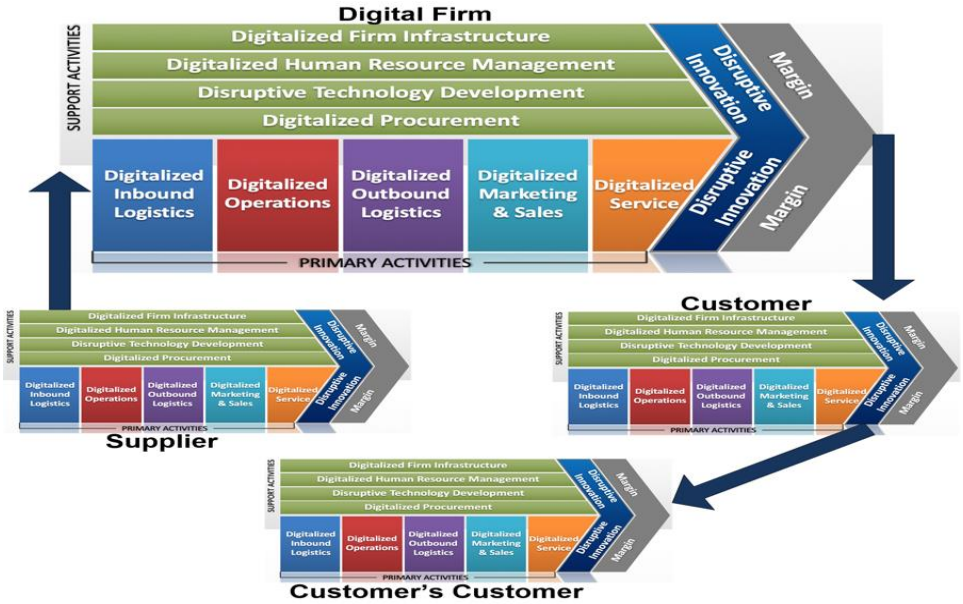

Figure-1: Modified Porter's value chain model

Thus, with the help of the proposed *modified* Porter's value chain model, DT can be defined as the way of radical digitalization of primary activities, including coordination, operation, marketing and sales, and service; as well as support activities consisting of corporate infrastructure, human resource management, technology, and procurement for enabling business with innovative technology either to disrupt others in the ecosystem or to protect digital firm itself from disruption. In other words, a radical digitalization in all function of business results in disruptive innovation that, in turn, add value to the business. Moreover, DT also means connecting digital firms to the digital industry value chain consisting of digital customers, digital firms, digital suppliers, digital partners, and digital customers' customers.

According to Berman, there are three moving paths toward DT, i.e. following path-1: a digital firm can first create and integrate digital operations and then focus on customer value proposition; following path-2: a digital firm can first enhance, extend or reshape the customer proposition with digital content, insight and engagement, and then start integrating digital capabilities; and following path-3: a digital firm can simultaneously build a new set of

capabilities to create instant customer value proposition as shown in Figure-2 (Berman, 2012).

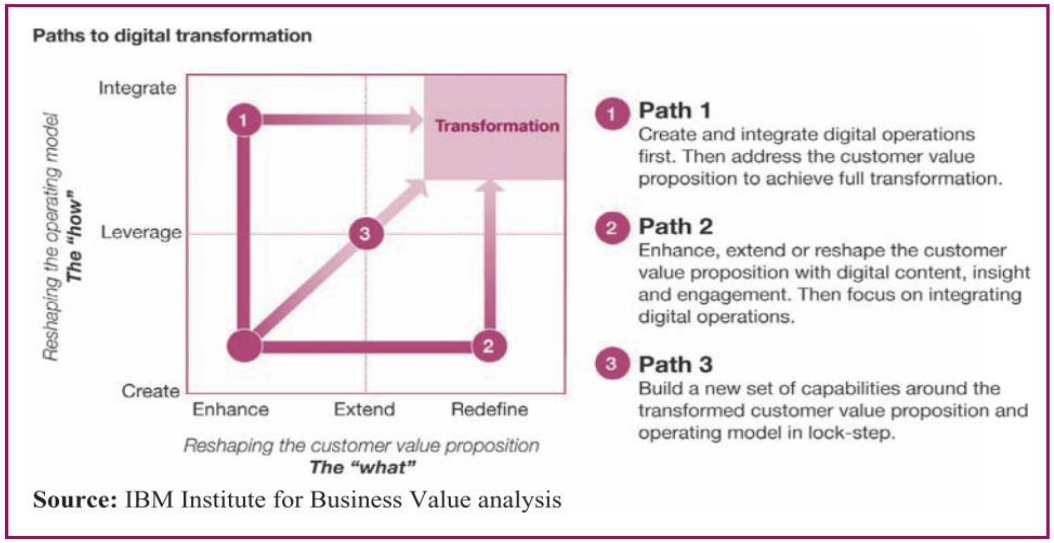

Figure-2: Berman's Digital Transformation Paths

Although three paths can lead to DT, 'Path 3' simultaneously focuses on customer value proposition and business model to achieve DT. Thus, DT can be achieved by appropriately mingling people, processes and technology that will assist us with new capabilities following through the 'Path 3' to satisfy customers' demand by creating the customer value proposition and implementing the digitalized business operating model. A DT-based BE framework such as Excellence of Things™ (EoT) can be designed to be implemented in any digital firm regardless of size, nature, complexity, and industry. Inspired by IoT's "of the things" concept, a digital transformation based "EoT – Excellence of Things™" framework consisting of principles, reference model, capability model, and implementation cycle can be developed that also utilizes frameworks, platforms, services, and best practices related to BE for adding value in digital firms.

Digital Transformation (DT) for Business Excellence (BE)

BE cannot be achieved suddenly (Jha & Joshi, 2007). Instead, it is transformed over a period and through a combination of a gradual process. The basis of this transformation is disruptive innovation. Information Management (IM) plays a vital role in each stage of this transformation process because the information is one of the most critical capabilities of DT and a digital firm needs to flourish based on the information. Therefore, data must be managed and systematically assessed by technology-enabled tools. That is why; the previous focus of IT was technology, but now the focus is Information rather than mere technology (Drucker, 1999b).

Although, after the 1990s, innovations in organizations started to happen using technology, the relationship between information and technology is that technology has made information usable. Innovation is almost impossible without information and technology in this era (Zhao, 2013). Oestreich (2011) mentioned that the amount of data stored in any IT system becomes more than double every two years. On account of this, organizations are going to be digitalized. Knowledge workers' productivity is increasing gradually with the technology-enabled information. Whatever a worker is supposed to do is decided based on the available information. For this reason, information has become a valuable intangible asset for any digital firm. While information is essential, managing data is also necessary (Drucker, 1999a) to achieve DT-based BE.

