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THE IMPACT OF
ENTERPRISE COMMUNICATION INITIATIVES
ON MARKET-BASED FIRM PERFORMANCE:
TWO EMPIRICAL STUDIES

NG KENG HONG

PhD
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The Hong Kong Polytechnic University
Institute of Textiles and Clothing

The Impact of Enterprise Communication Initiatives on
Market-based Firm Performance: Two Empirical Studies

Ng Keng Hong

A thesis submitted in partial fulfillment of the requirements
for the degree of Doctor of Philosophy

December 2017

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Ng Keng Hong (Name of student)

ABSTRACT

Despite intense practitioner interest and rapid advances in technology in organizational communication (OC) facilitating value-adding work activities in companies, studies on the effects of such technological deployment have remained scarce in the field of operations management (OM). Using two empirical studies, we investigate the differentiating and causal effects of OC technologies implementation as enterprise communication initiatives (ECIs) on firm performance outcomes. The study reveals significant outcome differences between ECI-implementing and non-implementing firms. Our regression models indicate significant positive main and interactive effects on firm performance outcomes from ECIs. Our findings are supported by most theories and concepts drawn from relevant disciplines and fields such as OC and technology management. We also perform a further investigation to explore the business value implications of ECIs to companies operating in fashion and apparel industries.

Our first study examines whether there are significant performance outcome differences in terms of market-based value (as measured using Tobin's q or TQ) between ECI-implementing and non-implementing firms. By viewing OC as a constituent of organizational value-creating activities, we propose that the introduction of novel OC technologies alter the prevailing work-related communications and activities, which in turn transform the value-adding dynamics of firms. Next, we conduct an event study in which both parametric and non-parametric tests are applied. A positive and significant TQ difference between both sets of firms is found for the period starting from the ECI-implementing year to one year after. This finding suggests that ECIs point to new ways for managers and employees to communicate, interpret, manipulate and act on the

resources available at work. In sum, the technological affordances from ECIs changed both OC and value-adding dynamics of the implementing firms.

Our second study investigates a causal and interactive effect of ECIs with business orientations on a firm's TQ. From a marketing viewpoint, we test whether the extent to which firms commercialize their products and services (commercialization orientation or CO) and the extent of firms' internal focus on cost efficiency (internal orientation or IO) moderate the causal relationships between ECIs and firm TQ. Basing on both practical and theoretical grounds, we argue that employee work processes such as CO and IO activities are entangled with OC. The introduction of OC technologies via ECIs provides alternate and improved means for interaction and coordination among employees in different business oriented contexts. An event study approach is adopted to build the dataset, while a moderated multiple regression analysis is conducted to test them. A significant three-way interactive effect of CO is found on the ensuing TQ change, one year prior to ECI-implementation and during the implementation year. This suggests that firms devoting more effort in bringing their technological capabilities and products or services to the market (CO) prior to and during the ECIs would become keener and more active in actualizing and integrating the potential technological affordances resulting from the new OC technologies for business value creation.

A further investigation is conducted to examine how firms in the fashion and apparel industries increasingly use OC and OC technologies to improve business performance, as they cope with recent market disruptions such as shoppers shifting rapidly towards e-commerce. A qualitative case study approach is adopted in this investigation. Through the use of six case reports, we find evidence suggesting that large fashion companies are aware of the opportunities from cross-cultural differences within and across business divisions and advantages by improving OC across geographical

locations. Fashion companies tend to implement ECIs not only to take advantage of employee individual and collective knowledge but also to complement specific business orientations and enhance various operational and firm performance outcomes.

A synthesis of the main arguments and findings from all studies is provided in the final section. Significant theoretical contributions and practical implications from our work are discussed there. Limitations of this research are identified and suggestions for future research are made.

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LIST OF ABBREVIATIONS

CCO	Communications-constitute-organization
CO	Commercialization Orientation
CRM	Customer Relationship Management
ECI	Enterprise Communication Initiatives
ERP	Enterprise Resource Planning
ESM	Enterprise Social Media
IBM	International Business Machines
ICT	Information and Communications Technology
IO	Internal Orientation
IT	Information Technology
OC	Organizational Communication
OM	Operations Management
ROA	Returns-on-Assets
SCM	Supply Chain Management
TACT	Technology Affordance and Constraints Theory
TQ	Tobin's q
U.S.	United States (of America)
UC	Unified Communications
USAA	United States Automobile Association
USD	United States Dollars
VIF	Variance Inflation Factor
WSR	Wilcoxon Signed-rank

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CHAPTER 1 INTRODUCTION

1.1 Background

In recent years, businesses have been resorting to increasing acquisition and integrating enterprise-level internal or organizational communication technologies (hereafter referred to as OC technologies) such as enterprise social media or software into their operations to “enable more efficient, effective and mutually useful connections between people, information, and assets” (Kiron et al., 2012, p.5). Forrester Research estimates that the global expenditure on such new OC technologies had reached four billion USD in 2017 as a result of the growing ubiquity of digitization of business operations (Le Clair, 2016). Activities supported by such technologies can be expected to drive business decisions and influence performance outcomes eventually (Kiron et al., 2012). For instance, McKinsey Global Institute reports that use of new OC technologies to improve employee communication and collaboration could drive two-thirds of the combined 900 billion to 1.3 trillion USD in value created from consumer packaged goods, consumer financial services, professional services and advanced manufacturing business sectors (Chui et al., 2012).

Leading technology research companies are therefore finding that new OC technologies are influencing how work is structured for employees, teams and firms. In their “Analysis of the Global Enterprise Social Networking Market”, Frost & Sullivan (2014) predicts that enterprise-level social platform subscribers will increase from 208 million in 2013 to 535 million in 2018, with two billion workers worldwide being expected to benefit from technological appropriation. A survey has revealed that 60% of companies’ sales team members work remotely, and more than 40% of corporate decision makers agree that deploying standardized mobile applications support sales workflow and on-

site customer data input, while the retrieval of product information or instruction materials becomes essential for sales effectiveness (Aberdeen, 2013). Gartner (2016) further envisions that, by 2018, 30% of firms will rely on “workplace social software” such as visualization applications to enable self-organized teams to collaborate on non-routine work and, by 2020, 30% of meetings will be supported by “virtual concierge and advanced analytics” applications. It is also expected that firms will assimilate social software as “innovative modes of communication” with enterprise-level email, thus replacing emails in the foreseeable future (IDC, 2014).

Academic research on communication activities and initiatives in companies is generally found in the internal or organizational communication (OC) field. OC researchers see organizations, their operational and administrative activities as constituting from communicative actions (e.g. Cooren et al., 2011; McPhee and Zaugg, 2000). It refers to the processes of “creating collective and coordinated structures of meaning through symbolic practices oriented towards the achievement of organizational goals” (Mumby, 2001, p.587). Thus, OC is likely to become the mediating “interpretive” technological plane between an organization’s operations (what it does) and how its communicative activities (what is said) make up its performance (Putnam and Pacanowsky, 1983). Viewed this way, firm-level adoptions of new OC technologies are consistent with organizational innovation and information system innovation literature examining new technological affordances introduction to transform both specific and general organizational and operational areas, with better performance outcomes and achievement of strategic goals (Amit and Zott, 2001; Damanpour, 1991; Swanson, 1994; Yoo et al., 2012; Yoo et al., 2010).

Despite the rising influence of enterprise-level OC technologies on internal communication and firm operations, academic research has so far been confined largely

to empirical studies using qualitative approaches such as case studies (e.g. Böhringer and Richter, 2009; Riemer et al., 2012), analyses conducted at individual or team levels (e.g. Huang et al., 2015), and investigations of performance impacts on general or publicly-accessible social media initiatives (e.g. Culnan et al., 2010; Lam et al., 2016). However, notwithstanding such contributions, a basic research question has remained as to whether new OC technological implementation or enterprise communication initiatives (ECIs) such as the deployment of enterprise social media (e.g. Yammer, Jive, SocialCast, etc.) or unified communications systems (e.g. by Avaya, Unify, Cisco, etc.) create value and contribute to firm performance outcomes (Applegate, 2002; Chesbrough, 2007; Kiron et al., 2012).

Although enterprise systems such as customer relationship marketing (CRM), supply chain management (SCM) and enterprise resource planning (ERP) have been studied widely in the field of operations management (OM), studies on organizational communications technological initiatives associating OC technologies with performance outcomes are sparse in OM (e.g. Huang et al., 2015; Lam et al., 2016). In our study, we refer to an ECI as the deployment of OC technologies within an organization to create a unified platform for work-related action through socialization, creation and sharing of informational multimedia contents. Such systems may include unified communications (UC) systems and enterprise social media (ESM). The latter refers to “web-based platforms that allow workers to (1) communicate messages with specific coworkers or broadcast messages to everyone in the organization; (2) explicitly indicate or implicitly reveal particular coworkers as communication partners; (3) post, edit, and sort text and files linked to themselves or others; and (4) view the messages, connections, text, and files communicated, posted, edited and sorted by anyone else in the organization at any time of their choosing.” (Leonardi et al., 2013, p.2). Since a UC

system refers to the “convergence of telecommunications and information technology; it integrates traditional and novel communication media (speech, text, video) and devices (phone, computer) with presence information and further collaboration features” (Riemer and Taing, 2009, p.326). Other OC technologies may include but are not limited to corporate wikis, blogs, and enterprise social networking tools (e.g. Workplace by Facebook).

Our study of ECIs and its business value implications complements enterprise systems research in OM. OM researchers have documented positive impacts of ERP, CRM and SCM enterprise systems adoption on firm performance and market value (e.g. Hayes et al., 2001; Hendricks et al., 2007; Hitt et al., 2002). Some scholars have even suggested that OC technologies would potentially become complementary to other enterprise systems such as ERP systems (e.g. Moon, 2007; Sedmak and Longhurst, 2010). However, to the best of our knowledge, there hasn't been a study examining the effect of ECIs on firm performance outcomes. Therefore, the goal of this study is to investigate the value of ECIs on firm performance outcomes in terms of Tobin's q (TQ; Bharadwaj et al., 1999; Melville et al., 2004). At its core, a TQ ratio shows the relationship between a firm's market price for exchange of its assets, and the market price for its newly produced commodities (Tobin and Brainard, 1976). Further, as an indicator of investor and creditor expectation of a focal firm's future operating performance, TQ is indeed found to positively relate to firms' operating performance in the long run (Fu et al., 2016). Specifically, we aim to conduct two studies, one to determine whether there is a significant performance outcome difference between ECI-implementing and non-implementing firms, and the second to uncover the interaction, if any, between business orientations or intensity of specific firm activities and ECIs and the subsequent effect on firm performance (TQ). We also engage in a further

investigation to explore the business value implications of ECIs to companies operating in fashion and apparel industries.

1.2 Research Objectives

Our research primarily seeks to examine whether and under which contextual conditions firm-level implementations of ECIs affect performance outcomes. Specifically, we aim to fulfill the following research objectives:

- Evaluate the consequential performance outcome differences between ECI-implementing and non-implementing firms in terms of Tobin's q (TQ) changes.
- Introduce technological affordance and constraint theory (TACT) and the communications-constitute-organization (CCO) perspective to explain the effect of ECIs on firm performance.
- Test which business orientation interacts with ECIs to co-define firm performance and impact firm value outcomes using archival data and the event study approach.
- Demonstrate how business value is generated when a specific path-dependent business orientation or activity intensity establishes favorable application contexts for the technological affordances introduced during ECIs.
- Validate the presence of ECIs for companies operating in fashion and apparel industries and investigate the related performance impacts.

1.3 Research Significance

Our first study finds a significant difference between firms that had implemented ECIs and those that had not. We adopt an event study approach and define the implementation of an ECI as the event of interest. Every sample firm that has implemented an ECI is paired with a control firm based on its industry's classification, pre-event returns-on-assets (ROA) and asset tangibility. Both parametric and non-

parametric tests have indicated a statistically significant positive difference in the TQ one year after implementation between ECI-adopting firms and non-adopting firms. This finding meets our primary position that firms implementing ECIs perform better than firms that do not. As such, we conclude that the ECIs had fulfilled their designed affordances in improving firm financial performance via more productive OC. Firms apply different business orientations and various levels of resources to such orientations (e.g. towards marketing, customer, production or employee) to achieve their strategic goals (Lynch et al., 2012). In the second study, we further examine whether firms' IO towards cost efficiencies in production and operational activities, and CO towards delivering products and services to the market, strengthen (or weaken) the hypothesized causal relationship between firms' implementing ECIs and their financial performance. A moderated multiple regression analysis reveals significant path-dependent interaction between CO one year before and during ECIs implementation and ECIs itself on TQ one year after the ECIs implementation. Since we do not find any significant effect of IO on the causal relationship between ECI implementation and firm's TQ, we conclude that organizations that are strongly oriented towards marketing or commercialization activities prior to and during the implementation of new ECIs are better positioned to capitalize on their accumulated sociocultural understanding to generate value from novel and richer communication contents and media. Upon further investigation, we find evidence suggesting that fashion companies are aware of the importance of improving internal communication within and across business divisions and geographical locations. They also tend to implement ECIs to complement specific business orientations and enhance operational and firm performance outcomes.

Our research has made several significant contributions. First, despite the literature being generally positive about the potential and value contribution of ECIs, both

academics and practitioners have cautioned against companies being overly optimistic towards the adoption of enterprise-level social media and systems to improve performance (e.g. Davenport, 1998; Li, 2015; Rettig, 2007). Yet, to date, there has been no empirical study using quantitative data to investigate the effect of OC technologies on firm-level performance outcomes. Hence, our two studies using archival financial data seek to provide early empirical evidence that ECIs such as the deployment of OC technologies in organizations leads to improved firm performance. Second, our first study contributes to OM literature on enterprise systems' relationship with firm performance. Specifically, we demonstrate that firms adopting OC technologies such as UC and ESM attain better market value than those that did not. We believe this is the first study in OM to document the effect of OC technologies on firm level performance outcomes using archived financial data and event study approaches. Third, our second study reveals that the association between ECIs and firm market value varies depending on the firms' commercialization orientation, but not on its internal orientation. This finding suggests that firms devoting more effort into bringing their technological capabilities and products or services to the market prior to and during the ECIs are generally *readier* to actualize the technological affordances by the new OC technologies for better value creation. Fourth, we draw upon the emerging evidence of ECIs being adopted to organize fashion operations and businesses to illustrate the benefits of such technological implementations. In doing so, we direct scholarly attention to the increasing importance of OC and OC technologies in fashion and apparel industries.

In addition, we contribute to the theory about affordances and technology-related organizational change in the following ways. Affordance theory, which had originated from James Gibson, serves as the overarching theoretical concept guiding both our

studies (Gibson, 1966, 1977, 1979). “An affordance (or a constraint) is defined as an action potential; it is a *relation* between a technology with certain features and a users’ intent or purpose to which this technology is to be used” (Majchrzak et al., 2016, p.272; *emphasis mine*). By extension, “a technology affordance refers to what an individual or organization with a particular purpose can do with a technology or information system” (Majchrzak and Markus, 2013). By viewing ECIs as opportunities for firms to actualize value in our first study, we extend the technology affordance and constraints theory to include OC technologies in the association between technology and firm performance (Gaver, 1991; Majchrzak and Markus, 2013). From a temporality perspective, our event study approach captures the time span in which potential affordance is fully actualized and gets enacted in value-creating practices (i.e. OC; Shotter, 1983; Zammuto et al., 2007). In other words, we provide empirical evidence illustrating the transition from which the designed and potential affordance of OC technologies gets completely acted upon, till such affordances expire with firm market value added after the first year of ECI implementation. Though the same theoretical contributions can also be attributed to our second study, we further extend affordance theory to account for the role of specific business orientation in accounting for purposeful technology-related effects on firm performance. By demonstrating how ECIs can only create value for companies with strong and durable orientations towards commercializing or marketing their products or services, we provide quantitative evidence in locating the “sociomaterial imbrications” (or gradual overlapping, interlocking and mutually supporting processes; Leonardi, 2011, 2013; Sassen, 2002) of the material affordances of OC technologies within highly active and established marketing-oriented operations context. Hence, our empirical studies using quantitative methods augment the qualitative evidence and conceptual work on affordance theory and social technology materiality rapidly

accumulating in fields such as organization studies, sociology, information systems management and management science. Incidentally, we also introduce affordance theory and sociomateriality concepts to the OM audience.

1.4 Enterprise Communication Initiatives

1.4.1 Contents of Enterprise Communication Initiatives

At the turn of the 19th century, enterprises in the US began to evolve structurally from small local businesses into functionally departmentalized and geographically-dispersed organizations (Chandler, 1962). To systematically manage operations and performance, firms began to rely on recordable and impersonal written communications rather than on personal and informal oral communications at the workplace to maximize control over performance outcomes (e.g. scientific management, Taylor, 1911; Tompkins and Cheney, 1985). Most of these communication activities were conducted using non-electronic media such as paper-based, written or typewritten manuals, letters, memos, or reports. Upward, downward and lateral transmission of information often took place with OC media or channels such as telephone, fax, telegraph, mail, and in-person meetings (see Yates, 1993 for more details on the early history of OC technologies).

Since the 1990s, advances in both telephony and communications technologies have changed how we behave and communicate at work. Electronic online communication tools such as email, instant messaging, telephony based on voice-over-internet protocol and web conferencing software have now become ubiquitous in the workplace. Increasingly synchronous and interactive communication tools have become dominant. A variety of OC technologies have been unified into an information system infrastructure comprising of hardware, software, and applications that collectively deliver ICT-based services for corporate and business users (Peppard and Ward, 2016). These internal communications infrastructures have come to be known as UC, which

stands simply for the systemic integrating and merging of multiple message types, across multiple communication points, with an emphasis on presence management and collaboration (Evans, 2004; Riemer and Taing, 2009). With the novel affordances arising directly from the integration of these OC technologies, individuals from different work functions, geographic locations and time-zones can hold web conferences in place of physical in-person meetings. Emails and attachments are exchanged regularly to send digital copies of documents traditionally printed on paper and sent via postal mail or fax. Low-cost internet phone calls and instant messages are made and exchanged internally between coworkers from almost any location and at any time.

In recent years, following the widespread adoption of social media across the society, similar communications technologies have been developed for use in enterprises. Social media generally refers to “a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of user-generated content.” (Kaplan and Haenlein, 2010, p.61). Web 2.0 is “a platform whereby content and applications are no longer created and published by individuals, instead, are continuously modified by all users in a participatory and collaborative fashion.” (Kaplan and Haenlein, 2010, p.61). In organizational contexts, such platforms and applications are collectively referred to as Enterprise 2.0. Companies establish Enterprise 2.0 to “make visible the practices and outputs” of employees (McAfee, 2006, p.23), and acquire or develop applications to support group interactions and steer employees towards building communities through creation and exchange of content (Von Krogh, 2012). Specialized and dedicated software applications have also been developed by vendors such as Oracle, Cisco, IBM, and Yammer for Enterprise 2.0 purposes. These technological products include enterprise-

level social media that are “web-based platforms that allow workers to (1) communicate messages with specific coworkers or broadcast messages to everyone in the organization; (2) explicitly indicate or implicitly reveal particular coworkers as communication partners; (3) post, edit, and sort text and files linked to themselves or others; and (4) view the messages, connections, text, and files communicated, posted, edited and sorted by anyone else in the organization at any time of their choosing” (Leonardi et al., 2013, p.2). Other products include enterprise-level social networking applications that are intended to develop “in-house, private social networks that are restricted to employees and members with whom they are affiliated or have a business relationship” (Turban et al., 2011, p.202).

Information technology and communications technology have distinct roles and effects on organizations’ functional areas like operations and marketing (e.g. Bloom et al., 2014). Information technology involves storage, processing and accessing data and information (e.g. enterprise systems, ecommerce, project management). Communications technologies facilitate social interactions through wired and wireless infrastructure and networks (e.g. instant messaging, social media, email). Over the years, progress in the development of information and communications technologies associated with OC has been relentless, attracting much academic interest along the way. OC technologies have been studied widely, including but not limited to enterprise social media (e.g. Leonardi et al., 2013; Treem and Leonardi, 2013), enterprise social software (Von Krogh, 2012), enterprise social networks (Turban et al., 2011), enterprise 2.0 technologies (e.g. McAfee, 2006, 2009), unified messaging applications (Evans, 2004; Parker et al., 1999), computer-supported cooperative work systems or groupware (e.g. Grudin, 1994; Schmidt and Bannon, 1992), group decision support systems

(Desanctis and Gallupe, 1987), computer-mediated communication systems (Hiltz and Turoff, 1985), and OC media (Lengel and Daft, 1989; Rice, 1984).

Information technologies or enterprise systems such as ERP that have been typically studied in OM are production and operations systems that manage and control factors of production in the delivery of the products or services to customers (e.g. Hayes et al., 2001; Hendricks et al., 2007). Other examples typically categorized alongside ERP systems include business process management, business management, scheduling, and inventory management systems. Another common type of enterprise system is customer relationship management (CRM) that captures and stores customer contact and transaction data for later retrieval and further processing. Other applications associated with CRM include customer experience or loyalty systems, feedback and review systems, proposal or quoting software, sales management and customer intelligence tools. Electronic commerce (Ecommerce) technologies allow firms to manage the trades and transactions taking place online. Such technological solutions may integrate content management, electronic funds transfer, Internet marketing and advertising, inventory management, and customer data capturing modules. Hence, organizational implementation of initiatives associated with OC (i.e. ECI) are clearly different from other enterprise systems initiatives such as ERP or CRM deployment. Table 1.1 summarizes the differences between the enterprise systems traditionally investigated in OM, and the Web 1.0 and Web 2.0 applications examined in other disciplines.