Adapting BE Frameworks for Digital Firms

Amidst the highly competitive external environment, partially or fully transformed digital firms must continuously search for new practical approaches to enhance their capabilities – people, process, and technology. More elaborately, digital firms - IT-enabled business organizations – have to apply IoT, AI, and robotics-based Enterprise Information Management (EIM)to sustain in the challenging world. The characteristics of a digital firm are that it maintains relationships with employees, customers, suppliers, and other external partners through digital technologies and employs some computerized programs such as Customer Relationship Management (CRM), Supply Chain Management (SCM), Enterprise Resource Planning (ERP), Knowledge Management System (KMS), Enterprise Content Management

(ECM), and Warehouse Management System (WMS) and some others too (Laudon & Laudon, 2013). If the main business processes are executed through digital networks covering the whole organization or linking external organizations (Laudon & Laudon, 2013), the information has a vital role in the process analysis and improvement of BE frameworks (Dahlgaard, Kristensen, & Kanji, 2005). Because Hunter et al. (2016) mentioned that information gives an avenue to run, grow and digitally transform the business. Considering the features and characteristics of the digital firms, what BE frameworks may be developed or employed needs to be analyzed critically. Each BE framework is uniquely made to integrate the BE philosophy into standard business practices. Naively, some organizations attempt to achieve excellence without integrating philosophy and capability model into the organizational practices (L. J. Porter & Tanner, 2004). In transforming a business, organizations usually adopt one of the popular BE frameworks such as the European Framework for Quality Management (EFQM), Deming Prize, and Malcolm Baldrige National Quality Award (MBNQA). The Deming Prize was established in Japan in 1951. The Malcolm Baldrige Award was founded in the USA in 1988. The European Quality Award was founded in 1992. The Australian Quality Award was based in 1988 (Dahlgaard et al., 2005).

Many business firms adopt different quality-based frameworks such as ISO9001, Total Quality Management (TQM), Malcolm Baldrige, EFQM, Business Process Engineering (BPR), performance excellence, Lean Thinking, and Six Sigma to resolve business challenges. Nevertheless, in many cases, business challenges persist until today, even in digital firms though digital firms pretend to be fully automated and paperless. In digital firms, information is the lifeblood. Hence, information needs to be actively managed, governed, and directed to add value to the stakeholders. Therefore, digital firms can be assessed with DT based BE framework, which addresses business processes and information. ISACA publishes COBIT suggesting to enable information for achieving excellence. The following section discusses the relevance of information processing in BE models.

How to Bring EoT™ to Digital Firms

Some proven BE models have been briefly discussed above, indicating that every BE model addresses strategies, practices, and stakeholder-related performance results related to that given business. It is also clear from the above discussion that no single 'most effective or best BE' model may be prescribed as there are more than a hundred process improvement initiatives. Similarly, there is no unique direction to achieve BE status. Therefore, assessment of a BE means measuring the level of 'deployment' of a particular BE within an organization (Mann et al., 2011). To achieve a BE, a digital firm must ensure that most of its core values are embedded, considering its dynamic business environment, culture, and current position.

Against this backdrop, digital firms are indeed one kind of corporate enterprise. It is a new trend to 'enable both business and IT people to execute their responsibilities in creating value from IT-enabled business investments' (Haes & Grembergen, 2015). Digital firms have characteristics and features which are different from other organizations. For example, digital firms need to overcome first IT-related barriers to managing information at the entire enterprise level. The modern business world has already experienced massive attention in this regard. Current practices must be different from traditional ones. Such as traditionally, a particular body in a firm used to handle a specific type of information separately, such as structured, unstructured and tacit information. This method is contrary to the enterprise-wide content management systems. IBM also introduced some traditional content management systems to overcome IM-related problems, such as enterprise content management (ECM), business process management (BPM), customer experience management (CEM), and business intelligence (BI).

Currently, most digital firms concentrate on an enterprise-wide content management system that integrates all structured, unstructured, and tacit information. Moreover, all IM systems discussed earlier conclude that information shall be transparent to get most of the benefit. For instance, digital firms like Distell comprehend that there is value beyond improved efficiencies, reduced costs and achieving competitive advantage in connecting

enterprise information and making it more transparent (Barrenechea & Jenkins, 2015). Moreover, transparent information is a kind of currency for DT.

As BE can be achieved in a few other ways, digital firms may choose to complete BE based on DT, where information currency is necessary. As technology is emerging and getting better, faster and cheaper day by day, DT will lead to BE powered by EoT, i.e. "EoT – Excellence of Things ™" model has been developed based on a combination of a few categories such as people (CoT), process (LoT) and IT capabilities (DoT) for adding value in digital firms in the era of information.

Enablers of EoT™ for Digital Firms

EoT™ has three 'Enablers' or 'of things,' i.e. CoT (Corporate-Entrepreneurship of Things), LoT (Lean of Things) and DoT (Data of Things). Enabler or 'of the thing' is anything that assists EoT™ in adding business value. CoT is entrepreneurship within a large business firm, including working on a unique idea or project and developing the project like an entrepreneur would but inside an established business firm. CoT is also known as 'Intrapreneurship.' Similarly, LoT includes lean-related things such as Six Sigma philosophy, waste reduction, customer satisfaction, Kaizen tools and techniques, breakthrough improvement, etc.

Moreover, DoT includes anything related to quality information and DT capabilities such as information services, Information Technology, management information systems, data science, BI (Business Intelligence), and business analytics. This part of EoT™ is very vital as this provides quality information for decision-making. A survey was taken at a recent Compliance, Governance, and Oversight Council summit - shows that approximately 25% of information stored in organizations has real business value. In comparison, 5% is stored as business records, and about 1% is retained due to a litigation hold (Smallwood, 2014). This may imply that about 69% of information kept in most companies may have no business value. On those grounds, for the sake of DT, utilization of an EIM (Enterprise Information Management) framework is getting popularity day by day. This research proposes a DT-based BE to accomplish Excellence of Things™ (EoT), and this study conceptualizes that

enterprise information must not be managed in an isolated way. Still, enterprise-wide integrated CoT, LoT and DoT must capitalize on the enterprise information. Following is the detailed discussion on CoT, LoT, and DoT.

Corporate-Entrepreneurship of Things (CoT)

CoT is entrepreneurship within a large business. For example, some people may think of a unique idea or project in an established business and develop the project like distinguished entrepreneurship. So, CoT is also known as the 'Intrapreneurship.'(Zhao, 2013) Almost everyday innovation is undertaken in every corporate business (Ries, 2011). Drucker (1999b) utters that information triggers most innovation and productivity among the people involved in the management because the information is a strategic element. Hence, corporate entrepreneurship emerges if the information relating to corporate leadership, strategy, mission and vision, and fair treatment is open and available.

Moreover, 'organizational culture, corporate structure, venture selection, team formation, venture programs, supportive infrastructure, sustainable venture development, and positive learning cycles' (Zhao, 2013) shall be available and taken care of by the corporate. Entrepreneurs are always aware of the organization's rules and innovate effective programs. That is why; corporate entrepreneurs need acceptance and recognition (Deloitte & Deloitte Digital, 2015; Rohrbeck, 2009)

Advances in robotics, AI, and machine learning are progressing new age of digitalization. Deployment of digitalization in the workplace has already begun, and it is observed that technology has matched or outperformed humans on some of the 18 capabilities, including information retrieval, gross motor skills, and optimization and planning; many other capabilities require more technological development (McKinsey, 2017). However, digitalization can allow CoT to improve performance and productivity and achieve outcomes beyond human capabilities.

Lean of Things (LoT)

An LoT refers to Lean thinking. The initial concept of Lean is to reduce waste to reduce the cost and satisfy the customer requirements. In the early 1920s, when time and motion studies were developing, Lean Six Sigma techniques

started to flourish (Bentley & Davis, 2010). Though Six-Sigma and Lean are two concepts to some extent, these have similar directions and applications (Held, 1986). Some books use Lean and Six Sigma together; for example, 'A Guide to Lean Six Sigma Management Skills (Gitlow, 2009).

An American company – Motorola - introduced Six Sigma as a more powerful version of TQM during the 1980s (Goetsch & Davis, 2014). Six Sigma may be called the 'successor of TQM,' which is fundamentally a 'methodology for process improvement' (Baškarada, 2009). This method first collects data rigorously and analyzes it to reduce costs and improve value by stopping defect production (L. J. Porter & Tanner, 2004). Here 'Sigma (σ) is a statistical parameter that measures the standard deviation of a group of data, associated with a quality characteristic, from its average (X)' (Bhote, 2002, p. 4). A bell-shaped curve is drawn where up to six standard deviations are considered based on the collected data. Whatever is beyond Six Sigma (σ), i.e., six standard deviations are defective. Therefore, in practice, Six Sigma is defined as

> *Six Sigma is a fact-based, data-driven philosophy of improvement that values defect prevention over defect detection. It drives customer satisfaction and bottom-line results by reducing variation and waste, promoting a competitive advantage. It applies anywhere variation and waste exist, and every employee should be involved* (Held, 1986).

Many organizations are implementing Six Sigma to reduce waste and got success. For example, in 1988, Motorola achieved Malcolm Baldrige National Quality Award for its more significant contributions to putting Six Sigma concepts into practice. Other than Six Sigma, there is Lean. While Motorola implemented Six-Sigma, Toyota implemented Lean (Womack et al., 1990). Zhao (2013) summarized five generations of innovation, and she found the fifth generation started in 1990 with the characteristic of lean innovation with is technology-enabled innovation. In this phase, information is processed parallelly or in real-time. Lean is to provide additional value to the customers by using fewer resources. Lean thinking eliminates waste that does not add any value to the customers. For this waste elimination, one must undergo

process improvement by following some steps, values, and principles such as teamwork, flow systems, pull systems and reduced lead time (Held, 1986). Lean and Six Sigma have slight differences such as firstly, 'Lean focuses on waste reduction, whereas Six Sigma emphasizes variation reduction'; secondly, 'Lean achieves its goals by using less technical tools such as kaizen, workplace organization, and visual controls, whereas Six Sigma tends to use statistical data analysis, design of experiments, and hypothesis tests' (Held, 1986).

With the combination of Lean and Six Sigma, a new practice has emerged called Lean Six Sigma (LSS). The LSS is a methodology like Six Sigma and Lean, which encompass the entire organization and observes to eliminate nine kinds of waste, namely defects, overproduction, transportation, waiting, inventory, motion, over-processing, under-utilized employees, and behavior waste (Voehl et al., 2014, p. 10).

Unlike the above three process improvement methods, the Kaizen is more microscopic. Kaizen is a Japanese term that means continuous improvement. The specialty of Kaizen is 'doing little things better and setting and achieving increasingly higher standards (Held, 1986)'. For the implementation of Kaizen, a small team is assigned to the project. Kaizen has many models for implementation. More importantly, after applying Kaizen in an organization, it does not do any significant harm to the system if it fails.

However, implementing digital technologies into LoT is only a vital part of a digital firm. Technology adds additional value to the business by satisfying customers and other stakeholders. So, to further transform a digital firm for BE, a digital firm shall focus on reshaping customer value propositions; and better interact and collaborate with customers by utilizing the appropriate digital technologies (Berman, 2012).

Data of Things (DoT)

Data of Things refers to the set of data related that generated by DT capabilities such as mobile, big data, cloud, IoT, AI, RPA, blockchain, and IM that an enterprise possesses to gain business insight. It has been earlier mentioned that before every enterprise transformation initiative, all enterprise

data assets must be utilized (Vayghan et al., 2007). Like CoT and LoT, DoT is also considered one of the enablers of Excellence of Things™ (EoT) in measuring and achieving business excellence (Bytheway, 2014; Gartner Inc., 2012; Sánchez Peña et al., 2013). Without data management or information management, modern enterprise transformation or BE is no more possible in the 21st-century world. For example, information needs are sometimes not clearly understood throughout the enterprise without data analysis because the business functions of information and information users are not clear to stakeholders (ISACA, 2013). The lack of understanding of information directives is solved when data is stored, managed, and analyzed holistically and adequately. On that grounds, most digital firms are currently concentrating enterprise-wide content management system that integrates all structured, unstructured and tacit information. From this point of view, DoT shall enable BE and lead the organization to fulfill business expectations.

DoT is related to information governance (IG). IG is not only crucial for company management, but it is responsible for any crisis. For example, a financial crisis happens primarily due to regulatory compliance instructions and the failure to ensure an immediate and improved decision-making process. That is why; the recent global economic phenomenon has put artificial intelligence, machine learning, and extensive data analysis in the spotlight and made these things related to information governance. Therefore, ultimately, the practice of master data management (MDM), i.e. using or reusing data, is a critical factor in achieving effective information governance (Gartner Inc., 2012) because using or reusing data as an enterprise asset happens at an enterprise level to initiate any enterprise transformation activity (Vayghan et al., 2007). This practice of data-based business analysis (BA) is called business data analytics. The purpose of BA is to gain insights and drive business panning by performing continuous iterative exploration and investigation of past business achievements with the help of some skills, technologies, and practices.

Integration among CoT, LoT, and DoT

Digital transformation by integrating CoT, LoT, and DoT may centrally enable BE and add value to the business. Integration makes CoT, LoT, and DoT work in harmony to achieve the company's principal objective, i.e., to add value.

CoT, LoT and DoT do not work in silos somewhat. They are unified in such a way that they can transform a digital firm into BE based on DT. A digital firm can implement EoT (Excellence of Things™) by integrating corporate entrepreneurship, lean philosophy, and EIM to add value to digital firms. The EoT™ also has a capability assessment model that emerged from ISO/IEC 15504 and COBIT 2019.

Adapting COBIT for the Capability Assessment Model for Digital Transformation

As discussed in the earlier section, a capability assessment model emphasizes on digital firm's performance (deriving business value and meeting business objectives) as well as conformance (meeting compliance requirements and protecting information assets) (Williams et al., 2014). Conformance is also very strongly focused on SOX (Sarbanes-Oxley Act) (Laudon & Laudon, 2013). COSO (Committee of Sponsoring Organizations) suggested a compliance framework for SOX. Still, very few emphases on IT, and so ISACA, later on, developed COBIT (Common Objective for Information & related Technology).

If anything is not possible to measure, it is also not possible to manage. While information is an asset for digital firms, information needs to be managed and assessed appropriately throughout the information lifecycle (ISACA, 2013). Excellence for digital firms depends on the utilization of information that is utilized as one of the capabilities of DT that finally leads to BE. ISACA publishes COBIT suggesting to enable information that can work for BE.