Table 1.1 Differences between enterprise systems, Web 1.0 and Web 2.0 applications

ES/Tech	Description	Features (e.g.)	References
ERP	Interfaces between different functions in the firm with standardized and automated data collection and transactions	Enterprise data are collected once during the initial transaction, stored centrally, and updated in real time; helps production planning, inventory control, order tracking	Hendricks et al., 2007
SCM	Algorithms to coordinate planning and flow of materials and information among supply chain partners in real-time	Demand forecasting, production planning, parts purchasing, inventory control, product distribution	Hendricks et al., 2007
CRM	Facilitate long-term relationship building with customers	Sales force automation, customer contact data capture and mining, decision support, and reporting tools	Hendricks et al., 2007
Web 1.0	Sites where vast majority of users mainly consume or download contents	Information changes slowly due to update by centralized sources (e.g. publisher, administrator)	Cormode and Krishnamurthy, 2008
Web (Enterprise) 2.0	Platform where various technologies are hosted to allow users to be both content to consume and create contents	Information changes fast due to reactions to others' presence, profiles, contents & activities; timely automated alert on specific contents; see connections of connections; assume community roles	Cormode and Krishnamurthy, 2008; Majchrzak et al., 2013

1.4.2 Consequences of Enterprise Communication Initiatives

Before firms can realize any benefit from ECIs, it is necessary to understand first how the new technologies being adopted may impact firm operations. The relation between ECIs and implementing firm-level outcomes can be explained by the affordances or constraints of the technologies put into use. Technology affordance and constraint theory (TACT) has been applied extensively in technology and information system research in relation to ECIs (e.g. Faraj and Azad, 2012; Leonardi, 2011; Orlikowski and Scott, 2008; Vaast and Kaganer, 2013; Yoo et al., 2012). “Technology affordance refers to an action potential, that is, to what an individual or organization with a particular purpose can do with a technology or information system; technology constraint refers to ways in which an individual or organization can be held back from accomplishing a particular goal when using a technology or system” (Majchrzak and Markus, 2013). In particular, TACT has been applied to explain the positive performance outcomes of newly introduced OC technological affordances. For example, Leonardi (2014) found that the previously invisible communication contents and parties in a financial services

company became visible to employees due to the implementation of an enterprise social networking platform (i.e. an ECI). This platform helped improve innovativeness and knowledge creation across various levels by affording employees a new way to locate “who knows what and who knows whom” in the firm (Leonardi, 2014, p.796). Another example is the improvement achieved in employee individual innovation and task performance due to wider access to informational resources outside team environments on the new enterprise social software platform (Kuegler et al., 2015).

Notwithstanding the benefits, ECIs intending to enhance performance through better internal communication and collaboration may fail in at least two ways. From the TACT perspective (Leonardi, 2011; Majchrzak and Markus, 2013), technology affordances may fail to get actualized and integrated into performance structures due to reasons such as low user interest or operational relevance. Consequently, performance outcomes across various levels have remained unaffected by the ECIs. Indeed, studies have cautioned about the realities that ECIs and enterprise system deployments do fail due to non-adoption by employees or leaders (Davenport, 1998; Li, 2015). For example, research has suggested that leadership participation in ECIs is crucial in initiating exchanges with employees and stimulating user activities (Li, 2015; Li and Bernoff, 2011). When the new OC technologies introduced during ECIs are perceived by management or internal opinion leaders as threats to their authority and waste of time, their reluctance to use the new communication tools tend to be spread to subordinates and other employees (Li, 2015). As such, ECIs fail to become a change initiative because performance levels persist as new communication affordances remain unused while financial and labor costs to purchase, install and maintain the new tools are incurred.

Second, new technological constraints may also be introduced during ECIs that may disrupt routines and create negative influences on work processes. Even before the introduction of social media for internal communication, past studies have already shown that the extension of work email accessibility to employees' mobile devices as a form of ECIs has led to increase in perceived work stress (Barley et al., 2011). Specifically, employees interpret responding to work emails on their mobile devices outside company premises and working hours as workload increments. Indeed, numerous studies on work stress, technostress and job burnout have linked stress negatively to employee performance (e.g. Bakker et al., 2004; Hunter and Thatcher, 2007; Tarafdar et al., 2015). Enterprise social media used as a result of ECIs have also led to unprecedented or increased employee perceptions of work overload, invasion of privacy, work-family conflict, job insecurity, job uncertainty and job complexity (Bucher et al., 2013). By extension, employee perceptions of work situations such as job stress and subsequent performance decline get accumulated to significantly affect organization level valued outcomes (Bowen and Ostroff, 2004). Hence, ECIs may impose several direct and implicit constraints through users' interpretations of new OC technologies' presence, that in turn may impair individual performance and hold back cumulative accomplishment of organizational goals. In sum, both ECI failure scenarios are defined as such due to the financial loss of investment on the ECIs and the consequential insignificant or negative performance impacts.

1.5 Research Scope

In our study, ECIs cover the OC technologies companies that are adopted as initiatives to improve performance. By definition, OC technologies included in the studies should serve as a unified platform for employees across various locations to socialize and exchange information or digital materials. As such, OC technologies based on the

foundation of Web 2.0 and general aim of Enterprise 2.0 are included in our technological initiatives of interest. We exclude Web 1.0-based OC technologies, because users of such technologies were strictly content consumers as they can only browse published text-based and presentation-oriented contents on static web pages (Cormode and Krishnamurthy, 2008). We also include UC systems and tools because such OC technologies facilitate message exchange in a variety of formats, across multiple communication points, with emphasis on presence management and collaboration (Evans, 2004; Riemer and Taing, 2009). To reduce any potential cross-cultural bias, we limit our study only to U.S. publicly-listed companies adopting OC technologies offered mostly by North American, European and Australian vendors.

1.6 Dissertation Outline

Chapter 1 introduces the background, objectives, significance and scope of our research. A brief history of OC technologies is provided to bracket the specific types and nature of technologies we examine in our research. An outline detailing the structure of this dissertation is provided before the chapter is closed.

Chapter 2 begins with a review of the literature on ECIs, followed by a discussion of the communications-constitute-organization (CCO) view of organizations which underlies our studies. The technology affordance and constraint theory (TACT) is then discussed in due detail. This leads to the formulation of the hypothesis for the study in this chapter. The event study approach is then applied to investigate the cross-sectional performance difference in terms of Tobin's q (TQ) between ECI-implementing and non-implementing firms. Using the CCO and TACT concepts, we discuss the findings and implications from this study. A conclusion for this part of the study is also included.

Chapter 3 builds on the earlier study by introducing the lens of practice from the CCO framework in viewing OC activities as purposeful employee actions. It also expands the discussion of affordance theory by including the concepts of sociomaterial imbrication and path-dependent business orientations to frame our hypotheses. Specific firm-level activity intensities such as commercialization orientation (CO) and internal orientation (IO) are positioned as the operating contexts in which employee communicative actions and technology use take place. We adopt an event study approach in building our data set and conduct a moderated multiple regression analysis to examine the interaction effects of CO and IO with ECIs on firm value (i.e. TQ). As in the earlier chapter, we present the findings and discuss the implications of this study. A short conclusion is included.

Chapter 4 presents a series of short case studies to illustrate how ECIs are being adopted to organize fashion operations and business performance. These case studies illuminate not only the contents of ECIs implemented by fashion companies, but also the application contexts and intended outcomes of such ECIs. In doing so, we present the significant association between ECIs and various fashion companies' performance outcomes and update scholarly understanding of the latest ways in which fashion companies transform their businesses to meet demanding market conditions. Further, we identify potential research directions and direct scholarly attention to the increasing importance of OC and OC technologies in the fashion and apparel industries.

Chapter 5 synthesizes our arguments from all the studies and consolidates the key contributions and implications of our work. In sum, our first study reveals significant positive performance differences for ECI-implementing firms against non-implementing firms. Upon deeper analysis in our second study, we discover that such performance benefit is realized when firms have specifically strong and established

business orientations in the form of CO embedded in practice before and during ECI implementation. Our further investigation uncovers a new study area for scholars interested in fashion industry business management by highlighting the accumulating evidence and benefits of ECIs by fashion companies. Finally, and more broadly, we identify and discuss certain promising areas of OM research that may stem from our current work.

CHAPTER 2 ENTERPRISE COMMUNICATION INITIATIVES AND MARKET-BASED FIRM PERFORMANCE

2.1 Introduction

Organizational communication (OC) technologies are increasingly conditioning organizational structure, work processes, employee interactions, product and service innovation, decision making, and a host of other organizational experiences (Shockley-Zalabak, 2015). Historically, OC refers to the shared meanings constructed from social exchanges of information between people *within* an organization, which is “shaped by, and shapes” its task environment and formal structure (McPhee, 1985, p.150). Structure refers to the set of rules, schemas and resources that individuals and groups depend on in their work and which only can be experienced during operations or social activities (Perrow, 1967). Because employees communicate according to predetermined rules and technologies to maintain routinized behaviors, structure has been treated analytically separate from work processes and operations. However, OC scholars now view that organizations no longer shape communication, but are instead shaped by it (i.e. CCO; Ashcraft et al., 2009; McPhee and Zaig, 2000; Putnam and Nicotera, 2009). More specifically, organizational experiences such as work activities and processes are *negotiated* among employees as they share individual interpretations with others. Therefore, when OC technological initiatives (i.e. ECIs) are implemented, opportunities for novel context-dependent interpretations and behaviors arise as users interact via these new technological means. The novel interpretations and behaviors in turn influence how organizational structures (e.g. rules) are *maintained or transformed* (McPhee, 1985). As a result, performance outcomes become affected by the structural changes, and are consequentially changed.

Anecdotal evidence to date suggests that implementation of ECIs leads to improved performance outcomes and organizational social benefits. For instance, Plantronics, a leading audio headsets manufacturer, recognized that they have reached a point where relying on one product portfolio for further business growth was difficult. In 2012, its senior management decided to tap a new meeting technology (i.e. iMeet by PGI) to improve communication and collaboration between employees, with an overarching goal of developing new innovative products. Soon, a virtual platform emerged where one-on-one and group meetings between teams and employees from both within the U.S. and across the world enabled sharing of ideas and knowledge through user-generated contents like presentation slides, videos, and other related materials. Users were able to chat, send instant messages, hold web conferences, share documents in real-time, and build communities to manage projects and develop ideas. Jeffrey Seigel, vice-president of strategy and new business development expects productivity to increase by 6 to 28% and business performance to also improve as result of this ECI (PGI, 2012). In another example, Pearson, a global publishing house, adopted Jive's Neo in 2011 for 40,000 employees to hold "water-cooler" conversations online and find coworkers distributed across the organization to help with their daily work. Neo eventually hosted some 15,000 groups or communities and generated 300 to 500 pieces of new contents daily through corporate blogging activities. Productivity was improved as Neo replaced 170 intranets throughout Pearson's locations, and sales and marketing information was exchanged and searchable online in minutes, rather than days. Value created by an employee's intellectual contribution is also retained on Neo. Karen Gettman (Director of Learning and Collaboration) stated, "If someone leaves the company, we don't lose their work. It's a way to maintain our corporate property" (Cambie, 2012).

There are also important managerial implications for ECIs as young individuals who grow up using Web 2.0 tools such as Facebook and Instagram are beginning to enter the workforce. United Services Automobile Association (USAA), a Fortune 500 provider of financial products and services to U.S. military personnel and their families, implemented an Enterprise 2.0 system (“Nexus” based on Microsoft Sharepoint) to “facilitate the socialization, commitment, and organizational assimilation of new Generation Y (born between 1981 and 2000) hires into its IT organization” (Leidner et al., 2010, p.229). With 250 new employees getting integrated annually into its workforce, organizational commitment and morale was low prior to implementing Nexus. Previously, employees were not allowed to access third-party or personal social networking sites and were restricted to using email and phone calls for communication. Nexus primarily affords two types of uses, work-related and social-related. Work-related features on Nexus include internal online forums for discussing and sharing ideas and technologies, accessing information about guest speakers and their presentation materials, and organizing on-site training at other USAA departments or new-hire events. Social-related features include a sports portal to keep score and challenge coworkers to sports matches, instant messaging and blogs, individual user profiles for others to search and get acquainted, and directories of local restaurants and entertainment facilities near every USAA location. Nine employees who were later interviewed by researchers concurred that the introduction of Nexus had led to “better recruiting, higher morale, and better employee engagement” (Leidner et al., 2010, p.233).

Although ECIs may lead to better work coordination and collaboration, lower operating costs and better performance outcomes, but novel OC technologies deployment do not necessarily guarantee positive firm outcomes. Indeed, ECIs represent technological

occasions to re-characterize operations and condition emerging work behaviors. Work activities in turn are reinforced or changed over time due to the various meanings conferred by human users embedded in the communicative processes and practices (Barley, 1986; Pentland and Feldman, 2007). But employees may also develop unproductive patterns of technological usage and be unable to detach themselves from their personal activities while using company or personal communications technologies like social media. Furthermore, firms may risk employees misinterpreting use of social media or networking tools as being condoned at work, as they engage in communicative behaviors that lower productivity and value creation. For instance, there is a recent trend where employees use either their own or workplace computing resources for informal personal activities (see Figure 2.1). While the companies' intentions are positive, a survey conducted by the University of Michigan and Pew Research Center found that 34% of employees do access unsanctioned social media to psychologically detach themselves while at work; 27% stay connected with friends and relatives during work hours, and 17% informally build social capital at work or gather information about colleagues (Olmstead et al., 2015). Despite the evolution of OC technologies since 1990s, it is still inconclusive whether simply deploying ECIs generate higher productivity and firm value.

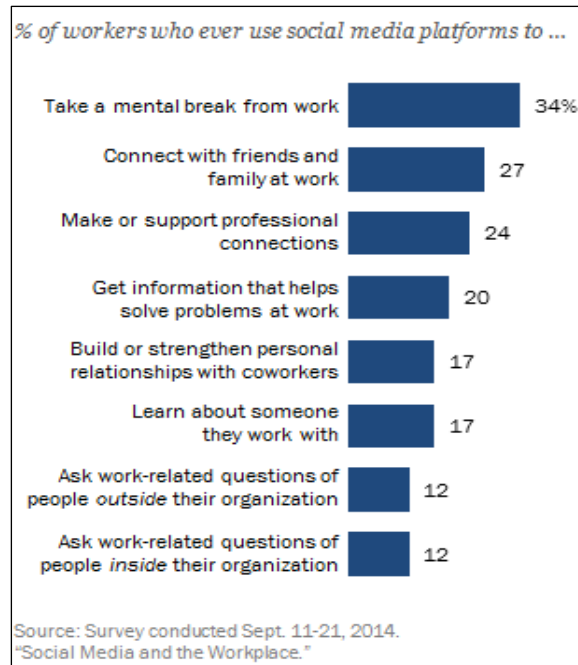


Figure 2.1 Social media use in the workplace

The overall aim of this chapter is as follows. First, this is a first study in OM to quantify evidence and analyze the effects of ECIs on firm-level financial performance outcomes in terms of market-value differences. Other studies have applied qualitative methods or performed analysis at the employee level to document the changes to work structures and benefits of deploying OC technologies (e.g. Böhringer and Richter, 2009; Brzozowski, 2009; Gergle et al., 2004; Huang et al., 2015; Leidner et al., 2010; Riemer et al., 2012). Hence, this chapter seeks to fill this void in literature by adopting a quantitative approach (event study) to investigate the cross-sectional firm-level performance effects of ECIs. Second, we introduce and integrate theories from both OC and technology management fields to explain differences in firm market-value between companies implementing and not implementing ECI. In doing so, we draw attention to the organizational self-structuring features of OC activities, and how novel OC technologies may alter the ways in which employees engage their work through its designed affordances. Taken together, the event study approach and theories we apply

in this study specify how the designed and potential affordances of the OC technologies during ECIs eventually come to be actualized, thereby producing firm value within a particular time frame. Finally, our study provides empirical evidence and theoretical guidance for practitioners seeking to introduce OC technologies such as enterprise social media and networking tools in their companies. By demonstrating a positive market-value difference between ECI-implementing and non-implementing firms, we also highlight the potential time window (one year) which managers have for actualizing the technological affordances from novel OC technologies. This finding suggests that firms may have to depart culturally from traditional structuring of routines to allow the affordances of OC technologies to integrate them into employees' quotidian work.

2.2 Literature Review and Theoretical Frameworks

2.2.1 Literature Review

Our study is related to multiple streams of literature located in different fields. The first stream of relevant literature relates to the positive effects of OC technology introduction. Leonardi (2014) undertook a six month field study in a large financial services firm which was implementing an internal social networking digital platform; and discovered that this platform allowed previously invisible communications occurring between employees to become visible to third parties. In sum, the deployment of this technology resulted in the formation of metaknowledge in employees. Metaknowledge in this case refers to the “knowledge of *who knows what* and *who knows whom*” (Leonardi, 2014, p.796). He concluded that metaknowledge leads to more innovation and less knowledge duplication as employees learn experientially with others and recombine ideas in a more efficient manner, rather than merely sifting through stored information. Hence, such a theory of communications visibility implies that there is employee to firm level

performance benefits because of changes to how communications are structured within the company. Huang et al. (2015) applied a game theory approach to analyze corporate blogging content creation and consumption in a Fortune 1000 company. Two trade-offs in employee blogging practices were modeled, one between blog reading and posting, and the other between work-related and leisure-related contents. They discovered that employees who gain utility from work-related blogging also posted a significant volume of leisure-related blog posts. This is due to positive spillover effect as leisure-related blog posts improves the readership of their work-related posts, thus improving work performances. Therefore, enterprise blogging by employees can cumulatively lead to firm performance benefits. Holtzblatt et al. (2013) undertook a longitudinal study of the benefits from a social software platform by using interviews and surveys. They found that business value is enhanced *indirectly* through improved team-based collaboration, development of collective knowledge, strengthening of social connections, and fostering situation awareness. Kuegler et al. (2015) found that OC technologies such as enterprise blogs, wikis and social networking sites positively impact individual employee non-routine task performance. The usage of OC technologies within teams too positively impacts individual task performance, while that between teams improves individual innovation performance. Denyer et al. (2011) presented a case study of a large multinational telecommunications company's deployment of an Enterprise 2.0 system comprising of web-based communities, social networking sites, wikis and blogs. Data was collected through interviews, relevant written documents and participant observation in three business units. Analysis of the transcripts and text documents revealed that enterprise-level users of the Enterprise 2.0 system perceived operational and marketing benefits such as improved product and service delivery. Other findings included improving employee access to organizational

and social resources within the firm, and time savings in OC. However, the researchers also found negative user perceptions towards the Enterprise 2.0 system, such as facilitation of coercive norms by management, serving as an outlet for anonymous ventilation of dissent, and further limitations on employee participation in decision making processes.

A second relevant stream of literature relates to the negative and mixed effects of OC technology introduction. Mazmanian (2013) found that the introduction of mobile work email and devices in a footwear manufacturer led to the formation of two different OC technology usage practices. One group of employees developed communication norms that avoided constant connectivity to the OC technology. Another group became constantly connected to the mobile email service and devices and reported loss of personal time. A question remains as to how the use and contribution of OC technology emerges and shifts over time in a given organization. Barley et al. (2011) found that the length of time users spent using a mature OC technology related to UC (e.g. email) contributes to their perceived stress levels. They also found that the properties of email have become entangled with individual interpretations of their work with this technology. As a result, users blame email (rather than the content emails convey) for their perceived workload increment and heightened stress levels. Bucher et al. (2013) designed and tested a survey measurement instrument on technostress and use of social media by more than 2,500 marketing and communication professionals. The items converge significantly on several factors such as perceived work overload, invasion or work-family conflict, job insecurity, perceived job complexity and uncertainty. This suggests that social media technologies may be exerting heavier psychological toll on individuals working in certain professions and functions. Butts et al. (2015) found that work-related electronic communications carry perceived affective tones which

significantly affect employee emotions such as anger and happiness. Specifically, negative affective tone in work communications is positively related to employee anger but negatively associated with employee happiness. The length of time spent on work-related electronic communications is also positively related to employee anger and perceived work-family conflict. Privitera and Campbell (2009) raised the valid concern of cyberbullying at the workplace and found that 10% of the male respondents in manufacturing industries were humiliated, ignored, socially excluded, intimidated or harassed at work via OC technological means. Additionally, the deployment of OC technologies can potentially increase the legal liability and business risks as employees may make or republish defamatory statements, unwittingly or intentionally commit harassment via the OC technologies, and inflict emotional distress through abusive or offensive communication (Kaupins and Park, 2011). Researchers have also cautioned about the risk of “cyberloafing” which involves employees “spending work time on the Internet for non-work related purposes” while pretending to be sourcing for information for work purposes (Kidwell, 2010, p.545). As mentioned already, employees may also spend working hours and use OC technologies to gather non-work-related information about their co-workers (Olmstead et al., 2015), or perceive novel OC technologies as coercive or as propaganda mechanisms installed by management (Denyer et al., 2011).

2.2.2 Theoretical Frameworks

Two sets of theories from the OC and technology management fields are adopted in our study. The first relates to the communications-constitute-organization (CCO) view of how OC produces order in organizations (Putnam and Nicotera, 2009; Taylor and Van Every, 1999). Traditionally, OC is defined “...as communication which is shaped by, and shapes, task processes and formal structure in the organization” (McPhee, 1985, p.150). Conventionally, communication activities that take place within organizations

or OC have been framed metaphorically as taking place in a conduit or container (Putnam, 1982; Putnam et al., 1996). Informational messages are viewed as concrete and tangible entities (Fisher, 1978), which are transmitted through authorized and structured channels or conduits contained within an organization (Putnam, 1982). However, the communicational bases of organizations have shifted as work-oriented social activities such as OC activities have become context-dependent sites subject to multiple meanings or individual interpretations (Gilbert and Mulkay, 1984; Taylor et al., 1996; Yates and Orlikowski, 1992). In other words, employees can interpret the same message or motives in the communication differently depending on the context. Hence, OC now “centers on the study of meanings, that is, the way individuals make sense of their world through their communicative behaviors” (Putnam, 1983; Weick, 1979, 1995). As such, the CCO theory was developed to explain OC and work activities where “generated shared realities become organizing, decision making, sense making, influence and culture” (Putnam and Nicotera, 2009; see also Shockley-Zalabak, 2015). In sum, OC is no longer about efficient and accurate transmission of standardized information but is “rather a complex process of continually creating and negotiating the meanings and interpretations” by individuals within an organization (Koschmann, 2012, p.2).