The digital firm needs a robust EIM capability which will further advance a digital firm in the path of DT and assist in achieving BE. A capability assessment model can be built to assess the BE of any digital firm which aims for BE through integrating DT (Ladley, 2010). In this case, COBIT can be a good choice because COBIT as an enterprise IT governance framework is also an integral part of information governance that is, in turn, a subset of corporate governance. Consequently, COBIT can be first fitted into the DT boundary, restructured as a capability assessment model, and then integrated into EoT™.

It is imperative to mention that IG (Information Governance), IM (Information Management) and EIM (Enterprise Information Management) have hair-line differences while all of them exist for different purposes. IG is a part of corporate governance based on processes, roles and policies, standards and metrics established to meet today's information management's regulatory, compliance, and legislation demands(Smallwood, 2014). Similarly, according to ISACA, IG ensures enterprise objectives are achieved by *evaluating* information stakeholder needs, conditions and options through the acquisition and management of information resources; *directing* information management capabilities through prioritization and decision making; and *monitoring* performance and compliance against agreed-on direction and objectives (ISACA, 2013).

On the other hand, IM is a technique of using technology to gather, process and condense information for efficient management (Gartner Inc., 2018). According to ISACA, IM *plans*, *builds*, *runs* and *monitors* the process, practices, projects, and capabilities that obtain, control, control, deliver and improve the value of information resources in alignment with the direction set by the information governance body. EIM is a combined domain for organizing, unfolding and governing information resources across organizational and technological boundaries to increase productivity, transparency and business insight (Gartner Inc., 2018). Similarly, Ladley defines EIM as the program that manages enterprise information assets to support the business and increase value by managing principles, policies, frameworks, technologies, organizations, people, and processes in an enterprise to maximize the investment in the data and content (Ladley, 2010). ISACA also agrees that information is one of the topmost resources of the organization that delivers benefits to the enterprise if the organization meets necessary quality goals (ISACA, 2013). Such a robust EIM as one of the capabilities for DT has already been proved in Toyota, the most prominent lean applier. A helicopter-view of IM, along with the lean journey of Toyota, also shows that IM played a vital role since 1954 (while they introduced the first IBM computers) in Toyota's success (Toyota, n.d.). EIM is the basis of the famous lean manufacturing system, TPS (Toyota Production System), in Toyota – which supports and transforms the business to eliminate waste and continually improve production in Toyota (What Is Driving Toyota, n.d.).

Recently Toyota's priority is Digital Quality Management (DQM) as a part of the digital business transformation that plays a vital role in ensuring their digital standards are implemented, performance is measurable, and teams have the right tools to accomplish their jobs (Crowpeak, 2018).

THE PRESENT STUDY

The entire digital ecosystem is disrupted because disruptive innovation is forming a new marketplace and value network affecting customer experience, threatening the present market and replacing the earlier technology. Even in the 21st century, organizations have begun to incline to implement Digital Transformation (DT) to enable businesses with innovative technology to either disrupt others in the ecosystem or protect digital firms from disruption. Therefore, this study explores a deep understanding of a DT-based BE by finding how LoT, DoT and CoT enable EoT™ in Digital Firms. In fact, EoT™ helps to add value to the business of digital firms. As a qualitative approach, this study also utilizes the survey and existing documents to build a framework. A digital survey, online videos, and other online resources have been used to gather data. Computerized qualitative analysis of gathered data has been performed too.

RESEARCH METHODOLOGY

Research Design

This study applies qualitative research methods because, in the qualitative research method, the researcher seeks and investigates the issue at hand with their own eyes, constructs new content, and then adds to the body of knowledge. That is why; qualitative research is called the constructivism (Saldana, 2011). The qualitative research method recognizes the existence of pluralistic belief in the realm of knowledge. Hence, it is one of the postmodern research methods (Flick, 2009). Qualitative research has many types: case study, phenomenological, ethnographic, grounded theory, and action research. In this study, the answers to some questions are sought to fit the phenomenological research type because the researcher first explores the

meaning of EoT™ for digital firms. Usually, 'the phenomenological perspective seeks to determine the meaning of a construct' (Willis, 2015).

Panel of Experts

The panel of experts is from different educational and professional backgrounds. They are from several industries too. However, they have one similarity: they either oversee or are used to oversee digital firms' information management (or information technology) function. There are 5 (five) members in the panel.

Sampling

All participants worked on the same document (Jonker & Pennink, 2009), and then six to twelve participants were selected for data collection. Accordingly, the survey was uploaded to 'Google Form' after finalizing the questionnaire by the panel of experts. The survey link was sent to 15 (fifteen) participants, either IM or IT senior professionals working in different industries such as financials, education, telecommunications, or ITeS (IT-enabled Service). However, 12 out of 15 responded to the survey questionnaire. The survey was separately sent to the known colleagues, former colleagues or friends who are undoubtedly senior IT/ IM professionals but very closely involved in the business. Some of them are from Bangladesh, Afghanistan or USA. Participants are contacted from different countries to comprehend any cultural influences too.

Geographic Location

This study is not limited to any geographical location. Instead, it expands to different countries like the USA, Bangladesh, and Afghanistan. Such a combination may give us insight into EoT™ in other countries, various industries, and diverse cultures.

Instrumentation

According to the Delphi method, the instrument is created and validated by the expert panel through several stages and processes (Sekayi & Kennedy, 2017). For that reason, the four-round is applied to develop the instrument and validate both tool and response. The rounds are as follows:

Round 1 –Brainstorming with open-ended questions on the topic

Round 2 – Presentation of the list of statements to the expert panel
Round 3 – Presentation of the final draft questionnaire with feedback to the expert panel for endorsement
Round 4 – Presentation of Final Questionnaire to the expert panel

Data Collection

There are several techniques for collecting data in phenomenological research. One of the methods used in business studies is the Delphi method (Jonker & Pennink, 2009). This method is also used in action research needed to discover the systematic or strategic problem in the management of an organization (Cohen et al., 2007, p. 309). Although there is a disagreement about whether Delphi Method is suitable to be applied in qualitative research, Habibi, Sarafrazi, & Izadyar (2014) discussed it in length and concluded that the Delphi method could be used in qualitative research design. The reason for calling the Delphi method a qualitative method is that in this method, a group of selected experts or panellists contribute to constructing the knowledge after involving in several round discussions until the researcher is satisfied (Sekayi & Kennedy, 2017).

The definition of the Delphi itself suggests a set of processes and procedures.

> *Delphi may be categorized as a technique for structuring a group communication process so that the method is effective in allowing a group of individuals, as a whole, to deal with a complex problem* (Linstone et al., 1976, p. 3).

Therefore, according to the definition, the researcher can choose a group communication techniques from standard techniques such as a workshop, a brainstorming session, or a group session to allow all participants to work on the same document (Jonker & Pennink, 2009). In this study, 6 to 12 participants are selected for data collection. Data is collected and validated in the following different four rounds (Sekayi & Kennedy, 2017):

Round 1 –Brainstorming with open-ended questions on the topic
Round 2 – Presentation of the list of statements to the expert panel

Round 3 – Presentation of the final questionnaire with feedback to the expert panel for endorsement
Round 4 – Presentation of Final Questionnaire

The following questions were asked to the participants in the first round to do brainstorming. In this stage, individual participants have answered the following four questions.

1. What does EoT™, a DT-based BE framework, mean for digital Firms?
2. What are the things that drive digital firms to accept EoT™?
3. How do LoT, DoT and CoT enable EoT in digital firms?
4. What are the aspects of EoT™ in regard to adding value to the business of digital firms?

Data Analysis

In this study, the data collection is not followed by data analysis because, in the Delphi method, data collection and data analysis are done systematically and simultaneously. It is mentioned earlier that a four-round has been employed to collect and analyze the data.

Findings

In qualitative research, to find the themes generated from the questionnaire's responses, the scope of all research questions was defined, and then NVivo was run. Word frequency was checked at first for the research question. The following word frequency indicates that the word 'business' mainly occurred in the source. However, the research questions taken for the study are as follows:

RQ1. How do CoT, LoT, and DoT enable EoT™ in digital firms?

EoT™ Enablers in Digital Firms

Based on the EoT™ theory discussed earlier, there are three enablers: CoT, LoT and DoT. These three enablers are discussed below:

CoT – Corporate of Things

Theoretically, CoT refers to the Corporate-entrepreneurship of Things within a large business. Corporate entrepreneurship focuses on corporate leadership,

strategy, mission, vision, and fair treatment. The participants have answered the following part of the questionnaire to find out the ways how CoT works in practice:

1. Which of the components shall be included in CoT and why:

Leadership;
Strategic Alignment;
Principles, policies, and frameworks;
Partnership development;
Result focus;
Social responsibilities; and
Fact-based processes management?

2. Please explain how CoT may support you to strengthen your corporate leadership?
3. How may CoT deliver excellence in your digital firm? Please explain.
4. Do you think CoT may assist you in maximizing company potential? How?

After analyzing the answers to the above questions, the following word-cloud in Figure-3 has been derived – that depicts that leadership, strategic alignment, principle, policies & frameworks, partnership development, result focus, social responsivities, and fact-based process management are the Transformative Focus Areas (TFA) or building blocks in CoT:

Figure-3: Transformative Focus areas of CoT in Word Cloud

As per the participants, several areas of CoT enable EoT™ in a digital firm. These elements are shown in the following Figure-4:

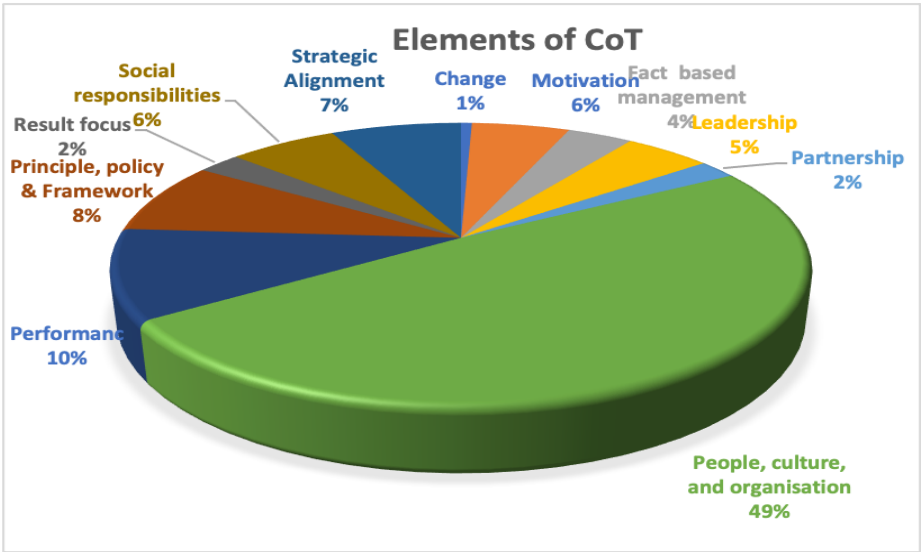

Figure-4: Elements of CoT

As per the participants (Figure-4), the prime elements of CoT that enable a digital firm to accept EoT™ are People, Culture and Organization (49%), Performance Management (10%), Principle, Policies, Framework (8%), Strategic Alignment (7%), Motivation (6%), Social Responsibility (6%), Leadership (5%), Fact-based Management (4%) and Partnership (2%). Last but not least, Result Focus and Change Management also have a stake in the CoT enabler.

Participants also argue that CoT as an enabler may deliver excellence and add value to the business in digital firms by maximizing company potential, strengthening corporate leadership (P01); improving supervision and entrepreneurship (P02); creating transparency in IM (P03); improving governance (P03); improving CSR (P07); executing strategy in a systematic way (P08) that achieves organizational goals (P11) and enhance internal performance (P12) – *that in turn motivates employees for creativity and*

innovation and establishing better culture and morale (P05); 'bridging' business and other resources (P06) for organizational synergies (P11).

LoT – Lean of Things

Theoretically, LoT refers to Lean of Things that reduce waste to reduce the cost and satisfy the customer requirements. LoT also focuses on lean philosophy and tools like Kaizen. The participants have answered the following part of the questionnaire to find out the ways how LoT works in practice:

1. Which of the components LoT shall be included and why:
   - Customer focus;
   - People focus;
   - Organizational structure;
   - Organizational learning and innovation;
   - Culture, ethics, and behavior;
   - People skills and competencies; and
   - Processes improvement?
2. How can LoT help a digital firm to achieve BE?
3. Do you think LoT may assist you in meeting current customers' demands? How?
4. Can LoT increase employee engagement and productivity in your digital firm? How?
5. Can LoT increase employee performance and satisfaction in your digital firm? How?
6. Do you think LoT can reduce the cost of running a business through process improvement? Please explain.
7. LoT can increase your quality of service or product through process improvement. Please explain to what extent you agree or disagree.
8. Do you agree or disagree that LoT can increase organizational sustainability? Please explain.

After analyzing the answers to the above questions, the following word-cloud in Figure-5 has been derived – that depicts that process improvement and productivity are the vital areas in LoT:

Figure-5: Elements of LoT in Word Cloud

As per the participants, there are several areas of LoT that enable EoT™ in a digital firm. These elements are shown in the following Figure-

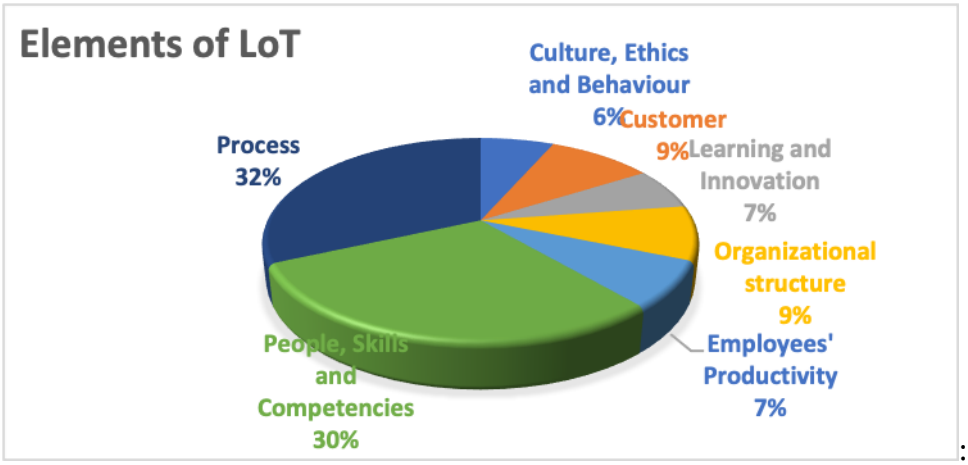

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Figure-6: Elements of LoT

As per the participants (Figure-6), the significant areas of LoT that enables a digital firm to accept EoT™ are enriched People, Skills and Competencies (30%); Process Improvement (32%), Higher Customer Satisfaction (9%), Optimized Organizational Structure (9%); Increase in Employees Productivity (7%); Creating Learning and Innovation Culture (7%); Creating Culture of Ethics and Behavior (6%).