In CCO theory, McPhee and Zaug (2000) set forth the four sub-processes or communication “flows” which operate concomitantly to constitute organizations (i.e. making organizations what they are). The first flow, *membership negotiation*, refers to the communication activities in which organization members (who simultaneously can also be customers or members of other organizations; Gioia et al., 2000) carry out in designated manners (e.g. scripted behaviors) for their statuses to emerge (e.g. as employees, customers). The second flow, *reflexive self-structuring*, refers to the

enduring acts of communication and decisions (e.g. formalized processes) that steer operations or the organization in a fixed direction. The third flow, *activity coordination*, refers to the blending of novel and formal work behaviors with others in pressing situations which call for novel solutions (e.g. extra-role behaviors). Lastly, the fourth flow, *institutional positioning*, refers to social interactions with other stakeholders or agencies (e.g. customers, suppliers) to develop a position in the society. Notably, “any one message or (communication) episode can contribute to multiple flows (i.e. “types of social interaction”, p.8) at once, and processes identified as parts of one flow can overlap with interactions in other flows. These flows are not unidirectional or topically coherent” (Putnam and Nicotera, 2009, p.10). This excerpt suggests that OC technologies play a critical role in operationalizing work behaviors and their outcomes as “networks of communication episodes” (Blaschke et al., 2012). Users can be proactive at work and collaborate more readily with others via OC technologies, generate contents to enhance communication quality with others, and perform their otherwise routine work activities in novel ways based on newly acquired information from others. However, employees may also use such media for informal or unsanctioned personal communication which can negatively affect operational and firm performance outcomes (McPhee and Zaug, 2000; Olmstead et al., 2015). In sum, while OC technologies may offer companies opportunities to generate value from employees’ various interpretations and actions through OC activities, we cannot eliminate the possibility that such tools may also hold back companies from achieving their business goals as employees misinterpret and misuse these tools.

A second relevant theory is the technology and constraints theory (TACT). In this study, TACT is positioned as a theoretical framework that explains the effect of a communications technological implementation on firm performance outcomes. To

study the effect of such technologies on firm performances in contemporary contexts, we must consider the “dynamic interactions between people and organizations and the technologies they use” (Majchrzak and Markus, 2013, p.833). The notion of affordances is useful in understanding the relational tension between new technologies and tasks, particularly the opportunities and potential for task takers to add value through their use of technological features and subsequent actions (Gaver, 1991). Affordance theory was developed originally by James Gibson to articulate the relation between a living organism and its environment. “The *affordances* of the environment are what it *offers* the animal, what it *provides* or *furnishes*, for good or ill.” (Gibson, 1979, p.127). Therefore, the affordance of a technology artifact like an OC technology (e.g. enterprise social media, unified communications system) refers to its perceived and actual properties which determine how it can or cannot be used (Gaver, 1991; Majchrzak and Markus, 2013; Norman, 1999). Technology affordance thus refers to “an action potential; that is, to what an individual or organization with a particular purpose can do with a technology or information system; technology constraint refers to ways in which an individual or organization can be held back from accomplishing a particular goal when using a technology or system” (Majchrzak and Markus, 2013, p.833).

2.3 Hypothesis Development

In general, both anecdotal and empirical evidence suggests that the effect of OC technology introduction remains inconclusive. Further, extant empirical studies have mainly focused on the employee or team level of analysis or applied qualitative methods in their data collection and analysis. In this study, we apply the event study approach to address the lack of empirical studies using quantitative evidence to investigate the effect of OC technologies introduction (i.e. ECIs) on firm-level performance outcomes (i.e.

market value in terms of Tobin's q). Applying TACT from a CCO perspective, ECI-implementing firms are likely to experience positive performance differences as compared to non-implementing firms. This is because of the various novel opportunities for goal-oriented action that employees can undertake to alter their communicative patterns and contents with one another through the new OC technologies. As a reflection of value being cumulatively added through the altered employee communicative and work-related actions, we argue that the ECI-implementing firms' market value, that is, their Tobin's q (TQ) is likely to improve better than non-implementing firms. However, ECI-implementing firms may also create opportunities for employees to be distracted from their value-adding communication and work activities through the new OC technological features. As a result, their performance and market value may also be adversely affected and constrained as compared to non-implementing firms. Noting the potentially symmetrical performance outcomes that ECI implementation may have on firms, we propose:

Hypothesis 1 (H1). The ensuing market value of ECI-implementing and non-implementing firms are significantly different from each other.

2.4 Methodology

2.4.1 Data Collection

The primary aim of this study is to investigate whether ECIs have any differentiating effect on firm value in terms of TQ. We proceed with this investigation in two phases. Firstly, we search for announcements of firms which have implemented ECIs. Specifically, we use keywords such as "enterprise social media", "enterprise communications systems", "enterprise social network", "unified communications", and names of OC technologies (e.g. Yammer, Cisco Quad, Jive) to search for

announcements on Factiva between the year 2000 and 2015. Table 2.1 shows the distribution of the years of ECI implementation. Due to a lack of announcements on Factiva for our purpose, we compiled a list of major OC technology vendors and search for news release and case studies on their corporate websites. We also accessed a practitioner community portal for OC or organizational internal communications which published cases of enterprise or OC technology implementation, and interviews with senior technology officers who oversaw and implemented the initiatives of interest (e.g. www.simply-communicate.com). Appendix A1 presents samples of announcement or case study from each source. Secondly, to compute TQ for measuring the firms' performance outcomes, we searched for publicly disclosed accounting and financial reported information of U.S. firms in Compustat provided by Standard & Poor's via the Wharton Research Data Services (WRDS) platform (wrds-web.wharton.upenn.edu).

Table 2.1 Distribution of ECI implementation years (t)

Year	NO. of Firms	% of Firms
2000	3	1.99%
2001	7	4.64%
2002	5	3.31%
2003	2	1.32%
2004	1	<1.00%
2005	1	<1.00%
2006	8	5.30%
2007	7	4.64%
2008	15	9.93%
2009	16	10.60%
2010	13	8.61%
2011	18	11.92%
2012	17	11.26%
2013	14	9.27%
2014	18	11.92%
2015	6	3.97%
Total	151	100.00%

Altogether, we located 274 unique company announcements from U.S. firms which had implemented ECIs such as enterprise social media or united communications systems. Eventually, we retained 151 announcements and rejected the other cases due to the

following reasons. First, some firms were not publicly listed on U.S. stock exchanges prior, during or after their ECI announcements (i.e. private firms). Second, some firms were subjects of merger and acquisition (M&A) activities, and their accounting reporting structure or company names were changed subsequently, thus rendering their data unverifiable and unsuitable for our comparison purposes (e.g. focal firm implemented an ECI just before being merged into other firms). Third, even when some firms were listed prior till after their ECIs, certain data were somehow missing from the data sets provided via WRDS despite us checking the data sets several times from January to June 2017. Fourth, some cases represented deployment of the technology of interest in specific departments or divisions (i.e. not organization-wide). As a result, we had to drop 123 of the cases. Table 2.2 shows the distribution of the focal firms' industrial sectors sampled in our studies.

Table 2.2 Distribution of sample firms' industry sectors

Two-Digit SIC code	NO. of Firms	Industry	% of Firms
73	41	Business Services	27.15%
36	11	Electronic & Other Electrical Equipment & Components	7.28%
35	8	Industrial and Commercial Machinery and Computer Equipment	5.30%
37	6	Transportation Equipment	3.97%
59	5	Miscellaneous Retail	3.31%
20	4	Food and Kindred Products	2.65%
27	4	Printing, Publishing and Allied Industries	2.65%
28	4	Chemicals and Allied Products	2.65%
48	4	Communications	2.65%
49	4	Electric, Gas and Sanitary Services	2.65%
60	4	Depository Institutions	2.65%
67	4	Holding and Other Investment Offices	2.65%
13	3	Oil and Gas Extraction	1.99%
45	3	Transportation by Air	1.99%
58	3	Eating and Drinking Places	1.99%
61	3	Non-depository Credit Institutions	1.99%
63	3	Insurance Carriers	1.99%
87	3	Engineering, Acing, Research, and Management Services	1.99%
99	3	Non-classifiable Establishments	1.99%
16	2	Heavy Construction, Except Building Construction, Contractor	1.32%
32	2	Stone, Clay, Glass, and Concrete Products	1.32%
38	2	Measuring, Photographic, Medical, & Optical Goods, & Clocks	1.32%
53	2	General Merchandise Stores	1.32%
64	2	Insurance Agents, Brokers and Service	1.32%
10	1	Metal Mining	<1.00%
15	1	Construction - General Contractors & Operative Builders	<1.00%
21	1	Tobacco Products	<1.00%
22	1	Textile Mill Products	<1.00%
23	1	Apparel, Finished Products from Fabrics & Similar Materials	<1.00%
26	1	Paper and Allied Products	<1.00%
29	1	Petroleum Refining and Related Industries	<1.00%
30	1	Rubber and Miscellaneous Plastic Products	<1.00%
33	1	Primary Metal Industries	<1.00%
39	1	Miscellaneous Manufacturing Industries	<1.00%
42	1	Motor Freight Transportation	<1.00%
44	1	Water Transportation	<1.00%
51	1	Wholesale Trade - Nondurable Goods	<1.00%
54	1	Food Stores	<1.00%
55	1	Automotive Dealers and Gasoline Service Stations	<1.00%
57	1	Home Furniture, Furnishings and Equipment Stores	<1.00%
62	1	Security & Commodity Brokers, Dealers, Exchanges & Services	<1.00%
70	1	Hotels, Rooming Houses, Camps, and Other Lodging Places	<1.00%
75	1	Automotive Repair, Services and Parking	<1.00%
80	1	Health Services	<1.00%
82	1	Educational Services	<1.00%
Total	151		100.00%

2.4.2 Event Study Approach

To demonstrate the theorized differences in the market value (i.e. TQ) between ECI-implementing and non-implementing firms, we adopt the event study approach in building the dataset for our analysis (Barber and Lyon, 1996). We matched ECI-implementing (sample) firms with non-implementing (control) firms based on several control criteria. First, we identified control firms that had the same two-digit SIC code with each sample firm, and whose ROA was within 90% to 110% of the sample firm one year before the event (i.e. $t-1$; Barber and Lyon, 1996; Hendricks et al., 2007). Second, matching by size was found to have little impact on industry-matched results (Corbett et al., 2005; Hendricks and Singhal, 1997). Instead, we matched the shortlisted control firms with the respective sample firms by their asset tangibility. Asset tangibility refers to the ratio of tangible assets to total assets, which directly affects a firm's ability to pledge such assets to obtain external financing (Almeida and Campello, 2007). We use TQ to indicate the performance outcome difference between sample and control firms, which includes a debt component in its computation (Bharadwaj et al., 1999; Chung and Pruitt, 1994). Because of the direct impact asset tangibility has on debt, we matched control firms whose asset tangibility is within 90% to 110% of the sample firms at $t-1$. Third, we also matched the control firms' ratio of intangible assets to total assets to within 90% to 110% of sample firms at $t-1$ because of the impact of such current assets on short-term financing (Barclay and Smith, 1995). Sample firms without any suitably matched control firms were discarded, thus leaving us with 119 pairs of matched firms for analysis. Table 2.3 presents the descriptive statistics of the financial and performance data for the pooled sample and control firms.

We then compared the performance outcome changes by using the time horizon covering the ECI implementation by a sample firm. OC technology (e.g. unified

communications, enterprise social media) whether cloud- or premise-based, typically takes less than one year, sometimes just a few weeks to implement even for fairly complicated systems (e.g. CISCO; Esfahani and Siddiqui, 2011). Thereafter, it depends on the users to activate their new user accounts or equipment (if any) and set up their communication activities via the new media or platform. Moreover, many projects are subject to aggressive completion deadlines and strict management review within the fiscal year. Therefore, to capture firm-level outcome changes due to such technological implementations, we use fiscal year as our time unit. The fiscal year in which the ECI is implemented or the event year is referred to as t , one fiscal year before and after are $t-1$ and $t+1$ respectively, and so forth. Because we are interested in the long-term effects of ECIs, we extracted accounting data and computed TQ for three consecutive years before and after, as well as the fiscal year of implementation itself (i.e. $t-1$, $t-2$, $t-3$, t , $t+1$, $t+2$, and $t+3$).

In our study, abnormal performance refers to the change in the sample firm's performance (i.e. TQ) between two fiscal years (i.e. actual performance) minus the change in the corresponding control firm's performance (Barber and Lyon, 1996; Hendricks et al., 2007). TQ is defined by Chung and Pruitt (1994) as "the ratio of the market value of a firm to the replacement cost of its assets" (p.70). Following previous operationalization of TQ in OM (e.g. Bharadwaj et al., 1999), we approximate the performance outcome variable TQ as follows:

$$TQ_{it} = \frac{(MVE+PS+DEBT)_{it}}{TA_{it}}$$

Where MVE is the product of the average share price of firm i at year t , and the number of common stock shares outstanding. PS refers to the liquidating value of the firm's outstanding preferred shares; DEBT is the difference between current liabilities and

current assets plus book value of the inventory and long-term debt. Finally, TA refers to the book value of total assets, which allows us to eliminate scale biases due to different firm sizes in terms of their assets, liabilities and equity.

Table 2.3 Descriptive statistics of matched sample and control firms at year t-1

	Sample Firms				Control Firms			
	Returns on Asset-ROA (\$)	Fixed Assets/Total Assets [#] (%)	Current Assets/Total Assets (%)	Tobin's q ^a	Returns on Asset-ROA (\$)	Fixed Assets/Total Assets [#] (%)	Current Assets/Total Assets (%)	Tobin's q ^a
Mean	74,965.67	39.00	37.00	1.37	68,319.31	42.17	36.33	1.54
Std.Dev.	118,466.63	34.53	25.24	1.15	110,002.52	37.58	24.51	2.28
Min.	-505,774.43	0.30	4.00	0.06	-463,075.31	0.16	1.07	0.05
Max.	591,020.02	156.01	94.39	8.39	381,368.43	148.72	98.20	23.75
N	119	119	119	119	119	119	119	119

[#] Definition of “asset tangibility” based on Almeida and Campello (2007)

^a Tobin's q measure based on Bharadwaj et al. (1999) and Chung and Pruitt (1994)

2.4.3 Analytical Approach

Barber and Lyon (1996) found that non-parametric tests are more powerful than parametric tests for event studies using financial data. The choice of the statistical test to apply depends on the distribution of the abnormal performance data. The non-parametric Wilcoxon signed-rank (WSR) test is usually applied when abnormal performance is normally distributed, and the sign test is used when the abnormal performance is skewed in its distribution (Conover, 1998). For completeness, we apply both parametric (i.e. the paired-sample *t*-test) and non-parametric (i.e. the WSR and sign tests) statistical tests commonly used in event studies for our analysis (e.g. Corbett et al., 2005; Hendricks et al., 2007).

2.5 Results

Table 2.4 presents the results for the sample of firms that implemented ECIs. The results are arranged in chronological order of the time periods. The column “time period” shows the event periods for changes in TQ, where *t* is the year of the ECI implementation by sample firms. The column “N” shows the sample size for the period,

and “TQ Mean” shows the abnormal TQ changes in the respective time periods. The sample sizes across different time periods differ due to the lack of financial data for certain years. In such cases, we further discarded the sample firms and the matching control firms from our analysis. We report TQ changes from time periods before the ECIs (e.g. “ $t-3$ to $t-2$ ” and “ $t-2$ to $t-1$ ”) to reveal any systematic bias in the TQ prior to firms’ implementation of ECIs. We also include time periods after the ECIs implementation for the same reason (e.g. “ $t+1$ to $t+2$ ” and “ $t+2$ to $t+3$ ”). From both parametric and non-parametric test results, we found support for our hypothesis, specifically in the “ t to $t+1$ ” time-period. This suggests that the mean abnormal performance TQ significantly improved just one fiscal year after ECI implementation ($p < .01$; based on all three paired-sample t -test, WSR and sign tests). We did not find any other statistically significant changes in TQ over other time periods.

Table 2.4 Parametric and non-parametric performance change results

Time period	N	TQ Mean	TQ p-value (t-test)	TQ p-value (WSR test)	TQ p-value (Sign test)
t-3 to t-2	111	0.093	.780	.742	.343
t-2 to t-1	116	0.519	.538	.436	.642
t-1 to t	119	-0.082	.379	.211	.359
t to t+1	119	0.298	.000***	.000***	.000***
t+1 to t+2	103	-0.149	.329	.875	.844
t+2 to t+3	83	0.008	.908	.761	.999
t-2 to t	116	0.460	.603	.521	.781
t-1 to t+1	119	0.216	.060	.085	.271
t-1 to t+2	103	0.001	.998	.720	.431
t-1 to t+3	83	0.133	.460	.476	.826
t-2 to t+1	116	0.707	.440	.565	.642
t-2 to t+2	101	1.010	.329	.862	.999
t-2 to t+3	82	1.221	.323	.812	.999

*Both parametric and non-parametric tests are two-tailed: * $p \leq .1$; ** $p \leq .05$; *** $p \leq .01$*

2.6 Discussion and Conclusion

We adopted the event study approach and applied both parametric and non-parametric statistical tests to investigate whether there was a theorized difference in performance outcomes in terms of market value (i.e. TQ) between ECI-implementing and non-implementing firms. The results indicated that firms which had implemented ECIs such as deploying enterprise social media tools or unified communications systems achieved better market value one year after such implementation as compared to non-implementing firms. Thus, our study added to the enterprise systems literature in OM by using a quantitative method and statistical analysis of the effects of OC technologies on firm-level performance outcomes. By integrating the literature streams and theoretical concepts from OC and the technology management fields, we argue that the technological affordances from the novel features of the OC technologies enable firms to generate value from the communicative and work-related actions of its employees.

From here on, we detail the significance and implications of this study. We suspect that the success of ECIs may be contingent on other factors; the suspicion underlies the motivation for our next study. Limitations and future research are also discussed towards the end of this chapter.

2.6.1 Theoretical and Managerial Implications

Both academic and practitioner studies on technologies designed to facilitate communication within firms have associated positive performance benefits with firms' deployment of such technologies (e.g. Cambie, 2012; Leidner et al., 2010). However, most of the studies to date have relied on qualitative methods or analyses at the employee level (e.g. Böhringer and Richter, 2009; Huang et al., 2015; Leonardi, 2011). Moreover, studies on the effects of enterprise systems on operational and firm level performances in OM have traditionally focused on ERP, CRM, and SCM systems (e.g.

Bharadwaj et al., 1999; Hendricks et al., 2007). Therefore, this study represents an early effort in demonstrating the positive effect that OC technologies have on firm-level outcomes. The firms sampled in our study represent a diversity of industries (see Table 2.2), and our dataset contained ECIs from years 2000 to 2013 (see Table 2.1; sample cases from 2014 and 2015 have been discarded due to lack of financial data). Hence, we believe that implementation of ECIs generally is beneficial to short-term value-creation (i.e. in the first year).

By integrating the CCO view of organizations and the TACT view (Majchrzak and Markus, 2013; McPhee and Zaugg, 2000), we propose that the interactive nature of more recent OC technologies provides opportunities for employees to engage in more productive communicative and work-related activities. Through such highly interactive OC technologies, firms can accumulate employee-generated contents on a unified platform. In turn, the information exchanged or retrieved by users perpetuates a virtuous cycle of productive internal communications and work actions. Furthermore, employees can readily seek out one another to collaborate and coordinate activities related to their individual work goals via social networking or instant messaging services. As a result, the nature of work for ECI-implementing firms shifts from one that is characterized by highly routinized behaviors to one that is emergent and evolving (Pentland and Feldman, 2007). Employees also get better assimilated into their working environment via these OC technologies, as they can communicate with others at work just like when outside work using social media tools which have similar features. Hence, such adaptabilities bring about more efficient communication and facilitate resolution of novel problems at work, as individuals are able to instinctively and habitually seek out others who may be able to help them (i.e. communications visibility; Leonardi, 2014). Also, technological affordances by ECIs helps to better orientate the firm's

activities towards its organizational purpose (e.g. financial performance goals) through OC.

In addition, we contribute to the theory on TACT and firm performance changes by establishing OC technologies as another form of enterprise system that has a positive effect on firm market-value. We also provide empirical evidence validating affordance theory from a temporality perspective. Specifically, our event study approach has allowed us to capture the value created (i.e. t to $t+1$) in firms' implementation of ECIs. Because of this finding, we are able to support the theoretical argument that the design and potential affordances of OC technologies can indeed be actualized and embedded within organizational practices (Majchrzak et al., 2016; Zammuto et al., 2007). Incidentally, we also introduce the theory of technological affordance to the OM field. TACT also informs us that technology can constrain an adopting firm's performance. Indeed, academics and practitioners have cautioned against companies being overly optimistic in the adoption of enterprise social media to improve performance (e.g. Davenport, 1998; Li, 2015; Rettig, 2007). However, we did not find any significant support for this caution from our study. Nevertheless, one practical implication of our finding is that the value-adding potential of OC technologies is limited to one year after implementation. Therefore, we speculate that firms which are generally able to deploy ECIs throughout the organization efficiently within a brief period tend to actualize the affordances and benefits from such OC technologies. Following anecdotal evidence from case studies of ECI-implementing firms (e.g. Leidner et al., 2010), we believe that OC technologies which operate similarly to publicly-available Web 2.0 technologies such as Facebook or LinkedIn, tend to become more readily accepted by employees, which in turn can improve their work performance as they communicate better with their colleagues from different locations or departments.

2.6.2 Limitations and Future Research

Our study in this chapter has three limitations that can motivate future research. First, we had assigned firms arbitrarily into two groups based on published reports or case studies of their ECIs. In doing so, we could not fully eliminate the possibility that the control firms we matched with the sample firms too had implemented some sort of ECIs. Indeed, we simply assumed that firms with no such published information had not implemented any ECIs. A primary data collection approach such as conducting a survey of firms may yield a more representative sample. Second, we did not theorize any directional causal relationships between the variables used in our study. Hence, we believe this event study of performance outcome changes and differentiation between two groups of firms, is a preliminary study uncovering more complex phenomena inherent in the implementation of OC technologies.