The participants also argue that LoT as an enabler may deliver excellence and add value to the business in digital firms by minimizing waste (P04, P09) and achieving zero defects (P08, P12); increasing employee engagement, productivity and satisfaction (P01, P06); reducing the cost of running the business through improving employees' skills, utilizing modern information systems (P11) and taking employees regular feedback (P02, P07); analyzing customer requirements in understandable-way (P10, P12); making good use of the existing resource (P06); increasing quality of service (P07); focusing on the bottom line of business (P12) – that in turn increases organizational sustainability *through teamwork and optimizing process* (P03, P05).

DoT – Data of Things.

Theoretically, DoT refers to data generated from mobile computing, cloud computing, AI, IoT, RPA, blockchain, and IM. An enterprise possesses and analyzes the data using every possible method and technique to gain business insight. The participants have answered the following part of the questionnaire to find out the ways how DoT works in practice:

1. Which of the components shall be included in DoT and why:

    Information Management
    Knowledge Management;
    Services management
    Infrastructure management and
    Applications Management?

2. Do you think DoT is a means of adding value to the business? Why? Please explain.
3. It is also very challenging to secure information you are processing in your organization. To what extent do you agree or disagree?

4. DoT shall be more agile to response business. To what extent do you agree or disagree?
5. How critical is DoT to support the sustainability of the enterprise?
6. Important business processes depend on DoT in any digital firm. To what extent do you agree or disagree.
7. How do DoT resources and infrastructure availability contribute to achieving enterprise strategic objectives?
8. Information is a vital factor in quality decision-making. How does DoT accelerate business decision-making?
9. DoT also supports the enterprise in complying with regulations. To what extent do you agree or disagree?

After analyzing the answers to the above questions, the following word-cloud in Figure-7 has been derived – that depicts that information and data management are the vital areas in DoT:

Figure-7: Elements of DoT in Word Cloud

As per the participants, there are several areas of LoT that enable EoT™ in a digital firm. These elements are shown in the following Figure-8:

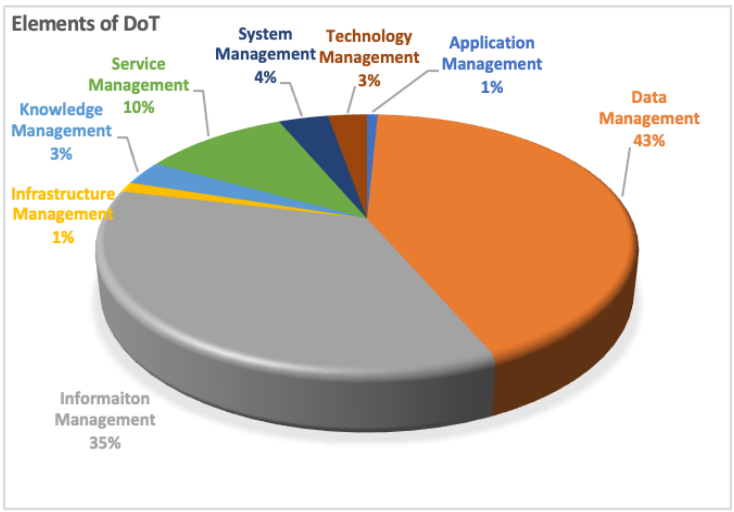

Figure-8: Elements of DoT

As per the participants (Figure-8), the significant areas of DoT that enables a digital firm to accept EoT™ are proper Data Management (43%), Information Management (35%), Service Management (10%), System Management (4%), Technology Management (3%), Knowledge Management (3%), Infrastructure Management (1%) and Application Management (1%). Based on the discussion earlier, it is perceived that IM is an organizational program that includes data management, service management, system management, technology management, knowledge management, infrastructure management, and application management to provide the 'right information at the 'right time' to the management for making 'right decision.' Participants primarily emphasize IM regardless of its generation points, such as IoT, AI, cloud, Big Data, and blockchain.

The participants also argue that DoT as an enabler may deliver excellence and add value to the business in digital firms by meeting strategic objectives (P03) through providing fact-based decision making on transparent information at the right time (P12), getting an insight into Information (P12) and securing information (P01, P03, P05, P08); making information available all the time

(P12); responding to the business immediately in agile-way (P02, P03, P11); meeting regulatory compliance (P07, P12); and by making the organization more sustainable (P03, P04, P11, P12) – that in turn increases customer satisfaction too. Similarly, McQuivey & Bernoff (2013) also argues that the digital paradigm assists the digital leaders to be another visionary to add value to the business by meeting customers' requirements at lower cost, with faster development times and a more significant impact on customer experience. For this reason, mindset and toolset are more critical in DT than digitalization.

SUMMARY

A digital firm is more or less paperless that adds value to the business by achieving excellence based on being people-oriented, process-driven and technology-evangelist. EoT™ is one of the means to attain DT-based BE in digital firms that enhance strategic management, leadership, employee motivation, process improvement, quality management, secured enterprise information management, fact-based decision-making, and organizational sustainability.

DISCUSSION

This section aims to discuss the summary of the findings, implications for future research, and conclusions. Initially, this study aims at discovering some practical methods for enhancing digital transformation to achieve BE in digital firms. Accordingly, some BE frameworks were reviewed. Then, an association of COBIT with those BE frameworks was examined from the existing literature. It is also assumed that EoT™, developed in the light of COBIT, might fulfill digital firms' need to achieve DT-based BE.

Nevertheless, BE can be achieved in a few ways, and EoT™ is one of the ways to do so. EoT™ may have three 'Enablers': CoT, LoT and DoT. All of them consist of EoT™ to add business value. This study emphasizes BE in digital firms by utilizing digital capabilities. EIM, one of the digital capabilities, is based on COBIT for Information, is based on the Committee Of Sponsoring Organization (COSO), while COSO is based on Sarbanes-Oxley (SOX). However, there is no universal and straightforward BE framework directly derived from either SOX, COSO or COBIT. That is why; BE and COBIT

criteria are compared, and links between them are established to develop EoT, a model for digital transformation. Such links are called CoT, LoT and DoT. There is also a challenge of alignment of DoT with BE as there are fewer similarities between COBIT and BE criteria.

In contrast, the EoT™ framework focuses on digitalization to overcome such a challenge. Nevertheless, EoT™ can overcome business challenges, ensure compliance, and bring digital business excellence. A similar technique like EoT™ has already been applied in several world-renowned companies like Toyota to achieve DT-based BE.

The study's findings may not be generalizable because of the ontological influence of the respondents caused by their geographical background. However, anyone may replicate the model in other geographical locations and with a more expert panel. However, the qualitative approach will be utilized to build the EoT™ framework by integrating lean philosophy, digital capabilities, and corporate entrepreneurship to add value to digital firms.

The initial finding of the study is that a digital firm is more or less paperless that adds value to the business by achieving excellence by being people-oriented, process-driven and technology-evangelist. EoT™ is one of the means to achieve excellence in digital firms that enhance strategic management, leadership, innovation, employee motivation, process improvement, quality management, secured enterprise information management, fact-based decision-making, and organizational sustainability. The following sections discuss the total findings.

Drivers for Digital firms to accept EoT

A digital firm can accept EoT™ because EoT™ makes people, process and technology work together; increases employees' productivity but reduces the cost of doing business; assists to see business insight; transforms business by creating learning, innovation, and trustworthy culture; and finally stimulates the entire digital firm to achieve BE.

EoT™ Enablers

EoT™ has three 'Enablers' or 'of things,' i.e. CoT (Corporate-Entrepreneurship of Things), LoT (Lean of Things) and DoT (Data of Things). As explained earlier, enabler or 'of the thing' is anything that assists EoT™ in adding business value. CoT is 'Intrapreneurship' within a large business firm, including working on a particular idea or project and developing the project like a corporate entrepreneur would but inside an established business firm. Similarly, LoT includes any lean-related things such as the Six Sigma philosophy, waste reduction, customer satisfaction, Kaizen tools and techniques, and breakthrough improvement. DoT includes anything related to quality information that adds value to the business through information services, IT (Information Technology), MIS (Management Information System), data science, BI (Business Intelligence), BA (Business Analytics), AI, blockchain, RPA, IoT, etc.

CoT – Corporate of Things

CoT consists of people and culture, leadership, strategic alignment, change management and governance that transform business and deliver excellence in digital firms by maximizing potential by utilizing resources, including information assets, and enhancing performance. CoT finally creates a culture of trust, innovation, creativity, and synergy, which adds value to the business through an 'engaged and motivated workforce' and 'satisfied customers.

LoT – Lean of Things

LoT consists of process improvement; people, skills and competencies; organizational structure; culture, ethics and behavior; organizational learning and innovation that meet customer demands, increase the quality of service, increase employees' engagement and productivity, provide a competitive advantage over rivals, reduce defects or errors, reduce wastes as identified by lean, reduces the cost of running the business. LoT finally also transforms business and adds value to the business through an 'optimized process.'

DoT – Data of Things

DoT analyzes customer requirements and meets compliance, availability, and information security, enhancing fact-based decision-making and immediately

responding to the business. DoT finally spearheads digital transformation and value addition to business through a 'digital paradigm' that requires a new mindset and a new set of behaviours to create continuous customer connection by embracing the disruption (McQuivey & Bernoff, 2013).

It is also very crucial to mention that upgrading systems and changing a few functional areas of business does not mean that the leaders have the 'digital paradigm'; instead, the leaders, followers and entire organization shall have strong will-power to start and finish the challenging journey of renovating the whole business model to leverage the innovative use of digital technologies. The digital paradigm is about viewing the entire business from a different angle and the digital lens for delivering new value and experiences for customers and other stakeholders, the enriching position of the digital firm in the market, and the rising bottom line.

CoT, LoT and DoT do not work in isolation; instead, they work in an integrated way to add value to the business. Some of the elements or 'Transformative Focus Areas' (the building blocks of digital transformation that participants emphasize) overlap among CoT, LoT and DoT.

The Excellence of Things™ (EoT) Framework

DT-based BE framework, EoT™ is structured based on the responses gathered from management professionals, IM professionals, and academicians. To add value to the business through satisfied employees and customers, optimized processes and a digital paradigm, EoT is designed to be more generic to any digital firm regardless of nature, size, geography or culture. EoT™ has two kinds of elements or components in its framework – 'core' and 'non-core.' The integrated 4 (four) 'core elements' are *Principles* (People-oriented, Process-driven, Technology-passionate, Holistic), *ERM* (EoT Reference Model contains all TFAs or building blocks of digital transformation), *ECAM* (EoT Capability Assessment Model for measuring current state and plan for future state) and *LEAD* (Learn-Explore-Agile-Deliver) Cycle – that needs to be followed start to end for successfully implementation of EoT™. Among these four elements of EoT™, principles shall be upheld and devotedly followed throughout the implementation of the framework. Moreover, ERM can be built up to frame all of the TFAs. Similarly, ECAM can be utilized to

assess the momentum periodically. Finally, LEAD Cycle can be applied for the rapid and straightforward deployment of TFAs. LEAD Cycle can be repeated for every TFA; or merged-focus-areas.

The complete DT based BE framework, EoT™, is shown in the following figure (Figure-9): further, EoT™ is also designed in a very flexible way with its 'non-core' elements such as drivers -which varies due to the nature and size of digital firms, enablers - varies based on circumstances and result or value addition – varies due to an interaction of drivers, enablers and other inputs. However, the integrated core four elements will be explained in the following sections.

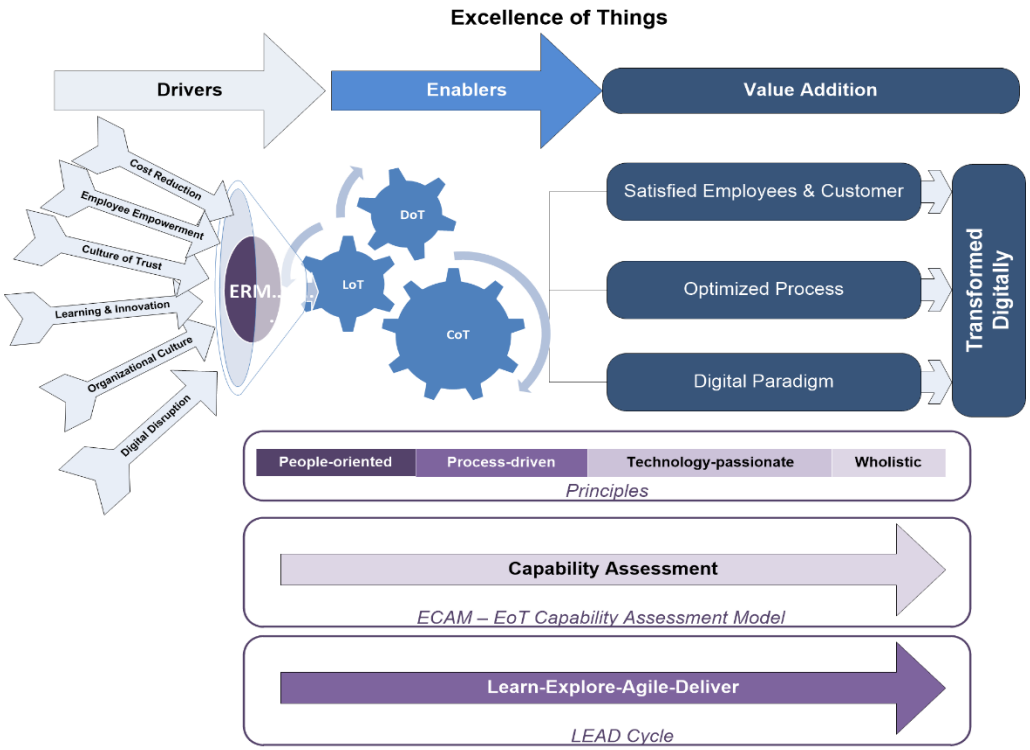

Figure-9: Excellence of Things™ (EoT) - Digital Transformation framework

Regardless of the types of EoT™ elements 'core' or 'non-core' – and their interaction, the ultimate goal of the EoT™ framework is to transform digitally and add value to the business through 'Satisfied Employees and Customers'