Third, business leaders have cautioned against assuming that simply deploying new OC technology will lead to rapid adoption by firm employees and performance improvement (CIO, 2013). Gartner reported that despite the observation that some 50% of large organizations having “internal Facebook-like social networks” by 2016, an estimated 80% of new OC technology deployment may fail due to lack of other social initiatives supporting its deployment (Van der Meulen and Rivera, 2013). Despite our preliminary finding that ECI-implementing firms experience improved market value as compared to non-implementing firms, we could not assume that such an effect was indeed true under all conditions. Because newer OC technologies that are social in nature influence and constrain certain behaviors on top of affecting the way employees interact and share resources among one another (Kane, 2015), we suspect that the realization of business value from ECIs may be contingent on other organizational

factors. Future studies may investigate contextual conditions which can significantly moderate the effects of ECIs on firm performance.

2.6.3 Conclusion

In this chapter, we have discussed the effects of OC technologies and introduced the CCO perspective of organizations. TACT was also introduced to theoretically hypothesize a symmetrical difference between ECI-implementing and non-implementing firms in terms of their market-value (i.e. TQ). We have used the event study approach to build our dataset and applied both parametric and non-parametric statistical tests in our analysis. The results indicate that ECI-implementing firms achieved better TQ one year after their ECIs, as compared to non-implementing firms. Hence, this finding supports the view that OC technologies based on Web 2.0 technological foundations provide novel opportunities for corporate users to communicate and conduct their work. However, we have also noted the limitations of our methodology, and suggested that ECIs' effect on firm performance may not hold true under all conditions. Therefore, we propose future researchers to explore the contextual conditions under which ECIs can affect firm performance.

CHAPTER 3 THE ROLE OF ORIENTATION TOWARDS COMMERCIALIZATION IN ENTERPRISE COMMUNICATION INITIATIVES AND FIRM VALUE CREATION

3.1 Introduction

The success of any enterprise lies in its business strategy, which tends to follow a certain philosophy to guide specific activities and operations to match market opportunities and competitive threats (Grant, 1991; Khandwalla, 1976; Venkatraman, 1989). Such philosophies are held and influenced by upper echelons and top executive characteristics, which often leads to a bias in the definition of business problems, and the nature and scope of relevant activities to resolve such problems (Miles and Snow, 1994; Miles et al., 1978). As a result, firms get oriented towards specific business activities as they try to balance two main business orientations (i.e. internal or production orientation and external or market orientation) or simply operate with either as a dominant orientation (Miles and Snow, 1994; Miles et al., 1978). On one hand, firms traditionally operate with a dominant internal orientation (IO) and define their businesses by the extent to which their production of services or products are cost efficient, optimally standardized and value generating (Aguilar, 1967; Cravens et al., 1987; Olson et al., 2005a; Peterson, 1989). On the other hand, “the marketing concept says that an organization’s purpose is to deliver needs and wants in its target markets and to satisfy those needs more effectively and efficiently than competitors” (Slater and Narver, 1998, p.1001). Hence, other firms veer towards directing more of their resources into marketing programs and orientate their activities towards serving their target markets and customers (Jaworski and Kohli, 1993; Kohli and Jaworski, 1990). Firms also invest resources in marketing and communicating their innovations such as

new products or services to other external stakeholders as well as their customers (i.e. commercialization orientation; Jolly, 1997; Lin et al., 2006).

With the advent of social media and digital technologies, businesses are now “moving beyond marketing” and increasingly use social media and software to “enable connections between people, information and assets” both within the enterprise and externally towards other stakeholders to create business value (Kane et al., 2014, p.13; Kiron et al., 2012, p.5). Technology management researchers treat technologies as material artifacts closely linked with operations (Kallinikos et al., 2013). In OM, firms traditionally rely on information and communications technologies such as enterprise systems to sustain or improve a range of performance outcomes (e.g. Aral and Weill, 2007; Bharadwaj et al., 1999; Hendricks et al., 2007). However, OM researchers are now getting interested in the adoption of social media for internal communications or OC technologies to improve employee and operational performance; (e.g. Huang et al., 2015; Lam et al., 2016). Except for the few recent studies cited above, OM research on ECIs and OC technologies is currently sparse. We believe that OM scholars, like other technology researchers, are just starting to discover the relevance and value of social media and OC technologies. Although the adoption of OC technologies by firms is clearly a strategic decision intended to improve business operations and performance outcomes through better interconnected firm resources, it remains unclear as to whether firm value is derived directly from the introduction of OC technologies (i.e. ECIs), or strategically generated in practice driven by a certain business orientation.

In this study, we view the introduction of OC technologies in firms (i.e. ECIs) as occasions for extant practices and social structures (e.g. OC) to change (Barley, 1986). Instead of assuming like in most empirical studies (i.e. technologically determined), that performance changes result autonomously from ECIs, we argue that the direction

of performance changes is dependent on the strength with which historical and concurrent business orientations and related activities become *intertwined* with the newly introduced OC technologies' affordances (i.e. sociomaterially imbricated; Leonardi, 2009, 2011).

The overall goal of this chapter is to show empirically how the technologically determined view of the inevitable effect of ECIs on firm performance outcomes (i.e. TQ) gets superseded by the view that mutually constitutive and interactive effect of strong business orientation and ECI implementation can have on firm performance. In doing so, we make the following contributions. First, we complement the theory of technology affordances and constraints (TACT) with the theories of practice and sociomaterial imbrication. This is to update the prevailing understanding of OM beyond technological deterministic views of how technological initiatives affect firm level performance outcomes. We adopt these theories to build our hypotheses and use an event study approach to build our data set for testing the hypotheses. A subsequent regression analysis provides statistical support in showing how commercialization oriented (CO) practice can intertwine with ECIs (rather than being determined directly by ECIs) to positively impact firm performance outcomes. Second, we sensitize readers to the path-dependent aspects of CO and how its sequential interaction with ECIs leads to the ensuing positive firm performance outcome in terms of TQ. Specifically, we show how the strength of CO a year prior and during the year of ECIs establishes practical contexts in which to complement the technological affordances and use of the newly introduced OC technological features for firm value creation. Third, our study's methodological approach provides a way of temporally bracketing and accounting for the processual effect of CO and ECIs on ensuing firm performance outcomes (Pozzebon and Pinsonneault, 2005). We apply Barber and Lyon (1996)'s event study approach to

temporally isolate the variables by their fiscal years and compute the subsequent abnormal TQ changes, in order to investigate the inter-relationships between them.

3.2 Literature Review and Theoretical Frameworks

3.2.1 Literature Review

There are two main streams of literature relevant to this chapter. The first relates to conditions of firms' external business orientation or strategic focus under which technological initiatives or spending affect their performance outcomes. Zahra and Covin (1993) presented an early study of the potential influence that a company's intended long-term course of action (i.e. business strategy) could bear on its technology-performance relationship. Their survey of top business leaders revealed that "business strategy moderates the relationship between technology policy and firm performance" (p.470). Hence, the fit between companies' choices of technology and business strategy is an important predictor of firm performance (Zahra and Covin, 1993). Dewan and Ren (2011) examined the moderating effect of firm-level boundary strategies (e.g. diversification and vertical integration) on the causal relationship between firm information technology investment and risk-return financial performance. They found that "increased IT investment combined with greater firm diversification results in higher returns and lower risk, over and above the direct effects of IT investments on firm risk and return performance" (p.370). Tanriverdi (2006) examined the effect of cross-unit information technology synergies on firm performance. Specifically, the diversification level of a firm (i.e. the extent to which the firm operates in distinct business segments or industries) positively moderates the relationship between information technology synergies between business units and firm performance. Song et al. (2007) found that market-linking strategic capabilities (such as leading industry change, securing stable market niche) complement firms'

information technology capabilities in improving firm financial performance. Li and Ye (1999) demonstrated that greater environmental changes and more proactive strategic orientation (e.g. market expansion) strengthen the relationship between a firm's investment into information technology investment and performance. Swamidass and Kotha (1998) found that that computation-enabled advanced manufacturing technology does not directly lead to firm performance. They explain that firms invest in computing technologies not to directly improve firm economic performance, but do so through capitalizing on strategic opportunities and creating non-financial benefits. Also, firm size is of little relevance to the technology-performance relationship, because the complementarity between strategy fit and technology is more critical for firm performance improvement (Swamidass and Kotha, 1998; Ward et al., 1994).

A second relevant stream of literature relates to the strategic internal operating and organizational resource conditions which influence the effect of technological initiatives on performance outcomes. On one hand, firms may allocate resources in operating traditionally with a dominant internal orientation (IO) towards service or product production cost efficiencies and optimization of value through standardization (Aguilar, 1967; Cravens et al., 1987; Olson et al., 2005a; Peterson, 1989). On the other hand, firms may balance IO or operate with a dominant commercialization orientation (CO) towards marketing and communicating their innovations and products or services to target markets and customers (Jolly, 1997; Kohli and Jaworski, 1990). Barney (1991) highlighted the imitability of physical information processing or computing technologies and noted that such technologies are unlikely to sustain a firm's competitive advantages on their own. However, he opined that "an information processing technology that is deeply embedded in a firm's informal and formal

management decision-making process may hold the potential of sustained competitive advantage” (p.114). In other words, the association between technology and organizational members’ actions must be linked intimately to generate an efficient flow and exchange of information to support ongoing strategically business-oriented decisions and practices. Building on Barney's (1991) resource-based view of sustaining competitive advantages, Melville et al. (2004) viewed information technology to be special support system distinct from other organizational resources. They discussed how the complementarity between these two sets of resources are important determinants of firm performance. Non-information technology resources may include but are not limited to human capital (e.g. knowledge, non-computing skills), capital or financial resources, workplace practices, culture and behavioral norms. Devaraj and Kohli (2003) argued that the impact of information technologies on firm performance is not driven by the level of technology investment but by other factors. Using objective longitudinal data from eight hospitals, they came up with empirical evidence showing that technology user activity levels too can drive firm performance. However, they did not posit any predictors of user activity levels. Olson et al. (2005b) highlighted how internal activities oriented towards the creation of competitive advantage (i.e. strategic behavioral orientations) such as internal orientation (focus on operational excellence) can complement information technologies in delivering competitively advantageous performances for firms (e.g. JetBlue). Colquitt et al. (2002) used experiments to demonstrate how computer-assisted (mediated) communication improves the decision-making performance of teams when the team members are highly open to experience. They showed that team members who tend to be intellectually curious, emotional, and action-oriented (i.e. open to experience) communicate and perform better with computer-assisted communications technology than through face-to-face interaction

with others. Straus and McGrath (1994) demonstrated that the richness of communication media in transmitting social cues such as facial expressions, affective tones in voice and eye contact strengthens the positive relationship between group member task interdependency (or need for coordination) and group performance or group member satisfaction. Studies by Colquitt et al. (2002) and Straus and McGrath (1994) revealed the interactive effect of user traits and media features with OC technology in improving individual or team performance.

3.2.2 Theoretical Frameworks

Building on Chapter 2, we further draw on multiple theoretical concepts from the fields of OC and technology management. The first set of concepts relates to the practice and sociomateriality ideas that are at the intersection of OC and technology management. An organization, as “the state of an organized body” (Starbuck, 2003, p.156), can be understood as a dynamic bundle of practices or patterns of interrelated behaviors made up of people’s ongoing activities under changing circumstances (Schatzki, 2006, 2012; Weick, 1979). Increasingly, employee practices and social activities such as communications in organizations are essentially “materially mediated” user actions and sayings via technological means (Orlikowski, 2000; Schatzki, 2001, p.2). Practices have sociomaterial properties because activities are usually carried out through communication with other people and with material things such as equipment, physical tools, and products (Feldman and Orlikowski, 2011). Equally importantly, practices take place not only in physical spaces, but also in mental, social and technological (or virtual) realms. Within such realms, actions based on communicated ideas or informational contents take on personal meanings for individuals and such retained interpretations inform subsequent actions or behaviors as individuals continuously enact meaningful environments for themselves (Sewell Jr, 1992, 1996; Weick, 1995).

Because communication in organizations “entails the dynamic, interactive negotiation of meaning through symbol use” (Ashcraft et al., 2009, p.6), the structure inherent in OC technology “shapes actions by facilitating certain outcomes and constraining others” (Orlikowski and Robey, 1991, p.148).

A practice refers to an activity or a series of activities which, when acted upon by human or nonhuman agents, become consequential to its own development (Feldman and Orlikowski, 2011). There are three key assumptions here based on which practice theory operates. The first is relationality: processes are not viewed as isolated and independent entities but as ongoing phenomena that have meaning *only in relation* with another phenomenon (Feldman and Orlikowski, 2011; Nicolini and Monteiro, 2016; Østerlund and Carlile, 2005). The second assumption concerns the duality of structure, or the rejection of dualism (Feldman and Orlikowski, 2011; Nicolini, 2012). Specifically, duality recognizes the irreducible and inseparable linkage between two conceptually different elements in any structure (Giddens, 1984; Reckwitz, 2002). For instance, it is not technology per se that supports work and performance (i.e. technological determinism), but it is through using technology in practice that work is enacted by users (i.e. technology-in-practice; DeSanctis and Poole, 1994; Orlikowski, 1992, 2000). As such, OC technologies are essentially static and cannot be deemed to be technological without user activities. Practice theory’s third assumption of consequentiality implies that everyday actions taken by employees physically and via nonhuman artifacts such as software applications either produce or reproduce activities as practices (Feldman and Orlikowski, 2011). Arguably, employees do not necessarily see work as a set of dutiful endeavors but reproduce routines (repetition) or produce modified practices (recurrence) based on past experiences and practice. As a concept applied to human communication, studies of consequentiality (not consequences) seek

to understand “*what* persons do when constructing messages with others have an impact on kinds of lives they lead, the kinds of institutions and organizations they find themselves inhabiting, and the kinds of connections with other persons they make” (Sigman, 1995, p.1). In sum, communication activities mediated by OC technologies are consequential *in and to* people’s other activities; they are not merely the consequences of context-free decisions.

A second concept adopted in our study relates to sociomaterial imbrication. Imbrication generally refers to gradual overlapping, interlocking or mutually supporting processes or arrangements (Leonardi, 2011, 2013; Sassen, 2002; Webster, 2006). “Research in cognitive sociology and organizational studies suggests that people tend to approach the new in terms of the old. The same may be expected of people confronting new technology” (Orlikowski and Gash, 1994, p.191). In other words, users do not take a *tabula rasa* (blank slate) view of technologies newly introduced in their work environments. Based on their previous experiences, users share interpretations or socially construct their perceptions towards the opportunities for action that novel technologies provide (Barley, 1986, 1988; Orlikowski and Gash, 1994). Scholars have also proposed that “advanced technologies bring social structures which enable and constrain interaction to the workplace” (DeSanctis and Poole, 1994, p.125). As such, the effects of technologies on organizations are socially constructed by its users, as their regular practices overlap and co-orientate with technological usage towards organizational goals (i.e. sociomaterial imbrication; Leonardi, 2011). Users’ goal-oriented activities are likely to imbricate with their use of the designed features of the novel technology (i.e. faithful appropriation) or deviate from utilizing the technology as designed during daily practice (i.e. ironic appropriation; DeSanctis and Poole, 1994). Hence, firm performance outcomes are consequences of *cumulative* entanglements of

material and technological affordances as socially constructed by the organizational users when they communicate with one another.

Due to the rapid development of communication technologies for everyday use in organizations and at large (Yoo, 2010), the introduction of advanced communication technologies for internal communication during ECIs delivers transformational impacts by innovating organizational processes and performance. For instance, a unified communications system or enterprise social media installed via an ECI leads to the establishment of a platform as a foundation on which its flexible affordances provide innovative and novel boundary-spanning ways to share informational resources and individual knowledge that imbricate with extant practices and better support business value production processes (Damanpour, 1991; Ellison et al., 2015; Evans, 2004; Kim and Kogut, 1996; Kwahk and Park, 2016). Hence, we argue the new technological affordances implemented during ECIs complement extant business-oriented practices to improve the value-adding capabilities within the overall firm-level performance structure. In what follows, we further develop our hypotheses in our research model.

3.3 Hypotheses Development

Apart from the considerable body of literature focusing on the relationship between various technologies and performance, there are several open questions about the specific mechanisms and surrounding conditions by which OC technological introductions (i.e. ECIs) affect firm performance outcomes. A part of the focus of this chapter is on delineating the debate between technological deterministic view of technology-performance relationship, and the mutually constitutive effect of technology and business-oriented practice on firm performance outcomes. Within this analytical framework, we will now develop hypotheses about the effect that a specific enterprise technology (i.e. OC technology) has on firm ensuing market-based

performance outcome (i.e. TQ). We will also test our empirical predictions about ECIs' direct and autonomous transformational impacts on firm performance, as well as its imbricative effects on firm performance with either dominant internal or commercialization orientation business practices (Gersick, 1991; Lyytinen and Rose, 2003).

3.3.1 Enterprise Communication Initiatives (ECIs) and Firm Performance

The application of new information and communication technologies (e.g. OC technologies) can lead to pervasive changes in the business operations and practices, which in turn impacts firm outcomes (e.g. Amit and Zott, 2001; Bharadwaj et al., 1999; Lyytinen and Rose, 2003; Melville et al., 2004). Traditionally, studies of technologies related to computing and communications have assumed that technology is a distinct variable (Attewell and Rule, 1984; Huber, 1990). The technological deterministic view is that a ubiquitous and distinct technology used widely in society and industry, once adopted by firms or users, tends to follow the designed affordance in prescribing fixed opportunities for activities and action autonomously, independently and externally of any behavioral and contextual conditions (e.g. Chandler, 1995; McLuhan and Fiore, 1967; Swanson, 1974). Hence, technology possesses intrinsic and predetermined tendencies to influence user actions and their interactions with designated resources prior to its introduction in an organization (Gaver, 1991). From this point of view, the introduction of a novel but prevalent technology in an organization merely allows the focal technology to transform organizational performance structure with users adapting to its designed features. Consequently, firm outcomes are technologically led and directly affected by such adoptions (Chandler, 1995; McLuhan and Fiore, 1967). Generally, many investigators tend to implicitly assume this technologically deterministic view and directly link firm or operational performance outcomes to the

adoption or investment in new technologies (e.g. Aral and Weill, 2007; Hendricks et al., 2007). In our study context, the introduction of new OC technologies (ECIs) deterministically transforms the implementing firm's structure in terms of its practices and employee communicative actions (Feldman and Orlikowski, 2011; Orlikowski, 1992). Over time, such transformed work and OC practices lead to new modes of value creation process flows for the implementing firms (McPhee and Zaugg, 2000).

Hypothesis 1 (H1). Enterprise communication initiatives positively impact firm value.

3.3.2 Interactions Between ECIs and Strategic Business Orientations

Behavioral operations and dominant work behaviors change or innovate when highly contextualized processes of routinization are disturbed with the adoption of a new technology such as information and communication systems (e.g. Lyytinen and Rose, 2003; Swanson, 1994; Walsham, 1993; Yoo et al., 2012). For example, routine radiological practices change when technicians and radiologists interact with one another during the use of newly introduced computer tomography image scanners (Barley, 1986). Similarly, when a new accounting information system is adopted for highly institutionalized accounting routines, accountants' practices change from accurate record keeping of organizational activities to assembling and communicating of accounting information as construed and coerced by superiors (Roberts and Scapens, 1985). Evidently, both examples reveal how internal communications about and during the use of the newly introduced technologies can influence and modify routinized practices subsequently.

Turning now to our study context, we will explicitly examine the imbrication between newly introduced OC technologies and commercialization oriented (CO) or internally

oriented (IO) practices, and its value changing impact on firm performance outcomes. Generally, in the business organizational context, orientation has been described as “the underlying business philosophy and consciousness that directs all internal and external activities of the firm” (Miles and Munilla, 1993, p.44). Equally importantly, an organization’s orientation influences its strategic and tactical decisions (Miles and Munilla, 1993), and can be observed from the amount of resources being allocated to specific activities and operational practices (Chaganti and Sambharya, 1987). There are two main orientations in almost any business organization, namely, production (internal or cost) and marketing (including commercialization) orientations (Lin et al., 2006; McCarthy and Perreault, 2002; Miles and Snow, 1994; Miles et al., 1978; Olson et al., 2005a). On one hand, firms traditionally operating with a dominant internal orientation (IO) define their businesses by the extent to which their production of services or products are cost efficient, optimally standardized and value generating (Aguilar, 1967; Cravens et al., 1987; Olson et al., 2005a; Peterson, 1989). In other words, IO firms produce services or products that are cost-efficient (e.g. in terms of financial resources) or easy to make (e.g. in terms of human and technological resources) for offer in their markets (McCarthy and Perreault, 2002). On the other hand, CO firms focus on customer needs and demands, and firms channel resources into marketing and commercial activities in order to sell both existing and new products or services to customers (Jaworski and Kohli, 1993; Kohli and Jaworski, 1990; Lin et al., 2006). In other words, CO firms commit resources to develop and offer products and services that customers need, as opposed to IO firms, which commit resources to produce products or services they assumed that customers buy without deliberation (McCarthy and Perreault, 2002).

Given our theoretical stance about OC being the fundamental mediating plane between organizational user actions and sayings (Blaschke et al., 2012; Orlikowski, 2000; Schatzki, 2001, 2006), we expect the new OC technological affordances introduced during ECIs to provide fresh opportunities for users to ruminate on past actions, observe the dynamics in currency, and communicate with others to shape individual and collective actions. Accordingly, we expect organizational users to form interpretations about ways to appropriate the newly introduced OC technology in the context of their past or existing working practices (Orlikowski and Gash, 1994). As such, firms with highly contextualized business orientations before or during the implementation of ECIs facilitate superior *self-structuring* of value-creating practices through internal communicative actions (McPhee and Zaug, 2000). Over time, users either reproduce routine CO or IO practices subsequently, or produce modified or novel versions of CO or IO practices as they engage in OC via the newly introduced OC technologies. More specifically, the availability of more advanced tools during and after ECIs to share information across internal organizational boundaries facilitates the reconfiguration of rules and norms (i.e. business orientation; Khandwalla, 1977), enabling firms to “design, produce and support products and services throughout the organization and its value chain” (Yoo et al., 2012, p.1401). Because of such novel OC affordances from ECIs on specific business-oriented work activities (Majchrzak and Markus, 2013), improved cost efficiencies in production or better customer-focused delivery of products or services to market become likely. In turn, investors and creditors form more positive expectations of ECI-implementing firms’ long-term operating performance and market value (e.g. TQ; Fu et al., 2016).

Hypothesis 2a (H2a). Firms more internally oriented in the same fiscal year as when enterprise communication initiatives are implemented, have higher firm value.

Hypothesis 2b (H2b). Firms more commercially oriented in the same fiscal year as when enterprise communication initiatives are implemented, have higher firm value.

Hypothesis 3a (H3a). Firms more internally oriented in the fiscal year prior to implementing the enterprise communication initiatives, have higher firm value.

Hypothesis 3b (H3b). Firms more commercially oriented in the fiscal year prior to implementing the enterprise communication initiatives, have higher firm value.

Firms do not simply re-orientate business practices and activities as performance tends to be dominated by historically conditioned processes (e.g. Gersick, 1991; Miles and Snow, 1994; Olson et al., 2005b; Stinchcombe and March, 1965; Sydow et al., 2009; Tushman and Romanelli, 1985), which can result in ECIs having an insignificant or even negative impact on firm performance outcomes (ECI failures). Hence and in contradiction to business orientations as change-inhibiting conditions (Sydow et al., 2009), we further examine how ECIs may interact with specific but persistent business orientated practices to add value to firm performance. In the absence of persistent business orientations, ECIs risk failure due to a lack of applicability to routinized and specific work contexts and thus is the subsequent adoption disinterest by organizational users (Davenport, 1998; Li, 2015). Such failure is in part due to companies being locked into path-dependent and self-reinforcing use of existing technologies (Leonardi, 2009; Rogers, 1995; Sydow et al., 2009; Treem and Leonardi, 2013), thus obscuring the

technology gaps that can be filled through actualization of the new affordances introduced during ECIs in specific contexts (Lyytinen and Newman, 2008).

However, the new opportunities of actions provided by ECIs may also imbricate specific but deeply structured business-oriented work routines and practices and impact firm performance outcomes. Imbrication of ECIs' new technological affordances in specific work contexts motivates employees to discover opportunities to network and improve role performance, say, through new communication possibilities with colleagues such as with those others across internal and geographical boundaries (McPhee and Zaug, 2000), and sharing of richer informational contents in real-time with one another (Rice, 1984, 1992; Sullivan, 1988). Indeed, sales and marketing (i.e. CO) performance gets improved as an ECI leads to increased efficiency in the generation and exchange of related information on the new OC platform (Cambie, 2012). Recent research has also shown that the use of newly-launched enterprise social media is motivating users to improve innovation performance through not only accessing shared contents on a central networked platform, but also identify other users' networks and access their knowledge (Leonardi, 2014). More specifically, the new technological affordances allow individual users already dependent on OC in their specific business-oriented practices to recombine accumulated knowledge resources and develop more innovative work outputs to further *converge* with others in the organization (Gersick, 1991; Tushman and Romanelli, 1985; Yoo et al., 2012).

Hypothesis 4a (H4a). Firms more internally oriented in both the fiscal year before and the fiscal year itself as when enterprise communication initiatives are implemented, have higher firm value.

Hypothesis 4b (H4b). Firms more commercially oriented in both the fiscal year before and the fiscal year itself as when enterprise communication initiatives are implemented, have higher firm value.

It is plausible that business orientation logics such as IO and CO can persist simultaneously in employee minds as well as orientate their communicative and value-creating work behaviors. Barring the absence of novel OC technological features without ECIs, firm performance and practice changes are limited in terms of opportunities for improving employee motivation, networking and role performance, say, through various communication dimensions (McPhee and Zaug, 2000; Schuler, 1979); or via richer language and information use in newer media (Rice, 1984, 1992; Sullivan, 1988), are unavailable. Therefore, the extant state of IO and CO practices and processes can be expected to remain unaltered, so we do not expect any further value-adding effect from both processes simultaneously. Further, strategic management research suggests that business models tend to reach performance equilibrium with a single dominant logic at various stages in time (Bettis and Prahalad, 1995; Prahalad and Bettis, 1986). Hence, we do not expect a three-way interactive effect of IO, CO and ECIs on future firm value.

3.4 Methodology

3.4.1 Sample Selection and Data Collection

To test our hypotheses, we built a dataset by firstly assembling announcements of firms' ECIs from three sources. Keywords such as "enterprise social media", "enterprise communications systems", "unified communications", "enterprise social network" and names of OC technologies (e.g. Yammer, Cisco Quad, Jive, etc.) were used to search for announcements on Factiva between years 2000 and 2015. A list of major OC technology vendors was then compiled and a search for relevant news releases and case

studies on companies' ECIs from these vendors' corporate websites was conducted. Finally, we accessed a practitioner community portal focusing on OC or organizational internal communications topics, which was also publishing OC implementation case studies and related interviews with senior technology officers who were overseeing and implementing technologies of interest (www.simply-communicate.com). Announcements were qualified based on several criteria, namely, every article contained a description of the OC technology being implemented, the year of implementation, the implementation being enterprise-wide, the implementing firm identified by name and whether it was a for-profit business. Appendix A1 lists sample announcements or case studies with sources.

Second, to compute the other variables in our study, we accessed publicly disclosed accounting and financial information related to U.S. firms via the Wharton Research Data Services (WRDS) platform (wrds-web.wharton.upenn.edu). Specifically, we used accounting data in Compustat provided by Standard & Poor. In view of the nature of our study, we followed a broad temporal bracketing approach and structured the downloaded data by their fiscal years (Pozzebon and Pinsonneault, 2005). This was done to encapsulate the changes within and between different time periods. Altogether, we located 274 unique company announcements from the U.S. firms that had implemented ECIs. We retained 151 announcements and rejected the other cases due to the following reasons. First, some firms were not publicly listed on U.S. stock exchanges prior, during or after their ECI announcements (i.e. private firms). Second, some firms were subjects of merger and acquisition (M&A) activities, which resulted in their accounting reporting structure or company names being changed (e.g. focal firm implemented ECI just before being merged into other firms). Thus, these M&A cases rendered the companies' data unverifiable and unusable for our analysis. Third, even

when some firms were listed prior to and after the ECIs, some data were missing from the datasets in WRDS despite us checking the data sets several times between January to June 2017. Fourth, some cases mainly represented deployment of the technology of interest in specific departments or divisions (i.e. not organization-wide).

3.4.2 Event Study Approach

We adopted the event study approach by broadly following the procedures outlined by Barber and Lyon (1996), to examine firms' abnormal performance in terms of market-based valuation after their ECIs. Abnormal performance refers to changes in the sample firm's value relative to a counterpart with similar characteristics which has not experienced the event of interest (Barber and Lyon, 1996). Results from our earlier study described in Chapter 2 indicated a statistically significant positive difference between ECI-implementing and non-implementing firms specifically in the time-period from t to $t+1$. In this study, the event year (t) is the year of ECI, so we take abnormal performance as the sample firm's post-event performance change (i.e. actual performance from t to $t+1$) minus the expected performance change (i.e. comparison or control firm's performance in the same period). In other words, we take the difference of differences between the paired sample and control firms' market value changes (i.e. TQ) between the two stipulated fiscal years.

Using the financial data we had obtained from Compustat, we matched ECI-implementing (sample) firms with non-implementing (control) firms based on several control criteria. First, we identified control firms that had the same two-digit SIC code with each sample firm, and whose ROA was within 90% to 110% of the sample firm one year before the event (i.e. $t-1$; Barber and Lyon, 1996; Hendricks et al., 2007). Second, because matching by size had a negligible impact on industry-matched results (Corbett et al., 2005; Hendricks and Singhal, 1997), we matched the shortlisted control

firms with the respective sample firms on the basis of their asset tangibility. Asset tangibility refers to the ratio of tangible assets to total assets, which directly affects a firm's ability to pledge such assets to obtain external financing (Almeida and Campello, 2007). We used TQ to capture the performance outcome difference between sample and control firms, which includes a debt component in its computation (Bharadwaj et al., 1999; Chung and Pruitt, 1994). Keeping in mind direct impact asset tangibility has on debt, we matched control firms whose asset tangibility was within 90% to 110% of the sample firms at $t-1$. Third, we matched the control firms' ratio of intangible assets to total assets to within 90% to 110% of sample firms at $t-1$ in view of such current assets' impact on short-term financing (Barclay and Smith, 1995). We controlled for asset or resource tangibility because firms could generate or lose market value from pledging or reconfiguring their assets, which in turn impacts TQ (e.g. Aivazian et al., 2005; Almeida and Campello, 2007; Maury and Pajuste, 2005; Megna and Klock, 1993). Hence, controlling for asset tangibility further allowed us to eliminate the influence of financial and economic decisions and events on TQ in our study. Sample firms without any suitably matched control firms were discarded, thus leaving us with 119 pairs of matched firms for analysis. Tables 3.1 and 3.2 present the distributions of our paired sample and control firms' ECI year (t), and industry sector (SIC) respectively. Table 3.3 presents descriptive statistics for the respective sample and control firms at pre-event year $t-1$.

Table 3.1 Distribution of Paired Sample and Control Firms' ECIs at t

Event Year	No. of	% of Firms
2000	6	2.52%
2001	14	5.88%
2002	10	4.20%
2003	4	1.68%
2004	2	0.84%
2005	2	0.84%
2006	16	6.72%
2007	12	5.04%
2008	28	11.76%
2009	30	12.61%
2010	26	10.92%
2011	30	12.61%
2012	34	14.29%
2013	24	10.08%
Total	238	100.00%

Table 3.2 Distribution of sample and control firms' industrial sectors

SIC	NO. of Firms	Industry	% of Firms
73	56	Business Services	23.53%
36	16	Electronic & Other Electrical Equipment & Components	6.72%
37	12	Transportation Equipment	5.04%
35	10	Industrial and Commercial Machinery and Computer Equipment	4.20%
27	8	Printing, Publishing and Allied Industries	3.36%
28	8	Chemicals and Allied Products	3.36%
49	8	Electric, Gas and Sanitary Services	3.36%
59	8	Miscellaneous Retail	3.36%
60	8	Depository Institutions	3.36%
67	8	Holding and Other Investment Offices	3.36%
20	6	Food and Kindred Products	2.52%
45	6	Transportation by Air	2.52%
63	6	Insurance Carriers	2.52%
99	6	Non-classifiable Establishments	2.52%
13	4	Oil and Gas Extraction	1.68%
16	4	Heavy Construction, Except Building Construction, Contractor	1.68%
32	4	Stone, Clay, Glass, and Concrete Products	1.68%
38	4	Measuring, Photographic, Medical, & Optical Goods, & Clocks	1.68%
48	4	Communications	1.68%
53	4	General Merchandise Stores	1.68%
58	4	Eating and Drinking Places	1.68%
61	4	Non-depository Credit Institutions	1.68%
10	2	Metal Mining	0.84%
15	2	Construction - General Contractors & Operative Builders	0.84%
21	2	Tobacco Products	0.84%
23	2	Apparel, Finished Products from Fabrics & Similar Materials	0.84%
26	2	Paper and Allied Products	0.84%
29	2	Petroleum Refining and Related Industries	0.84%
33	2	Primary Metal Industries	0.84%
39	2	Miscellaneous Manufacturing Industries	0.84%
42	2	Motor Freight Transportation	0.84%
44	2	Water Transportation	0.84%
51	2	Wholesale Trade - Nondurable Goods	0.84%
55	2	Automotive Dealers and Gasoline Service Stations	0.84%
57	2	Home Furniture, Furnishings and Equipment Stores	0.84%
62	2	Security & Commodity Brokers, Dealers, Exchanges & Services	0.84%
64	2	Insurance Agents, Brokers and Service	0.84%
70	2	Hotels, Rooming Houses, Camps, and Other Lodging Places	0.84%
75	2	Automotive Repair, Services and Parking	0.84%
80	2	Health Services	0.84%
82	2	Educational Services	0.84%
87	2	Engineering, Acing, Research, and Management Services	0.84%
Total	238		100.00%

Table 3.3 Descriptive statistics for pre-event year (t-1)

	Sample Firms				Control Firms			
	Returns on Asset-ROA (\$)	Fixed Assets/ Total Assets# (%)	Current Assets/ Total Assets (%)	Tobin's q ^a	Returns on Asset-ROA (\$)	Fixed Assets/ Total Assets# (%)	Current Assets/ Total Assets (%)	Tobin's q ^a
Mean	74,965	39.00	37.00	1.37	68,319	42.17	36.33	1.54
Std.Dev.	118,466	34.53	25.24	1.15	110,002	37.58	24.51	2.28
Min.	-505,774	0.30	4.00	0.06	-463,075	0.16	1.07	0.05
Max.	591,020	156.01	94.39	8.39	381,368	148.72	98.20	23.75
N	119	119	119	119	119	119	119	119

3.4.3 Dependent Variables and Contextual Factors

Using the data collected from Compustat, we computed the dependent variables and contextual factors. First, we employed a dummy variable to denote firms that had implemented ECIs. This variable was given a value of 1 if an ECI had indeed been reportedly implemented, and 0 if the firm had no reported adoption of any new OC technology. Second, we computed the dependent variable in terms of Tobin's q (TQ). TQ ratios reflect the relationship between a firm's market price for exchange of its assets, and the market price for its newly produced commodities (Tobin and Brainard, 1976). We adopted the TQ variable originally developed by Chung and Pruitt (1994) and popularized by Bharadwaj et al. (1999). Specifically, TQ was considered appropriate in our study context because it "provides a better reflection of IT's true contribution to firm value" than other financial indicators (Bharadwaj et al., 1999, p.1011). Further, TQ also relates positively to market expectations of firms' operating performance in the long run (Fu et al., 2016). This variable has also been adopted widely not only in enterprise systems and information technology-related studies but also in OM (e.g. Fang et al., 2008; Modi and Mishra, 2011; Setia and Patel, 2013; Tafti et al., 2013). TQ has been defined by Chung and Pruitt (1994) as "the ratio of the market value of a firm to the replacement cost of its assets" (p.70). The operationalization of TQ is as follows:

$$TQ_{it} = \frac{(MVE+PS+DEBT)_{it}}{TA_{it}} \quad (1)$$

where MVE is the product of the average share price of firm i at year t , and the number of common stock shares outstanding. PS refers to the liquidating value of the firm's outstanding preferred shares; DEBT is the difference between current liabilities and current assets plus book value of inventory and long-term debt. Finally, TA refers to the book value of total assets and we applied it as the denominator to eliminate scale biases due to different firm sizes in terms of their assets, liabilities and equity.

Second, we also computed two contextual factors, namely commercialization orientation (CO) and internal orientation (IO) using data from Compustat. CO referred to the firm's efforts and resources utilization to bring its technological capabilities and products/services to the marketplace. We followed Lin et al. (2006) and operationalized CO as follows:

$$CO_{it} = \frac{(XSGA)_{it}}{TA_{it}} \quad (2)$$

where TA refers to the book value of total assets of firm i at year t , and XSGA is the sales, general and administrative expense, and IO refers to the firm's efforts and emphasis on cost efficiency and internal operations (Miles et al., 1978). Following Jiang et al. (2006), IO was operationalized using total operating expense data taken from Compustat:

$$IO_{it} = \frac{(XOPR-XSGA)_{it}}{TA_{it}} \quad (3)$$

Again, TA refers to the book value of total assets of firm i at year t , and XSGA is the sales, general and administrative expense. We deducted XSGA from total operating

expenses (i.e. XOPR) to prevent overlapping of this expense item with CO. Both variables were scaled using TA to account for firm size differences.

For purposes of analysis, we followed literature and further included five control variables known to affect TQ (e.g. Deb et al., 2017; Dowell et al., 2000). Specifically, we included capital expenditure (CAPX) and leverage (LEV) to control for the two major corporate financing decisions with regard to managing firm value (McConnell and Muscarella, 1985). CAPX usually refers to investments pertaining to acquisition or maintenance of physical assets like buildings, plants and equipment. LEV refers to the use of borrowed capital or monetary credit to finance investments. The third control variable was research and development (XRD) expense, which was associated with investigative activities conducted to improve products or services. We scaled CAPX, LEV and XRD with total sales (SALE). We also included SALE as the fourth control variable to further control for firm size in our analytical models. All control variables were lagged ($t-1$). Lastly, we coded the year of ECI implementation with the earliest year (2000) as 0 and the latest year (2013) as 13 to control for any impact of more advanced features of OC technology in the more recent years. We did not control for industry influence for two reasons. First, ECIs refer primarily to new OC technological affordances deployed for internal adoption and use over time in organizations (Kane, 2015; Kiron, 2012; Treem and Leonardi, 2013), in which such affordances are independent of industry contexts as each firm has its own unique set of internal conditions and history of technology use (Klein et al., 1994; Lyytinen and Newman, 2008; Treem and Leonardi, 2013). Second, ECIs' OC technologies of interest here in our study were designed to be applicable in all industry contexts (rather than for specific industries or sectors) and were meant to replace currently ubiquitous OC media or tools such as email (IDC, 2014; Kiron et al., 2012).

3.4.4 Analytical Approach

To estimate the main effect of ECIs and interacting effects of CO and IO with the ECIs on firm's performance in terms of TQ, we applied Moderated Multiple Regression (MMR) in our study. MMR has been used widely to study the various predictors' interacting or moderating effects on firm performance outcomes (e.g. Goodale et al., 2011; Youndt et al., 1996). Following the procedures recommended by Cohen et al. (2003) and previously applied by Goodale et al. (2011), we entered the control variables, independent (direct effect) variables, interaction terms comprising both the main effect and moderating effect variables in a sequential order to estimate our regression models. We further separated the two-way and three-way interaction terms and entered the latter terms last in the sequence as the fourth model. Before computing the interaction terms and conducting the analysis, we normalized the independent variables with logarithmic transformations after checking for skewness and kurtosis of their individual frequency distributions (see Appendix B1 and B2 respectively for pre- and post-normalization diagrams of the independent variables).

3.5 Results

Table 3.4 shows the bivariate intercorrelations among the variables used in our study. As expected, due to the same independent variables across different time periods being used (i.e. CO and IO both at t and $t-1$), there were high collinearities or linear dependencies between the variables at different time periods as well as with their respective interaction terms. As such, we computed two collinearity diagnostic statistics in our MMR test results to detect violations, if present, of our assumptions. First, since multiple regression assumes independence of residuals, the Durbin-Watson test statistic was generated to assess whether our results had been affected by the residuals' serial dependencies or successive errors in the same variable from one time-period to another

(e.g. CO or IO from $t-1$ to t). Accordingly, “a value near to or exceeding 2 indicates that the assumption of independence of errors is satisfied” (Cooksey, 2007, p.319), and the Durbin-Watson statistic “can vary between 0 and 4 with a value of 2 meaning that the residuals are uncorrelated” (Field, 2009, p.220). Second, we computed the variance inflation factor (VIF) to evaluate whether other independent variables have a statistically significant effect on the standard error of a regression coefficient. “Large VIF values also indicate a high degree of collinearity or multicollinearity among the independent variables” (Hair et al., 2010, p.161). Accordingly, “any VIF of 10 or more provides evidence of serious multicollinearity involving the corresponding IV (independent variables)” (Cohen et al., 2003, p.423). Appendix B3 provides MMR estimation results along with the collinearity diagnostics statistics.

Table 3.4 Bivariate intercorrelation statistics for independent variables with TQ as the dependent variable

	Mean	S.D.	1)	2)	3)	4)	5)	6)	7)	8)	9)	10)	11)	12)	13)	14)	15)	16)
1) Tobin's q^2	-.055	.819																
2) Event year	9.605	3.626	.239**															
3) Total sales	7.873	2.149	.023	.186**														
4) Leverage ratio	-.601	.539	.147*	.250**	.297**													
5) R&D expense	-2.966	.861	.001	-.099	-.202**	-.172**												
6) Capital expenditure	-3.135	1.177	-.047	-.252**	-.147*	-.122*	.077											
7) Enterprise communications initiatives (ECI) dummy	.500	.501	.182**	.000	.232**	.100	.104	.009										
8) Commercialization orientation (t-1)	-1.947	1.094	.084	-.140*	-.140*	-.123*	.282**	-.245**	.100									
9) Commercialization orientation (t)	-1.917	1.127	.064	-.161**	-.182**	-.175**	.301**	-.204**	.071	.942**								
10) Internal orientation (t-1)	-1.202	1.274	.053	.042	.246**	.147*	-.287**	-.310**	.003	.254**	.250**							
11) Internal orientation (t)	-1.216	1.285	.017	.006	.207**	.107	-.247**	-.278**	.017	.283**	.294**	.945**						
12) ECI x Commercialization orientation (t-1)	-.840	1.149	-.041	-.041	-.295**	-.119*	.061	-.087	-.733**	.360**	.364**	.060	.072					
13) ECI x Commercialization orientation (t)	-.837	1.158	-.044	-.048	-.300**	-.126*	.060	-.079	-.724**	.355**	.385**	.066	.083	.988**				
14) ECI x Internal orientation (t-1)	-.594	1.072	-.020	.104	-.026	.063	-.274**	-.209**	-.555**	.037**	.069	.578**	.512**	.485**	.486**			
15) ECI x Internal orientation (t)	-.586	1.065	-.053	.067	-.068	.044	-.260**	-.172**	-.552**	.068	.092	.529**	.562**	.513**	.521**	.935**		
16) ECI x Commercialization orientation (t) x Commercialization orientation (t-1)	2.129	4.205	.037	.048	.236**	.131*	-.102	.125*	.507**	-.491**	-.500**	-.129**	-.152**	-.922**	-.925**	-.439**	-.479**	
17) ECI x Internal orientation (t) x Internal orientation (t-1)	.353	1.292	.079	.121*	.127*	.131*	-.135*	-.251**	.274**	-.012	-.016	.379**	.367**	-.261**	-.262**	.295**	.281**	.193**

N = 238; *p < .05, **p < .01 (two-tailed)

Durbin-Watson = 2.845

3.5.1 MMR Estimation Results of Main and Interaction Effects

Our objective in this phase was to investigate the main effect of ECIs and the interacting effects of the ECIs with CO or IO on firm performance outcomes. Table 3.5 presents the MMR estimation results, which shows that all the four models are statistically significant at the 1% level, with the adjusted *R*-squared improving from Model 1 to Model 4 as more predictor variables were added. Model 1 shows the regressions of the abnormal change in TQ on the control variables. Model 2 shows the regression results for the abnormal change in TQ on the control variables and the main effects (i.e. ECI, CO_t, CO_{t-1}, IO_t, and IO_{t-1}). Note that Model 3 has yielded the same regression estimations as Model 2. However, it further includes the two-way interaction effects of ECIs with CO and IO at the two different time periods (i.e. ECI x CO_t, ECI x CO_{t-1}, ECI x IO_t, and ECI x IO_{t-1}). Finally, Model 4 presents the three-way interaction effects of ECIs with CO and IO at the two time-periods (i.e. ECI x CO_t x CO_{t-1}, and ECI x IO_t x IO_{t-1}). We review below the results in the order the hypotheses were made.