'Optimized Process' and 'Digital-Paradigm.' In EoT™, 'Motivated Employee' is an asset for a digital firm that is the result of engaging employees by inspiration, showing kindness to them and encouraging their self-care (Seppala, 2016). Employee engagement and work satisfaction are also motivation determinants to fulfill a mission that is meaningful to themselves (Ankli & Palliam, 2012). Motivated Employees take ownership of productivity, quality, profits, and DT and add value to the business (Kundu & Vora, 2004). Figure-4 (Relationship of CoT Elements) also portrays the fact agreed by our survey participants that intensive supervision, creativity and innovation, organizational synergy and performance management are the factors that influence employee motivation in a digital firm. Motivated Employees also make the customers satisfied.

However, 'Satisfied Customers' means providing extraordinary products or services and connecting customers emotionally. Satisfied and emotionally connected customers are also an asset of digital firms. They usually buy more products and services, visit frequently, communicate freely, and recommend the seller (Zorfas A & Leemon, 2016). Zorbas and Leemon also argue that such customers also help to increase customer-base from 21% to 26%; reduce customer attrition rate from 37% to 33%; increase customer advocacy from 24% to 30%; and increase sales growth up to 50% (Zorfas A & Leemon, 2016). Nowadays, by applying sophisticated IM tools like AI-based analytics, customer emotional connection can also be analyzed and leveraged, which results in customer value and financial returns that, in turn, add value to the business. Figure-4 (Relationship of CoT Elements) also illustrates the fact agreed by our survey participants that corporate leadership, improved governance and CSR influence customer satisfaction in the digital firm.

Moreover, 'Optimized Process' means a 'near perfect' process that has already achieved the most with the least (Gomez, A. G., Oakes, W. C., & Leone, 2004). Figure-6 (Relationship of LoT Elements) also shows the influencing factors of 'Optimized Process' as identified by the survey participants waste reduction, zero defect, regular feedback, and teamwork. However, Optimized Process can be achieved either by Lean or Six Sigma process improvement program consisting of some techniques that meet the business goal and improves the business process. The application of such Lean or Six Sigma

techniques to all TFAs results in a very high level of quality at reduced costs with a reduction in cycle time, resulting in improved profitability and competitive advantage (Breyfogle, n.d.). However, such a program requires enormous support from motivated employees and a leadership team. Breyfogle also argues that the leaders shall be empowered and directed to communicate and learn how to fix the process instead of reacting to every fault or error (Breyfogle, n.d.). The leadership team and Human Resource managers need to focus on running a consistent, reliable operation at low cost with standard, simple, automated procedures (Power, 2012). Power also argues that IBM's corporate HR function reduced 8,000 HR software applications to fewer than 1,000, which saved vast amounts of time that HR spent on the process improvement (Power, 2012). However, the 'Optimized Process' can be measured quantitively with Lean or Six Sigma way (Voehl et al., 2014) or qualitatively with PAM (Process Assessment Model) of COBIT (ISACA, 2018).

DT is all about the mindset of people and culture, dealing with market disruption in an offensive or defensive way, and utilizing the right toolset for solving problems. Furthermore, in EoT™, 'Digital-Paradigm' means changing the mindset of all people of the digital firm regarding DT and establishing a culture of innovation, creativity, and digitalization at strategic, tactical and operational levels. A report by McKinsey shows that culture is the uppermost barrier (39%) to going towards DT (Goran et al., 2017). McQuivey (2013) also argues that three things shall be done to overcome such a barrier: adapting a digital disruptor mindset by enthusiastically accepting digital disruption; behaving like a digital disruptor by innovating differently, building different products and using other partnership models; disrupting immediately with the right mindset and commitment to move forward entire organization. Similarly, Figure-8 (Relationship of DoT Elements) represents the findings of the survey participants that the urge for faster decision making with better business insight, transparent information, anywhere anytime information availability, agile response and meeting regulatory compliance inspire the culture of DT, i.e., 'Digital Paradigm.'

CONCLUSION

After analyzing the participant's responses, EoT™ is designed and developed with the help of a few 'core' and 'non-core' elements. The 'core' elements are Principles, ERM with TFAs or building blocks, ECAM and finally, LEAD Cycle, whereas the 'non-core' elements are Drivers, Enablers and Value Addition. EoT™ can also be implemented in a short period with a few steps such as identifying non-core elements, i.e., 1) identifying the drivers, 2) defining enablers and classifying them with CoT, LoT and DoT, 3) defining the result as business value addition; then identify the 'core' elements 4) strictly following to EoT™ principles, 5) building ERM based on required TFAs, 6) verifying the interrelationship between other frameworks' elements and other TFAs by mapping TFAs, 7) checking the current status with ECAM, and finally 8) applying LEAD Cycle for each TFA or combined related TFAs.

RECOMMENDATIONS FOR FUTURE RESEARCH

This study was conducted in a brief period along with resource scarcity. Accordingly, there is always a chance for further research on the same topic too. The administrator may investigate the ways information management functions before implementing digital transformation in light of this current study. This pre-observation will help understand the effect of implementing the DT-based EoT™ BE framework. Likewise, the interrelationships among the various aspects of the EoT™ framework might be examined based on 'quantitative' data.

Moreover, the entire framework can be reinvestigated in the light of the quantitative research paradigm to see whether the data produces the same result, i.e., the same EoT™ framework. Besides, a case study can be done to see if EoT™ also works in the practical field. Furthermore, EoT™ might also be tested on specific functions such as service management, software construction, and any small business unit for organizational excellence instead of a comprehensive and holistic approach.

FUTURE RESEARCH

During the development of EoT™, the following research questions arose but were not answered due to the limitation of the study:

1) Is there any association of drivers and enablers on business value addition via EoT™?

2) How do the TFAs correlate with each other? To what degree do they affect business value addition via EoT™?

3) What are the challenges to EoT™-based digital transformation in digital firms?

4) Is there any correlation between of quantum information system and the EoT™ framework?

HYPOTHESES FOR FUTURE RESEARCH

Based on the study and recommendation for the further research, there could be a few hypotheses for future research, such as:

1) Digital ecosystem and digital firm's competitive advantages will influence it to utilize the DT-based EoT™ framework.

2) Cost reduction, employee engagement, and customer value proposition will influence the senior leadership team to implement EoT™.

3) Market competition will influence to implementation of EoT™.

4) Greater enthusiasm for digitalization will influence a digital firm to implement EoT™.

5) Quantum computing may influence digital firms to utilize the EoT™ framework.

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