Referring to Model 2 and Model 3, H1 is generally supported. Specifically, the coefficient for the main effect of ECIs on abnormal change in TQ is statistically significant ($p < .01$). We do not find any statistically significant effects of IO and CO at either time-period (t and $t-1$) on abnormal change in TQ in our regression estimation results (i.e. Models 2 to 4). Referring to Model 3 and Model 4, we do not find statistical support for our hypotheses on the interactive effect of CO and IO at either time-period and ECIs on abnormal change in TQ. Specifically, there is no statistically significant interactive effect of CO or IO one year before or during the year of firms' ECIs, on their abnormal change in TQ. Hence, H2a, H2b, H3a and H3b are not supported.

Interestingly, the results from Model 4 indicate that ECIs are significantly and positively associated with abnormal TQ change only when firms are more commercially oriented (CO) in both the fiscal year before and during the ECIs ($p < .01$). The direct effect of ECI on abnormal TQ change is not statistically significant. Hence, this result supports H4b. However, internal orientation (IO) in the years prior to and during the ECIs is not significantly correlated with abnormal TQ change, thereby not supporting H4a. In other words, we only find significant support to associate firms which were commercially oriented in the year prior and into the year of the ECI implementation, with positive abnormal TQ change from t to $t+1$. Therefore, there is no statistically significant basis to associate firms which are internal- or cost efficiency oriented in the years prior and during the ECIs with any abnormal TQ change from t to $t+1$. The Durbin-Watson statistic for our overall model is 2.845, which falls within the acceptable range of 0 to 4 (Field, 2009). We also note no serious multicollinearity issues with our statistically significant regression equation in H5b (VIF < 10.0; Cohen et al., 2003, see Appendix B3).

Table 3.5 Moderated multiple regression results for Tobin's q (TQ)

Variables	Model 1	Model 2	Model 3	Model 4
Intercept	-.547** (.155)	-.752** (.165)	-.731** (.167)	-.733** (.162)
Main Effects				
Enterprise Communications Initiative (ECI) Dummy		.305** (.107)	.291** (.107)	.083 (.132)
Commercialization Orientation (CO) _{t-1}		.098 (.167)	.058 (.235)	.041 (.229)
Commercialization Orientation (CO) _t		.013 (.170)	-.041 (.237)	-.021 (.230)
Internal Orientation (IO) _{t-1}		.265 (.164)	-.014 (.358)	-.009 (.348)
Internal Orientation (IO) _t		-.255 (.162)	.021 (.353)	-.001 (.344)
Interaction Effects (two- and three-way)				
ECI x CO _{t-1}			.209 (.360)	.319 (.352)
ECI x CO _t			.006 (.363)	.048 (.353)
ECI x IO _{t-1}			.386 (.405)	.341 (.394)
ECI x IO _t			-.378 (.405)	-.278 (.398)
ECI x CO _{t-1} x CO _t				.278** (.072)
ECI x IO _{t-1} x IO _t				-.058 (.064)
Controls				
Event year	.051** (.015)	.057** (.015)	.054** (.015)	.055** (.015)
Sales	-.036 (.056)	-.073 (.059)	-.060 (.060)	-.015 (.060)
Leverage	.091 (.056)	.080 (.056)	.083 (.056)	.061 (.055)
Research and development expense	.037 (.076)	-.023 (.084)	-.038 (.084)	-.047 (.082)
Capital expenditure	.013 (.056)	.050 (.059)	.058 (.059)	.047 (.059)
F value	3.437**	3.267**	2.660**	3.393**
R ²	6.90%	12.58%	14.31%	19.72%
Adjusted R ²	4.89%	8.73%	8.93%	13.91%

N = 238; * $p < .05$, ** $p < .01$; Durbin-Watson = 2.845

3.6 Discussion and Conclusion

In this chapter, we have applied the event study approach to build our dataset for analysis with the moderated multiple regression method. Our results have indicated a statistically-significant relationship between firms' ECI-implementation (e.g. either by unifying communication among various locations or deploying enterprise-wide social media tools) and their abnormal positive changes in market value one year after their implementation. Further, we have observed a significant interaction effect of ECI-implementation, commercialization orientation one year prior and during the year of ECI-implementation on positive abnormal TQ change. We offer below our interpretations of the supported and unsupported hypotheses and discuss the implications of our findings before we conclude this chapter.

3.6.1 Theoretical and Managerial Implications

Firms increasingly rely on enterprise technologies to sustain or improve their performance (e.g. Aral and Weill, 2007; Bharadwaj et al., 1999; Hendricks et al., 2007), particularly internal communications or OC systems, to also improve employee and operational performance (e.g. Huang et al., 2015; Riemer et al., 2012). This study has contributed by weaving together literature on the business value of enterprise technologies, and emerging theoretical developments on OC and technology studies. First, through practical integration with specific business orientations, our study has provided a unique insight that firm performance changes from technological initiatives is not inevitable. We have considered the importance of commercializing products and services for firms to stay competitive. We have also tested the relationship between CO, firms' implementation of OC technologies (i.e. ECIs), and subsequent financial performance (i.e. TQ change from t to $t+1$). We have found statistically significant direct effect of OC technology implementation as ECIs on firm performance, in terms

of market value changes. However, when we examined the interaction effect of CO at t and $t-1$ with ECI on abnormal TQ, we found a significant positive result (i.e. the main effect being non-significant). In other words, we have demonstrated empirically that technologically deterministic effects do not hold true for every technological initiative and not so under all conditions. Indeed, we have demonstrated that ECIs' OC technological affordances imbricate only with persistent CO practices rather than just with high CO or high level of marketing activities during the year of ECI implementation.

Second, our finding concerning the significant positive interactive effect of CO at t and at $t-1$ with ECI implementation on abnormal TQ change supports technology management and practice researchers' proposition that the historical and prevailing contexts of a dominant business orientation complements novel technological affordances in practice (Barley, 1986; Orlikowski, 1992; Walsham, 1993). This suggests that not only users have to be aware of the potential relevance of novel OC technologies to their increased CO activities prior to ECIs (Norman, 1999), but they also must be engaged in actively customizing their communicative and CO practices with the newly implemented OC technology during use (Orlikowski, 2000). We believe this two-phase imbricative process allows users to socially construct their value-adding practices through their communicative and cooperative actions (Leonardi, 2011; Sassen, 2002). From a psychological perspective, during the ECI implementation stage, users can rely on their CO schemas from past practices, and reinforce such CO schemas with the opportunities for action from the novel OC tools (Kuutti, 1996; Orlikowski and Gash, 1994). In practice, firms looking to capitalize on the technological affordances of OC technologies should do so under conditions of consistently high CO efforts prior to and during their ECIs. In other words, only firms committing resources into

sustaining a high level CO business operation before and during ECIs are able to actualize the new OC technological affordances and improve performance outcomes (Shockley-Zalabak, 2015; Sydow et al., 2009). However, being internally oriented at any time-period before and/or during ECIs has no effect on firm value creation. Unlike with IO, which rely on rational decision-making (Cravens et al., 1987; Olson et al., 2005a), the nature of CO in communicating and marketing both existing and innovative products or services require OC users to share their knowledge across internal boundaries and identify opportunities for better collaboration through OC (Barley, 1986, 1988; Orlikowski and Gash, 1994). The richness and convergence qualities of ECIs' affordances facilitate users to generate combinatorial contents, capitalized on the standardized tools to better support the value chain in CO activities, and innovate CO-related contents as more information are distributed on the new platform (Yoo et al., 2012).

Third, despite research showing that firm-level commercialization and internal orientated activities generally lead to improved firm market value, we did not find any significant direct effect of either CO or IO on abnormal TQ. We believe that firms' CO or IO activities' potential to generate value is increasingly contingent on or is mediated by other factors such as technologies. Generally, firms have to commercialize their innovations in order to capture the value from marketing such new products or services (Kelm et al., 1995; Lin et al., 2006). Hence, in the absence of innovation, CO alone is unlikely to be able to generate any market-based value for firms. Apart from differentiating against competitors, firms can derive cost advantages and increase value creation by being internally oriented (Porter, 1980). However, pursuing operational excellence through IO can also stifle the firm's ability to adapt to changes in market conditions (Olson et al., 2005b). Therefore, the association between IO and abnormal

TQ becomes ambiguous when one takes IO out of firms' other operating and environmental contexts.

Fourth, we have found no significant interaction effect between ECI implementation, CO or IO at either one year before or during the year of ECI implementation on firm's abnormal TQ (see H2a to H3b). Although we have subscribed to contemporary OC theoretical perspectives about business oriented activities being generally mediated by OC activities and technologies, we have argued from a technological affordance and imbrication viewpoint that both the historical and prevailing operating contexts (e.g. for IO or CO) must be present for corporate users to fully appreciate and exploit the opportunities of the novel technological features during ECIs (Barley, 1986; DeSanctis and Poole, 1994; Majchrzak and Markus, 2013; Orlikowski and Gash, 1994). In other words, users tend to perceive and exploit new uses of OC technological features in the contexts of their habitual and conterminous practices, rather than from a blank slate (Orlikowski and Gash, 1994). Managers should therefore carefully consider how their existing practices complement the focal OC technologies they are seeking to implement, while allowing enough room for users to adjust and evolve their practices after such ECIs.

Finally, the use of legacy OC technologies such as email and the Web 1.0 intranets were ubiquitous for large firms at one time in many industries, but the implementation of more interactive Web 2.0-based tools such as enterprise social media or unified communications systems are now providing users with markedly novel ways to interact and collaborate with colleagues from different departments or geographic locations. Specifically, user communication habits would have migrated from channeling receiver-specified informational contents to each other, to packaging and sharing such information as materials on the OC technological platform for everyone connected to

adopt in their own work. Our findings lend support to this practical implication of the more recent OC technologies' impact on firm performance outcomes. However, practitioners need to consider how value-adding activities can support as well as be supported by such OC technologies (i.e. sociomaterial imbrication).

3.6.2 Limitations and Future Research

Although this study has provided early empirical support to the contention that implementing ECIs under the prevailing conditions of high CO is positively associated with firm performance outcomes, we note that there are also limitations that need to be addressed by future researchers. First, we have relied heavily on published information regarding firms' adoption of OC technologies such as enterprise social media or unified communications systems. Before searching for such cases of ECI implementation, we searched the academic literature on OC technologies and referenced books, both practitioner and academic-oriented articles and conference papers in identifying the search keywords used in our case collection (e.g. organizational social media, enterprise social media, enterprise social software, social business, etc.). To be exhaustive, we further searched and added terms and names of OC technologies used in the industry to supplement our list of search keywords (e.g. Jive, Socialtext, Lithium, TIBCO, ATOS, Igloo, VMWare, blueKiwi, Saba, etc.). While selecting our control firms, we scrutinized our stock of announcements and the Internet using the keywords compiled from both industry and academic sources to make sure the control firms did not implement any ECIs in the event year of comparison with the respective sample firms. Despite these measures, we could not fully eliminate the possibility that some control firms may have adopted OC technological initiatives (e.g. did not publish any statement or agree to case studies or interviews by vendors about their ECIs). Hence, future

researchers may have to utilize much larger sample sizes to increase statistical power and further reduce potential bias.

Second, like in many studies involving the use of archival data, our dataset was constrained by the incompleteness and variety of data available for our computation of variables. For instance, our computation of CO and IO were based on the financial data extracted from Compustat, rather than being collected through a survey instrument administered on the sample. We believe that with complete historical financial data, we should be able to uncover other dynamic organizational conditions that may influence ECIs' effect on firm performance. Third, despite the fact that our sample represents a reasonably wide range of industries (see Table 3.2), we recognize that private, small-medium sized and non-profit organizations were not included in this study. As OC technologies are increasingly being offered as low-cost, subscription-based and cloud-hosted services with deployment time considerably shorter than other enterprise systems, it is likely that smaller and/or private companies may enjoy different abnormal benefits as compared to publicly-listed and larger companies (e.g. abnormal innovation performance). Hence, future researchers may want to study ECI effects on the performances of private or small-medium businesses; other performance outcome measures may also be included in future studies (e.g. innovation performance). Fourth, we also recognize that there could be other events or announcements that can influence the performance outcome variable (TQ) adopted in our study. Because TQ is a financial indicator comprising business evaluations by both investors and creditors, we applied the asset tangibility ratio in our study's simple-control firm matching phase. This ratio allowed us to minimize the influence from events driven by financial and economic-related decisions made by the focal firms (e.g. increase in debt to capitalize on growth opportunities in the market). Lastly, a mixed method approach may also be used to

uncover other relevant constructs to build on the practice and sociomaterial imbrication theoretical frameworks applied in our study (e.g. interaction with other enterprise systems).

3.6.3 Conclusion

This study has investigated the effects of ECI implementation on firm abnormal TQ under context-dependent conditions of commercialization orientation and internal orientation. It has highlighted the sociomaterial nature of technologically mediated practices and clarified the likely impact on firm performance from imbrication of different technologically-mediated work and communicative processes in organizations. It has used the event study approach to build our dataset and applied moderated multiple regression in our analysis. The results have pointed to the statistically significant main effect of ECIs on firm abnormal TQ prior to our introduction of the interaction terms. Moreover, when a three-way interaction term of ECIs, CO at one year prior and CO at the year during ECI implementation was introduced into our regression models, we found a significant effect on firm performance outcomes in terms of TQ. Thus, our finding has supported our argument that a firm's deployment of OC technologies is subject to historical and operating (i.e. path dependent) contexts such as CO. Equally importantly, we have shown that not all enterprise systems can technologically determine a firm's financial performance outcome. We have also noted that not every type of business orientation (e.g. IO) may significantly imbricate with ECIs to exert a positive effect on firm performance. Lastly, we have also discussed the limitations of this study and provided suggestions for future research.

CHAPTER 4 ENTERPRISE COMMUNICATION INITIATIVES OF COMPANIES OPERATING IN FASHION AND APPAREL INDUSTRIES

4.1 Introduction

Firms adopt information and communication technologies to drive business value creation and to improve performance outcomes across different levels of the organization (Barua et al., 1995; Bharadwaj et al., 1999; Kane et al., 2014; Melville et al., 2004). In recent years, firms across various industries have started to pervasively adopt technologies such as social media tools to improve both internal and external communications and performance (e.g. social business; Kiron, 2012; Kiron et al., 2012). In the fashion and apparel industries, numerous studies have documented companies benefitting from the adoption of external communications technologies such as social media to engage their customers (e.g. Kim and Ko, 2012; Kontu and Vecchi, 2014; Phan et al., 2011). However, to the best of our knowledge, there has not yet been an investigation of how fashion companies adopt social media to improve internal communications and performance. This chapter examines and discusses the various paths fashion companies can take while adopting social media technologies to better support internal communications and improve business performance in response to challenging market conditions and rapidly changing customer preferences.

Firms implement information or communication technological initiatives to effect changes in company operations and achieve desired outcomes (Devaraj and Kohli, 2003; Markus and Robey, 1988; Orlikowski and Gash, 1994; Strong et al., 2014). In this chapter, we refer to such initiatives as enterprise communication initiatives (ECIs). We define an ECI as a focal firm's deployment of internal communications technologies such as enterprise or public social media within the organization to create a unified

platform for work-related action through socialization, creation and sharing of informational multimedia contents. The purpose of this chapter is to provide a preliminary model of the ECI association of fashion companies along with various performance outcomes. Because of the specific application context of ECIs reported in this chapter (i.e. of fashion companies), we apply the case study method and recount six case studies to develop a preliminary model for our discussion (Cavaye, 1996; Walsham, 1995). Compared to other methods, the case study approach is particularly suited for this investigation as ECIs are considerably recent phenomena and there has been no prior study focusing specifically on how fashion companies adopt ECIs to improve which aspects of performance (Yin, 2014). We use the technology affordance and constraint theory (TACT; Majchrzak and Markus, 2013) as the basis to guide our data collection as well as the development and interpretation of the case studies. Based on this investigation, we contribute by applying technology affordance theory in the context of fashion companies' actualization of technology affordances of social media as an internal or organizational communications (OC) medium. We also provide early empirical evidence of fashion companies' ECIs to guide future fashion business research directions.

The structure of this chapter is as follows. First, we discuss the technology affordance and constraint theory which forms the basis to guide the methodology and analysis. Next, we provide reasons for adopting the case study approach and describe how the data and cases are collected and developed respectively. The six case reports are then presented. Fourth, we present the findings from our case and discuss our analysis, implications and limitations. Finally, we conclude this chapter.

4.2 ECIs and Technology Affordance

The concept of affordance originated in ecological psychology and was created by James Gibson. Affordance refers to something that the environment offers to the animal, and by implication, the relationality between the animal and its environment (1966, 1977, 1979). This concept was later adopted and developed in the fields of information systems management and technology studies. Specifically, “an affordance is defined as an action potential; it is a relation between a technology with certain features and a users’ intent or purpose to which this technology is to be used” (Majchrzak et al., 2016, p.272; emphasis mine). By extension to the firm level of analysis, “a technology affordance refers to what an individual or organization with a particular purpose can do with a technology or information system” (Majchrzak and Markus, 2013). Conversely, a technology constraint refers to “ways in which an individual or organization can be held back from accomplishing a particular goal when using a technology or system” (Majchrzak and Markus, 2013). Hence, technology affordances (or constraints) implicitly connect employee actions or firm practices with the perceptions of employees and decision makers concerning the technological features embedded in their organizational contexts (Bærentsen and Trettvik, 2002; Fayard and Weeks, 2014). In other words, technological affordances or “possibilities of action are not given, but depend on the intent of the actors enacting them” (Zammuto et al., 2007, p.752). In our investigation context, the newly adopted enterprise social media affordances introduced during ECIs offer fashion companies opportunities to act upon and realize novel forms of operational activities or work activities (e.g. mass collaboration, Zammuto et al., 2007). Given the potential influence and relevance new social media impose on firm-level internal communications, performance outcomes are subject to being altered as users exploit the newly afforded ways of communication and collaboration to better

achieve performance goals (Ashcraft et al., 2009; Cooren, 2006; Faraj and Azad, 2012). At the individual level, the use of social media for internal communications with other coworkers has led to the acquisition of knowledge resources from previously unacquainted coworkers which benefit individual work performance (e.g. Gibbs et al., 2013; Leonardi, 2014; Majchrzak et al., 2013). In other words, employees become more productive as they save time and effort while locating informational contents published by other organizational social media users; they also simultaneously gain visibility to other users' network of individuals who may provide further resources (Ellison et al., 2015; Fulk and Yuan, 2013; Leonardi, 2014). Studies have also suggested that internal communication systems such as enterprise-level social media may impact more than one type of individual performance outcome (Kügler and Smolnik, 2013; Petter et al., 2008; Richter et al., 2013). For example, studies have shown that the use of social media tools for internal communications within teams or groups are positively associated with individual innovation performance (Kuegler et al., 2015), individual task performance in teams (Suh and Bock, 2015), employee innovation (Patroni et al., 2015), and individual business sales performance (Hollenbeck et al., 2009).

ECIs such as an adoption of social media for internal communication and communication purposes can also lead to group and firm level performance changes (Holtzblatt et al., 2013). At the group or team level, the use of social media tools has afforded individuals to connect with one another to generate knowledge resources and solutions through aggregation of individually generated contents (i.e. collective intelligence; Kapetanos, 2008; Lévy, 1997; Matthews et al., 2011). As a result, the collective decision quality or the speed and accuracy of decision making processes between employees and leaders are enhanced (McHugh et al., 2016). In addition, the use of enterprise social media tools are also positively related to team performance in

terms of the extent to which team members can meet work quality standards, time limits and budget levels (Liu et al., 2014). Similarly, studies have also shown that the adoption of enterprise social media leads to several positive firm-level outcomes. For example, many firms that have adopted social media tools for internal communications achieved better firm performance outcomes related to sales (Engelstätter and Sarbu, 2013), innovation (Andriole, 2010), and customer satisfaction (Ramasubbu et al., 2008).

Scholars applying the theory of technology affordance generally treat the focal technologies and adopting organizations as separate entities, but their “influence on organizational functioning and performance cannot be separated from expertise, jobs, processes, or structures” (Zammuto et al., 2007, p.753). Therefore, we believe that the ECIs implemented by firms in the fashion industries create novel affordances that lead to unique performance outcomes specific to the organization design and levels of analysis.

4.3 Methodology

The aim of this investigation is to examine the relationships between fashion companies’ ECIs and their various impacts. To “capture and describe the depth, richness, and complexity” of such qualitative phenomena (Arino et al., 2016, p.109), we adopt a case study approach to uncover a range of constructs indicating consequences associated with fashion firms ECIs (Cavaye, 1996; Walsham, 1995; Yin, 2014). A case study is “a study that investigates a contemporary phenomenon in depth and in its real-world context” in which the case is the “main subject of study” (Yin, 2014, p.237). Hence, we gather data and develop case studies of fashion companies’ ECIs with a specific focus on the contents and consequences of ECIs. In addition, because ECIs and the use of internal social media tools affect individual users, user groups and firm outcomes, we

apply more than one level of analysis and embed these levels of analysis in the case studies (Klein et al., 1994; Yin, 2014).

Due to the inductive nature of this investigation, we structure our evidence or data collection to develop our case studies in two stages (Cavaye, 1996; Yin, 2014). First, we follow an approach similar to that in our earlier studies to identify relevant information on fashion company ECIs from several sources. These sources include client case studies prepared by technology vendors, a search on the Factiva database using keywords assembled from a literature review of both academic and practitioner research articles, and the retrieval of a set of documented cases of fashion company ECIs from an OC practitioner portal (see Chapter 2 and 3 for details of data collection). Second, we focus on articles and case studies documented by our data sources which contain information such as the identity of the implementing firms (i.e. fashion-related companies like fashion retailers, designers and manufacturers), contents of the ECIs, and the various consequences arising from such ECIs. Where possible, we also triangulate our data by drawing on converging information from the various sources (Yin, 2014). Due to the recency of the technology of interest in this investigation and the limited information available on fashion company ECIs, we assembled 29 articles or practitioner cases related to 18 different fashion companies. After evaluating and triangulating the data in accordance with the focus of our investigation, we collected sufficient data to develop case study reports on six fashion companies.

Our analysis began with writing of the case study reports or stories (Eisenhardt, 1989, 1991; Eisenhardt and Graebner, 2007). Primarily, we relied on technology affordance and constraint theory (TACT) to guide the development of the cases and then focused on “theoretically useful cases” that could replicate or extend the technology affordance theory (Eisenhardt, 1989, p.533; see also Yin, 2014). We noted several similarities and

differences between the cases during our data collection and case reporting, but we did not conduct any analyses until we completed reporting all the six cases. We applied a “cross-case synthesis” technique because the “case study consists of at least two cases” (i.e. six cases), and the “findings are likely to be more robust than having only a single case” (Yin, 2014, p.164). We used a pattern matching logic to identify and isolate the independent variables (i.e. ECIs) and dependent variables (i.e. outcomes of ECIs) in the empirical evidence with our case study’s overall prediction that fashion company ECIs impact performance outcomes (Trochim, 1989; Yin, 2014). After isolating the various variables of interest, we proceeded to write the six case reports.

4.4 Fashion companies’ ECIs

In what follows, we report six cases of ECI-implementing firms operating in the fashion industries from various sectors. We organize the presentation of the cases along three dimensions, namely, the firm’s motivation for the ECI, the contents of the ECI, and the consequences from the ECI. In sum, two of the ECI-implementing firms presented are full online retailers (e.g. Zappos and Gilt), two are department store chains (e.g. Macy’s and Marks and Spencer), one is a vertically integrated fashion company which design, manufacture, distribute and retail their products and services to customers (e.g. Adidas), while the last case presents a French-based conglomerate that invests and manages luxury brands and their operations (i.e. Kering). Two of these firms which manage the design and manufacture of their own branded products are also omnichannel retailers which market their products and services through both physical and digital online channels (e.g. Adidas and Marks and Spencer; see also Brynjolfsson et al., 2013).

4.4.1 Adidas group

In 2017, Adidas group - a leading global sportswear manufacturer and retailer – employed 56,888 people across more than 100 countries, produced more than 900

million product units and generated sales worth more than 24 billion USD (Adidas, 2018). In 2015, an ECI (i.e. a-LIVE platform) was launched to complement a customer-focused marketing-oriented business strategy that would also be supported by an “open, honest, fact-based, non-political, collaborative, and efficient” working environment (Keck, 2014; Runau, 2011). Prior to the ECI, the company realized that its employees were relatively young (i.e. on average 32 years of age) and came from a multitude of cultural and ethnic backgrounds. Following consultations with its workforce (e.g. Global Engagement Survey), Adidas decided to improve internal communication through the use of more “networked and personalized” OC media as the “new generation of employees demands the same ease of connecting and communicating with intuitive technologies that they leverage in their personal lives” (Keck, 2014).

Adidas’s ECI introduced new OC technological affordances in order to leverage on employees’ “collective intelligence to push the adidas Group beyond borders” (Keck, 2014). Learning from past ECI experience, Adidas avoided simply adopting “facebookish” affordances or standardized wikis or blogs into the OC technological environment (Keck, 2014). Instead, the new digital platform integrated a series of social media tools with affordances for specific communication activities or tasks (Runau, 2011). For example, micro-blogging was re-introduced as a tool for employees to engage coworkers distributed across various locations in discussions, provide updates and solicit solutions from one another. A “Twitter principle” social networking service was also introduced to allow employees to connect with one another instantly and automatically. Finally, the ECI integrated and hosted all the OC tools on one central platform or intranet portal to maximize employee accessibility to all OC tools.

The overarching goal of Adidas’ ECI was to “provide all employees with a personalized intranet platform” (Runau, 2011). The management envisions that through this ECI, a

single platform affords “information which is personally relevant to the employee from a business related, social and geographical point of view” to be combined and “make collaboration and knowledge management much easier” (Runau, 2011). As a result, the ECI served to improve the “adidas Group’s business operating model and the way of working together” between employees (Runau, 2011).

4.4.2 Gilt

Launched in 2007, Gilt is an e-commerce fashion discount retailer based in the U.S. that was once valued at over one billion USD (Anderson, 2018). Gilt specializes in online flash sale events that offer both men and women discounted designer fashion apparel, footwear, accessories, children wear, home furnishing products and travel and lifestyle services to its customers who subscribe to its event notices. Currently the company has more than six million subscribers or what it calls members worldwide, and bases its operations - staffed by hundreds of employees - across various states in the U.S. and some parts of Europe (Atlassian, 2018b).

In view of the frequency of flash sale events and the need to regularly coordinate such nonroutine retail projects across various locations in the U.S., an ECI was implemented to make sure “everyone is working with the same single source of truth and can communicate and collaborate in real time from anywhere” (Atlassian, 2018b). Hence, Gilt management replaced the existing OC tool – Skype, with another “agile project management” technology called “Jira” and an OC tool called “Hipchat” from Atlassian (an Australian software development company listed on NASDAQ; Atlassian, 2018b). Jira primarily serves as a project management software that “spans across the entire organization” to increase work visibility for every employee, streamline workflows, and synchronize work activities (Atlassian, 2018a). Hipchat is an online chat and instant

messaging social media tool that also features cloud-based file storage, video calling, and multimedia contents sharing (Atlassian, 2018a).

Gilt realized several benefits from the novel technological affordances introduced during the ECI. First, the ECI strengthened Gilt's "strong remote working culture" and "unique agile culture" (Atlassian, 2018b). Second, the Hipchat tool "allowed Gilt employees to connect with each other, not only about work but also around topics such as coffee, food, and music" (Atlassian, 2018b). Finally, the ECI also overcame security issues with publicly available OC tools, while adding to every employee's ease in accessing the new OC tools from any operating system (Atlassian, 2018b).

4.4.3 Kering

Kering, previously known as PPR, is a European publicly listed luxury goods company based in France. It is primarily involved in brand management (e.g. Gucci, Bottega Venetta, Balenciaga), design, manufacturing and retailing of luxury fashion products such as men's and women's apparel, footwear, leather accessories, watches and jewelry (Kering, 2018). As of 2017, Kering had nearly 29,000 employees worldwide and generated a sales value of more than 12 billion USD (Kering, 2018).

More recently, Kering implemented an ECI to "digitize its internal communications" and enable "collaboration across its teams" (Sogeti, 2013). The main objective was to set up a "new corporate collaborative platform" that "unites all the brands of the Group and enables the gathering of collective intelligence from the different entities" (Sogeti, 2013). Equally importantly, the ECI serves to replace the independent intranets managed by different entities in Kering. The new social networking tool user interface was also made available in ten different languages including Mandarin (Sogeti, 2013).

The outcomes expected from Kering's ECI include the creation of a "group culture and facilitate the collaborative work of all employees in an open, business-oriented and user-friendly environment", and to "maximize innovation" (Sogeti, 2013). Also, the ECI fits into the overall organizational goal of Kering to develop a "group digital culture and to support its brands in their own digital transformation" (Sogeti, 2013). Finally, the ECI also "offers employees the ability to access an internal mobility platform" (Sogeti, 2013).

4.4.4 Macy's

Macy's is a retail chain operator managing 690 department stores under the brands of Macy's and Bloomingdale's, and 160 specialty stores across 44 states in the U.S. (Macy's, 2018). In 2017, Macy's had about 130,000 employees and achieved more than 24 billion USD in sales (Macy's, 2018). Macy's positions itself as a customer-oriented company, serving "customers through outstanding stores, dynamic online sites and mobile apps" and with an "aggressive implementation of the company's customer-centric strategies by a talented experienced organization" (Macy's, 2018).

Due to the rising influence of e-commerce and the economic crash of 2008, market conditions for many U.S. retailers changed dramatically and those unable to adapt quickly collapsed (e.g. Circuit City, Borders; Tibbr, 2017). Hence, retailers not only had to increase the speed of internal communications between and amongst decision makers and customer-contact employees, but also search "for ways to improve communication and leverage the knowledge of their employees to deal with the changing circumstances" in the market (Tibbr, 2017). To improve OC between stores as well as between corporate headquarters and stores, Tibbr – an enterprise social media - was adopted by Macy's as an ECI (Tibbr, 2017). Tibbr offers several OC technological affordances, such as central depository and platform for files sharing, creating and

maintaining a personal profile visible to all other employees, display connections with an identified group of employees, instant messaging and announcements, search and view other employees' profiles and their social connections (Boyd and Ellison, 2007; Tibbr, 2018). According to Macy's, employees will be able to use Tibbr to "share knowledge about what is happening in its stores and what is selling best, including informal input from store employees about how customers are reacting to different products" (Carr, 2012).

Besides improving financial performance and maintaining a "competitive edge" (Tibbr, 2017), Macy's also seeks to achieve two other performance outcomes by actualizing the affordances from the ECI. First, Macy's can leverage the "insights" and "innovative ideas" of their employees through daily communication with their "corporate decision makers" for "increasing innovation at stores as well as in the e-commerce world" (Tibbr, 2017). Second, Macy's can also "improve customer loyalty" through employees using the new OC tool to "engage with each other" and "share ideas for floor layouts, product placement, best practices for dealing with customer issues and so forth" (Tibbr, 2017).

4.4.5 Marks and Spencer

Marks and Spencer is a British multinational retailer of fashion apparel, footwear, personal accessories, toiletries and food products (M&S, 2018). The firm produces its own branded products and merchandise which are then sold through its 1,463 physical and e-commerce stores distributed across 57 countries (M&S, 2018). In 2017, the firm employed about 81,000 employees and was serving an estimated 32 million customers worldwide (M&S, 2018). In order to motivate its employees and foster a sense of community, Marks and Spencer implemented an ECI by adopting Yammer, a social networking service for enterprise collaboration (Calnan, 2015).

The OC technology Yammer, adopted in Marks and Spencer's ECI is primarily a social networking service or social network platform (Calnan, 2015; Chacos, 2012). Each corporate user must use a valid company email address to register and log onto the Yammer platform in order to access a personalized profile page that displays the user's list of connected colleagues, personal information, current status at work, profile photo, contents that can be downloaded or viewed semi-publicly by other corporate users, and semi-public or private messages (Boyd and Ellison, 2007; Chacos, 2012). Such OC technological affordances have allowed 15,000 employees to continually communicate with one another, post some 63,000 messages and share 18,000 photographs in one month alone (Calnan, 2015). Contests such as nominations for best-performing employees and non-worktime detachment activities are also hosted on the platform (Calnan, 2015).

Through the new affordances made available to employees by the ECI, Marks and Spencer accrued performance benefits not only at the organization level but also across both individual employees and the stores. For example, an employee's motivation to sustain his or her good performance is reinforced when his actions and need for recognition is satisfied by the publishing of his or her exceptional performance on the new corporate social network site (Calnan, 2015). Store-level performance can also be improved through organizing competition between stores on the sale of newly-launched products (Calnan, 2015). Finally, firm level performance in the form of enhanced corporate reputation was also achieved through the ECI. For instance, the company's employees could collaborate with one another on the enterprise Yammer to locate a replacement for a customer who had lost his discontinued soft toy (which was personally significant; M&S, 2016).

4.4.6 Zappos

Founded in 1999, Zappos was a footwear e-commerce retailer that was also selling fashion apparel and accessories as well as children's merchandise by 2007 (Zappos, 2018). In 2008, the best-performing year, Zappos achieved 635 million USD in sales and posted an increase of 500% in net income as compared to 2007 (Evans, 2009). As of 2015, Zappos had about 1,500 employees based mainly in the U.S. (Feloni, 2016). Zappos was acquired by Amazon in 2009 (Evans, 2009).

Zappos differentiates from other firms in its ECIs as a result of its early adoption of public social media tools such as Twitter and Facebook in its marketing operations. Zappos actually integrates employee use of personal accounts on such tools into their "relationship marketing strategy" (Germaine, 2011). Employees are allowed to post company-related information and personal opinions on their personal and Zappos's social media accounts (Germaine, 2011). Zappos also manages a corporate Twitter microsite that aggregates employee tweets which serves as "an excellent word-of-mouth platform for marketing as well as for recruitment" (Germaine, 2011). Zappos's approach of integrating ECIs early in the business model is referred to as a "social business" (Steinert-Threlkeld, 2009). A social business is defined as a set of "activities that use social media, social software, and technology-based social networks to enable more connections between people, information and assets" which could be "internally focused within the enterprise or externally focused toward customers, suppliers and partners" (Kane et al., 2014, p.5). Clearly, Zappos has adopted both public and enterprise social media to dissolve its own organizational boundaries and leverage employee communication with one another and with customers in its business.

The social business model of Zappos provides several unique benefits. First, Zappos has enhanced individual-level relationship strength between customers and employees

(e.g. “personal emotional connections”) which translate directly into cost efficiencies in marketing and sales performance (Steinert-Threlkeld, 2009). Second, the widespread adoption of social media within the company has also allowed “workers and managers to know each other – and get answers faster without a hierarchy” (Steinert-Threlkeld, 2009). Finally, Zappos attributes its good financial performance (e.g. sales growth) to its integration of OC technological tools like social media with its corporate culture and business model (Germaine, 2011; Steinert-Threlkeld, 2009).

4.5 Findings and Discussion

4.5.1 Motivations behind ECIs

Table 4.1 provides a summary of case data on the six ECI-implementing fashion companies. They are all large, well-known multinational firms with operations and business activities in Europe and North America. At the time of investigation, four of the companies are publicly listed on U.S. and European stock markets (i.e. Adidas, Kering, Macy’s and Marks and Spencer) while the other two have been acquired by larger conglomerates (e.g. Gilt by Rue La La; Zappos by Amazon). The ECIs were implemented throughout the respective organizations and across the different business units or subsidiary companies.

The six fashion companies were motivated to improve internal communication and collaboration across geographical and functional boundaries via the adoption of enterprise social media. Two companies specifically implemented ECIs to improve employee communication across locations in the U.S. and Europe (Gilt), and between stores as well as between stores and corporate headquarters (Macy’s). In addition, two companies implemented ECIs to complement strategic business orientations such as those towards the market and customers (e.g. Adidas and Macy’s). One company (Zappos) sought to integrate public and personal social media tools into its marketing

operational activities. Zappos also sought to improve performance by integrating enterprise social media with its business model or its “system of interdependent activities that transcend the focal firm and spans its boundaries” (Zott and Amit, 2010, p.216). Finally, two fashion companies (Adidas and Kering) explicitly indicated that they aimed at using enterprise social media to tap on the “collective intelligence” or the “capacity of human collectives to engage in intellectual cooperation in order to create, innovate and invent” (Lévy, 2010, p.71).

Table 4.1 Summary of findings from case reports

Case Company	Motivation for ECI	ECI technological features	ECI impacts or outcomes
Adidas	To complement customer focus and market-oriented strategy To support "open, honest, fact-based, non-political, collaborative and efficient" working environment To improve internal or organizational communication To reconfigure organizational communication tools to meet the demands and communication habits of younger and new employees	Leverage on employee collective intelligence Digital platform that integrates and hosts a series of "personally relevant" social media tools (e.g. micro-blogging, social networking) Integrates specific communication activities with job tasks	Improve collaboration and knowledge management Improves operating model
Gilt	To support employee communications across different states in U.S. and some parts of Europe To support internal communications and employee coordination for flash sale events and nonroutine work	Replace Skype with Jira and Hipchat to allow real-time and agile project management and multimedia messaging Increase work visibility, streamline workflows and synchronize work activities	Strengthened "strong remote working culture" and "unique agile culture" Allow employees to connect with each other on both work and nonwork related matters Improved security over public social media tools
Kering	To digitize internal communications and enable collaboration across its teams To set up a new corporate platform that "unites all the brands of the Group and enables the gathering of the collective intelligence from the different entities"	New social networking tool user interface was made available in ten different languages including Mandarin Replace the existing independent intranets managed by different entities	Creation of a "group culture and facilitate the work of employees in an open, business-oriented and user-friendly environment" Develop "group digital culture and support its brands in their own digital transformation"
Macy's	To complement customer-centric strategies and changing market conditions by better leveraging on the knowledge of employees To improve communications between stores and with headquarters	Central depository and platform for file sharing, creating and maintenance of visible personal profiles, display personal connections, instant messaging and personal announcements Share knowledge about what is happening on shopfloor and customer feedback	Access to an internal platform while mobile Improve financial performance and competitive edge Increase innovation
Marks and Spencer	To foster a sense of community	Social networking service or social network platform Secured access with company email account Employee personalized profile page with personal information, current status at work, photo, downloadable contents Hosting of contests for both work and nonwork related activities	Improve customer loyalty Reinforce employee motivation through publishing of individual performance outcomes Improve store performance through inter-store competition hosted on new platform Improve firm level reputation through coordination of customer service activities
Zappos	Integrates public social media tools into marketing operations and business model	Encourage use of personal social media accounts for work-related marketing activities Post company-related information and personal opinions about company on personal social media accounts	Employee building of personal and individual-level relationship with customers which translate into cost efficiencies and sales performance Improve workers and managers exchanges and problem resolution efficiencies Improve financial performance with better corporate culture and business model

4.5.2 Contents and Consequences of ECIs

The six fashion companies understood how the characteristics of the social media technologies implemented in their ECIs differ from their existing OC technologies. Four companies (i.e. Adidas, Gilt, Macy's and Marks and Spencer) recognized the technological affordance from the convergent characteristics of the "digital platform" that their respective ECIs deliver. Such technological affordances enable new ways of OC and interaction by ensuring convergence among user-generated text, video, image or audio contents assembled and shared on the new social media platform (Yoo et al., 2012). For example, Adidas' new social media platform integrates and hosts a series of "personally relevant" social media tools that allow richer forms of user-generated content to be portable between tools and between users. Macy's new social media platform serves as a "central depository and platform for file sharing, creating and maintenance" of employee personal information and generated contents. By focusing on the digitization characteristics of the new social media tools, the fashion companies rely on the "encoding of analog information into digital formats" to replace previous OC everyday experiences (Yoo et al., 2010, p.725). For example, Gilt replaced Skype (an instant messaging and video conferencing service) with Jira and Hipchat to integrate agile project management and multimedia-based internal communication. Kering replaced all existing intranets of its subsidiary companies across the world with a single digital platform that is also supported in ten different languages. Zappos simply integrated employees' nonwork-related personal social media accounts into work-related activities without even the need for enterprise social media tools for marketing-oriented activities.

The fashion companies also indicated several impacts and performance outcomes associated with their respective ECIs. All six companies indicated positive firm-level

outcomes associated with ECIs. For example, Adidas and Zappos suggested that firm performance outcomes improve as their operating and business models are transformed by the ECIs respectively. Macy's suggested that post-ECI firm financial performance and competitive advantage should improve. Second, three companies indicated that ECIs transform their organizational cultures. Organizational culture generally refers to the "complex set of values, beliefs, assumptions, and symbols that define the way in which a firm conducts its business" (Barney, 1986, p.657). For example, Gilt reported that their ECIs strengthened the company's "strong remote working culture" and "unique agile culture". Kering suggested that their ECI developed a "group digital culture" or a digitization of the way all subsidiary companies conduct business. Third, the fashion companies also associated service operations management outcomes such as customer loyalty with ECIs. For example, Macy's reported that its ECI improves customer loyalty. Marks and Spencer suggested that company reputation is enhanced when customer service activities surpassed the expectations of their customers. Fourth, the ECI-implementing companies also reported employee individual and network level performance impacts. For example, Gilt reported that the newly-implemented social media tools allowed employees to connect with each other on both work and nonwork-related matters. Kering reported that the new social media tool had allowed its employees to access work-related contents while being mobile or outside work premises. Marks and Spencer suggested that the new social network platform keeps employees motivated as their individual performances are published. Zappos indicate that the personalized employee-customer relationships improves sales performance. Finally, Macy's added that its ECI improved innovation performance as real-time information and ideas get shared on the social media platform.

4.5.3 Discussion

This investigation has illustrated how ECIs such as the adoption of social media tools and social network platforms introduce novel technological affordances that impact fashion companies' operations and various outcomes. In other words, ECIs offer fashion companies opportunities to act upon and realize novel forms of everyday work activities while the new social media tools are in use (Leonardi, 2009; Zammuto et al., 2007). Fashion companies realize the affordances post-ECIs when employees act on converging and digital characteristics of the newly-implemented enterprise social media. More importantly, firms not only seek to innovate value creation practices post-ECIs, but also to improve business-related outcomes. Through a realization of technological affordances from ECIs, fashion companies innovate not only their internal communications but also operations across different functions to achieve various performance benefits. In what follows, we discuss the themes uncovered in our six case study reports and highlight relevant theoretical and conceptual work in other disciplines linked to such themes. We also discuss some implications of these themes and future research opportunities which may stem from this investigation. Finally, the major limitations of this investigation are summarized.

Using TACT as a basis to guide our data collection, case study development and interpretation, our investigation suggests that fashion companies' ECIs represent a rich area of research in view of the diversity in ECIs' motivations, contents and consequences. First, fashion firms seek to innovate operations through the convergence of employee intellectual outputs. Social media tools permit companies to "bring previously separate user experiences together" and embed "previously nondigital physical artifacts" creating digital products such as user-generated contents (Yoo et al., 2012, p.1399). As a result, users act and perform their activities *on* and *with* the social

media platform as they are informed by shared meanings and interpretations of their work (Schatzki, 2001, 2006). This shift from employees using OC technologies *for* work activities to them performing work *on* and *with* the newer form of OC technologies (i.e. enterprise social media) follows a reconceptualization of routinized work behaviors as flexible and creative practices (Feldman and Orlikowski, 2011; Feldman and Pentland, 2003). A practice refers to an activity or a series of activities, when acted upon by either human or nonhuman agents and becomes consequential to its own development (i.e. recurrence; Feldman and Orlikowski, 2011). By acknowledging the role of new technological affordances in structuring work practices and performance at different levels (DeSanctis and Poole, 1994), we recognize that the use of technology in practice is continuously consequential *in* and *to* an individual, group and firm level performance and outcomes. Therefore, we believe that practice theory (e.g. Nicolini, 2012; Schatzki, 2001) and technology-in-use perspective (e.g. Leonardi, 2009; Orlikowski, 2000) can further inform research exploring the adoption and use of OC technologies in fashion retail, customer service and operations management study contexts.

Second, we observe that fashion companies' ECIs and their contents (e.g. social media tools, social network sites) are independent conceptual entities characterized by different technological affordances. As such, the case studies in this investigation suggest that ECIs can come to interact and impact other constructs under specified conditions. However, from an agential realism perspective, entities or objects do not exist prior to their interaction (Barad, 2003; Shotter, 2014). Rather, ECIs emerge as an entity through entanglement with another entity such as an organization or individual user. Barad (2007) describes entanglement as the relational realization or "ongoing process or becoming" (p.ix) between two entities (e.g. organizational practice, human

agencies, technological affordances, rules and protocols). Hence, how individuals and organizational decision makers interpret and make sense of the technologies, operations and business through discourse and internal communication essentially constitutes the fashion organization (i.e. communication constitute organization or CCO; McPhee and Zaig, 2000; Putnam and Nicotera, 2009; Weick, 1995). In addition, the theoretical perspectives of agential realism and CCO implicitly call for attention to time or temporality (Ancona et al., 2001a; Barad, 2003; McPhee and Zaig, 2000). A temporal view of fashion companies' ECIs offer additional variables of interest such as objective and subjective measures of schedules, deadlines, pace, cycles, and workflow which affect the realization of ECIs' technological affordances for performance change and outcome improvements (see Ancona et al., 2001a; Ancona et al., 2001b for further discussion on temporality).

Lastly, note that two of the case studies (Adidas and Kering) explicitly reported that ECIs' technological affordances enable achievement of performance outcomes by tapping on collective intelligence within the firms. Collective intelligence refers to "the capacity of human collectives to engage in intellectual cooperation in order to create, innovate and invent" (Lévy, 2010, p.71). From an organizational learning perspective (Fiol and Lyles, 1985; Levitt and March, 1988), enterprise social media tools enhance individual development of ideas through richer and wider interaction with other coworkers which in turn contributes to the "amplification and development of new knowledge" (Nonaka, 1994, p.15). At the firm level, ECIs' technological affordances enhance firms' "combinative capabilities to generate new applications from existing knowledge" (Kogut and Zander, 1992, p.391). This is particularly more so in the fashion industries, the "hypercompetitive and fast-paced business world today requires short response times and more accurate responses and more exploration of potential

opportunities” (Bonabeau, 2009, p.45). Hence, it is vital for fashion companies such as retail chain operators to adopt the latest enterprise social media technologies in “harnessing the collective intelligence of those who have the necessary information for the benefit of those who must take action in the field”, which “can be a surer path to success than the use of top-down, template-based decisions” (Bonabeau, 2009, p.49).

This investigation has offered several opportunities for and in future research on fashion companies’ ECIs. First, future scholars can focus on the individual, employee group or network, and firm level of analysis in developing the theories related to fashion company ECIs (Klein et al., 1994). For example, scholars may investigate how newly implemented enterprise social media may enhance fashion retail chain operations and collaboration between stores, and in turn, individual service employee, store and firm level performance outcomes. Second, they may look beyond financial and operational performance impacts of ECIs (e.g. sales, customer satisfaction) and examine other outcome variables such as customer-employee rapport (Gremler and Gwinner, 2008). Indeed, the Zappos case study has suggested that employees’ use of personal social media accounts improves not only individual sales performance results but also the relationship between the employee and customer. Third, scholars may also study the innovation outputs from ECIs in the fashion industries context. For example, they may examine ECI-implementing fashion companies in terms of their service recovery performance after service failures. Employee service recovery performance refers to “behaviors in which customer service employees who directly handle customer complaints engage to recover customer satisfaction and loyalty after service failures” (Liao, 2007, p.476). Hence, scholars may adopt a single case study approach and lay out how individual employee exploit the technological affordances of enterprise social media tools to recover or enhance customer satisfaction (see the Marks and Spencer

case). Fourth, theoretical concepts and frameworks such as TACT and organizational learning theory discussed in this investigation can also be adopted to explain the associations between individual, group, store or firm level use of enterprise social media tools and the differing performance outcomes. Finally, the practice and temporality perspectives highlighted in this investigation support the use of quantitative methods such as the event study method (e.g. Barber and Lyon, 1996). Because technological affordances take time to be actualized, the event study method is especially useful to test how operational and firm outcomes may come to be altered between ECI-implementing and non-implementing firms. Scholars may further test their statistical models using the contextual conditions under which ECIs impact individual, group or organization level performance outcomes.

Despite the strength of using the case study approach to generate and test theory, we recognize that there are limitations to this approach in general and to our investigation itself. First, although our multiple case study approach has been able to capture and replicate fashion companies' ECI technological affordance logic, we have been unable to relate the ECIs to a single outcome variable. Furthermore, we have uncovered outcome variables that relate to individual, group and firm level of analysis. Therefore, we have been unable to generalize the association observed between ECIs and a specific category of outcome variables (Cavaye, 1996; Walsham, 1995; Yin, 2014). However, we believe that the differences in the outcome variables of our investigation was due to the contextual complexity of fashion companies' ECIs, which warrant more in-depth research (Eisenhardt, 1989). Second, our data was collected mainly from published online sources and does not fully represent the population of fashion companies' ECIs. Nonetheless, we have relied on theoretical sampling using TACT and managed to generate enough data to report six cases. Theoretical sampling "involves the selection

of cases based on their ability to illuminate and extend relationships among constructs or develop deeper understanding of processes” (Eisenhardt et al., 2016, p.1114). This sampling approach has enabled us to produce a case study with six case reports to validate the phenomenon of fashion companies ECIs, which in turn have provided a strong basis to motivate future research on this topic.

4.6 Conclusion

This investigation has used evidence concerning how six fashion companies have determined the motivations, technological contents and consequences of their ECIs. We have adopted the case study approach to “capture and describe the depth, richness, and complexity” of such qualitative phenomena (Arino et al., 2016, p.109). Using the technology affordance and constraint theory (TACT) as the guide to data collection, we developed six case reports on fashion companies’ ECIs. We observed that fashion companies adopt ECIs to improve internal communication at the employee, group and store levels as well as to tap on the collective intelligence of employees. In doing so, the firms rely on the convergent characteristics of the social media platforms implemented during the ECIs. Generally, the ECI-implementing firms report positive outcomes. However, the outcomes differ, ranging from individual, group and firm level to financial, service operational and social outcomes. Our analysis has revealed several theoretical approaches that can be adopted by future researchers to further investigate fashion companies’ ECIs (e.g. practice theory, agential realism, temporality). Despite some limitations, this investigation has provided an early validation of fashion companies’ ECIs and introduces methodological and theoretical directions for future research.

CHAPTER 5 CONCLUSION

Recent industry interest coupled with a lack of empirical research on organizational communication (OC) technology in OM has motivated the studies reported in this thesis. Technology consultancies such as Frost & Sullivan, Gartner and IDC have detected a clear trend towards an increased organizational adoption of internal communications technologies to improve firm performances (e.g. Gartner, 2016; IDC, 2014). McKinsey Global Institute has also highlighted the firm value-adding potential in four industry sectors from firms' spending on communications tools to improve employee coordination and collaboration (Chui et al., 2012). To our knowledge, OM studies on the effects of firm-level implementations of OC technologies such as unified communications systems and enterprise social media has been scarce, if not absent. We have viewed this lack of academic interest in an increasingly important practical issue as a research gap that we could fill. As expected, we started by reviewing the literature in OC and technology management fields to understand the current state of research on OC technologies.

Relevant theoretical and empirical works were first identified from OC and technology management fields to stimulate our research direction. In our study context, OC refers to the processes of "creating collective and coordinated structures of meaning through symbolic practices oriented towards the achievement of organizational goals" (Mumby, 2001, p.587). Contemporary OC scholars generally view organizations as processes constituted by operational and employee communicative actions (i.e. communications constitute organization or CCO; McPhee, 2015; McPhee and Zaug, 2000; Shockley-Zalabak, 2015; Weick, 1979). OC is usually seen as the mediating "interpretive" plane between an organization's operations (what it does) and how its communicative

activities (what is said) make up its performance (Putnam and Pacanowsky, 1983). Scholars of technology management generally agree that information and communications technologies are integral to firm success because they directly affect the mechanisms through which value is generated and captured by the firm (Drnevlch and Croson, 2013; Orlikowski and Robey, 1991). The use of the theory of affordances and constraints (TACT) is one important way of explaining the imbrication of human and material agencies during technological use in organizations and its effect on firm performance (Leonardi, 2011; Majchrzak and Markus, 2013; Majchrzak et al., 2016). Specifically, TACT refers to the “action potential” of whether an ICT or technology can or cannot support or impede firms or individuals with specific purposes (Majchrzak and Markus, 2013). In recent years, scholars have begun to integrate such conceptual developments into their studies on OC technologies such as enterprise social media and social networking software implementation in firms (e.g. Treem and Leonardi, 2013; van Osch and Coursaris, 2013; Von Krogh, 2012).

The overall aim of this thesis has been to apply quantitative methods to advance the understanding of how OC technology introduction can impact firm-level performance outcomes. In addition, we have also conducted case studies on fashion companies’ adoption of a more recent OC technologies (e.g. enterprise social media) to explore new research directions in the intersection of OC technology and fashion business management. To date, empirical studies of OC technologies have typically been confined to using qualitative methods such as case studies (e.g. Leidner et al., 2010; Riemer et al., 2012), or analyses conducted at the employee or team levels (e.g. Colquitt et al., 2002; Huang et al., 2015). In OM, where computing systems designed for organizational use are traditionally referred to as enterprise systems, empirical studies of the application of quantitative methods while implementing OC technologies has

been rare with most studies currently focusing on ERP, SCM or CRM systems (e.g. Hayes et al., 2001; Hendricks et al., 2007). To address this research void, we have proceeded to frame our studies of OC systems on the basis of the technological foundations of Web 2.0 and Enterprise 2.0 (see Chapter 1). We have defined implementations of such OC technologies as enterprise communication initiatives (ECIs). Specifically, an ECI is the deployment of communications technological systems within the organization to create a unified platform for work-related action through social interaction, socialization, creation and sharing of informational contents in different media formats. Examples of ECIs include organization-wide implementations of enterprise-level social media applications like corporate wikis, social networking sites with integrated UC functions such as content sharing, instant messaging and web conferencing.

Subsequently, we conducted two quantitative studies using event study approaches (see Chapters 2 and 3). We highlight below the main contributions of these studies. ECI-related announcements covering a wide range of implementation years (see Tables 2.1 and 3.1) and industry sectors (see Tables 2.2 and 3.2) were collected from various sources (e.g. Factiva, vendor websites). Both parametric and non-parametric tests were then applied to test for significant firm market-value (i.e. TQ) differences between ECI-implementing and non-implementing firms. The analysis found a statistically significant positive difference from both sets of tests, indicating that the interactive nature of recent OC technologies affords opportunities for employees and firms to engage in more collaborative and value-adding production of products or services. However, the cross-sectional performance outcome difference was limited to one time-period from the implementing year to one year after (i.e. t to $t+1$). We believe this is an early study for the OM audience in which we used objective financial data and applied

multi-disciplinary concepts to explain our finding. However, through this study, we have contributed to OM literature on enterprise systems by providing empirical evidence using a quantitative method concerning the benefits ECIs provide for firm performance. Incidentally, we have also contributed to TACT and CCO theories by demonstrating the utility of the event study approach in temporally bracketing and validating the effects of ECI implementation.

We have also conducted a second study to build on the preliminary finding from the first study. Specifically, rather than traditional technologically determinist stance while formulating our hypotheses on how commercialization or internal oriented activities can overlap or interact with technologically-mediated OC activities over time, we have applied practice and imbrication theories. Further, we have explored how organizations and employees make sense of the affordances by the novel technological features from historical and prevailing operating contexts during the ECIs (Orlikowski and Gash, 1994). We have argued that firms and users perceive only the designed and potential affordances associated with OC technologies before ECIs (e.g. Norman, 1999), and actively customize their business oriented practices with the actual affordances from the newly implemented OC technology during ECIs (Orlikowski, 2000). Applying a moderated multiple regression analysis, we have found a significant interactive effect of commercialization orientation at t and $t-1$ with ECIs on firm abnormal TQ change (t to $t+1$). This finding indicates that not all business orientations (e.g. IO) can imbricate with technologically-mediated OC, and actualization of affordances from new OC technological deployment must be conducted in relation to both the historical and prevailing operating contexts. We believe that our second study has provided empirical evidence showing how firm performance outcome changes accrue over different stages

of technological affordances through OC technological dynamics with specific business orientations.

Both our quantitative studies had similar limitations, which can be addressed in future research. The first concerns our reliance on publicly disclosed announcements or case studies of ECIs. Although we have verified by searching the Internet for conflicting evidence and checking against our stock of announcements when we pair the control firms with the sample firms, we have been unable to fully eliminate the possibility that the control firms may have also implemented OC technologies of some sort during the same time-period (t) as the sample firms. Future researchers may want to rely on a much larger sample size or a different case collection method to increase the method's statistical power and reduce any potential bias. Second, we have relied on Compustat financial data for facilitating the computation of the dependent variable (TQ), contextual variables (CO and IO) and control variables. As such, the range of variables we have been able to compute were limited by the types of data we could access. Moreover, missing data was also a major factor in causing our sample size loss. Future researchers may need to build a more comprehensive dataset drawn from diverse data sources to support a richer analysis. Third, our samples included only for-profit listed U.S. companies. Hence, the generalizability of our findings was confined to only such firms, and did not include non-profit organizations, small and medium sized or private firms. We believe that the abnormal performance benefits from the excluded firms' implementations of ECIs are likely to be affected by other contextual factors or performance outcomes as a result of different organizational purposes, the nature of their operations, and other organizational characteristics. Moreover, the performance outcome variables for these other organizations may also be different from those

recorded by U.S. listed for-profit firms. Hence, future research may include such organizations to test and extend the theories adopted in our studies.

Fourth, we suspect that the imbricative nature of more recent OC technologies may have produced socially beneficial outcomes too through interactions with other activities or processes at various levels of analysis (e.g. firm reputation, employee job satisfaction). Thus, other contextual conditions and performance benefits linked to OC technology introduction may also be studied in future investigations. Intuition suggests that OC technologies can be theoretically categorized (e.g. synchronous vs asynchronous), and the respective financial and social effects from each deployment studied. Finally, a variety of research methods and study approaches may be adopted individually or in combination to deepen our understanding of the effects of OC technologies in OM contexts (Choi et al., 2016). Other research methods such as case studies and ethnographic studies can also be applied to uncover new constructs and develop interesting hypotheses that may be highly informative for OM and audiences from other academic fields or practices (Barratt et al., 2011).

In our further investigation, we explored the validity of ECI implementation by companies in the fashion and apparel industries. However, we adopted a qualitative study approach because of our narrow focus on the adoption of enterprise social media tools for internal communication by fashion companies to improve performance. Moreover, social media tools designed and dedicated for enterprise use are a relatively recent phenomenon (e.g. Workplace by Facebook launched in 2016) as compared to public social media tools (e.g. Facebook launched in 2004). Using TACT as the basis to guide our investigation, we assembled six cases to illustrate the relation between fashion companies' implementation of enterprise social media tools for internal communication and various performance outcomes. From our analysis of the

motivations, contents and consequences of fashion companies' ECIs, we put together several motivations and consequences associated with the ECIs such as the tapping of collective intelligence to improve employee to firm level outcomes. In addition, we uncovered theoretical concepts from other disciplines that are related to our findings. Thus, this investigation informs future research about which relevant constructs and theories to examine.

In summary, operational activities like other organizational activities are structured in part by technologies when users appropriate the functional features designed for such technologies (DeSanctis and Poole, 1994; Orlikowski, 2000). As such, meaningful user behaviors can define operational activities as ongoing actions are performed in technological spaces and in practice (Bendoly et al., 2006). Traditionally, technologies have been viewed as homogeneous and, when newly deployed in organizations, such technologies inevitably and directly determine the performance structures and performance outcomes. Our research has however suggested otherwise—systems of work behaviors can interact with the novel affordances of OC technologies to reconfigure individual and socially-derived interpretations and work practices (Orlikowski, 2000). Over time, such continuous structuring and restructuring through OC technological interaction with certain operational activities can be expected to (re)constitute firm performances and positively impact financial outcomes.

APPENDIX A1: SAMPLE FACTIVA ANNOUNCEMENT, TECHNOLOGY VENDOR CASE STUDY, AND PRACTITIONER COMMUNITY ARTICLE

DOW JONES

Tibco Software Inc - Tibbr Chosen By Ciber Inc . As Social Computing Software For The Enterprise

784 words

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TIBCO SOFTWARE INC ("TIBX-Q") - Tibbr Chosen By Ciber Inc. As Social Computing Software For - The Enterprise As part of TIBCO's five-city global product launch, CIBER, Inc., announced in London its selection of tibbr(TM), the next-generation productivity and collaboration tool for the enterprise.

CIBER decided on tibbr -- after having researched other social tools available on the market -- because tibbr goes beyond connecting people. Taking advantage of TIBCO's experience, tibbr allows employees, customers and partners to interact with each other -- and with information and events generated by their enterprise IT systems.

In the London keynote presentation today, CIBER Vice President of Technology Jon Scarpelli will describe how the commitment to tibbr coincides with a major transformation to becoming a globally driven organization. With thousands of employees interacting in sophisticated technology practices, CIBER will harness valuable intellectual capital through the use of tibbr enterprise computing technology. CIBER expects the energy and velocity of social media and tibbr's unique features to help drive this transformation.

According to Scarpelli, "CIBER turned to tibbr because it allows workers to not only follow people, but also the subjects that are important to them. CIBER is deploying tibbr to support our strategy to increase intellectual capital capture throughout the organization, with collaboration that can occur among a small group of colleagues or across divisional and geographic boundaries."

CIBER will deploy tibbr across its 8,000 employees to enable mission-critical enterprise applications, systems and people to follow and communicate with each other in real time. tibbr offers mobility on major mobile platforms which is important for CIBER because its consultants are often travelling, or spread across client sites and development centers, relying on mobile devices for communication and collaboration.

Ram Menon, TIBCO's Executive Vice President, said, "What we're hearing among leading enterprise-class companies is that social tools lack tibbr's deep integration capabilities. Marrying social software with enterprise infrastructure capabilities spurs better communication with key applications, systems and processes critical to running a business, while enabling collaboration and sharing among people too."

About CIBER, Inc. CIBER, Inc. is a global information technology consulting, services and outsourcing company applying practical innovation through services and solutions that deliver tangible results for both commercial and

government clients. Services include application development and management, ERP implementation, change management, project management, systems integration, infrastructure management and end-user computing, as well as strategic business and technology consulting. Founded in 1974 and headquartered in Greenwood Village, Colorado, CIBER has more than 8,000 employees. We operate in 19 countries, serving clients from 14 Global Solution Centers and 70 local offices in North America, Europe and Asia/Pacific. Annual revenue in 2009 exceeded \$1.0 billion. CIBER trades on the New York Stock exchange (NYSE: CBR), and is included in the Russell 2000 Index and the S&P Small Cap 600 Index. For more information, visit www.ciber.com.

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About TIBCO TIBCO Software Inc. (NASDAQ: TIBX) is a provider of infrastructure software for companies to use on-premise or as part of cloud computing environments. Whether it's optimizing claims, processing trades, cross-selling products based on real-time customer behavior, or averting a crisis before it happens, TIBCO provides companies the two-second advantage(TM) -- the ability to capture the right information at the right time and act on it preemptively for a competitive advantage. More than 4,000 customers worldwide rely on TIBCO to manage information, decisions, processes and applications in real time. Learn more at www.tibco.com.

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Manhattan Associates marries Yammer's social functionality with key business applications like SharePoint to drive productivity. Benefits:

- > Collaboration that transcends organizational and geographical silos
- > A mobile workforce that taps into corporate "tribal knowledge" anytime, anywhere
- > Savvy knowledge management means client successes are replicated, significantly boosting productivity, customer satisfaction—and the bottom line

Reaping Business Rewards from Social Networking

Manhattan Associates provides software and professional services that help clients ranging from American Eagle Outfitters to Walmart optimize their all-important supply chains. The company's expertise has a major impact on its customers' efficiency and bottom lines—and now it's using Yammer to do the same for its own organization.

"We help companies with distribution complexity manage everything from their warehouses to the trucks that ship inventory. That's where we shine: taking complexity and simplifying it," explains Chief Financial Officer Dennis Story. "That's what I love about Yammer: It does the same for us."

All international enterprises are complex organisms, but Manhattan Associates is more complex than many. Not only does it have offices in nine countries, roughly 60 percent of its 2,200 employees are highly mobile, spending most of their time at clients' premises. "We want our software engineers to have good tools when they're at a customer's site and need answers quickly," Story says. "They don't have the time to search for a file or a document."

"Technology wasn't solving our problems," he continues. "The enterprise software we were using was built for a static workforce, and our communications environment was just perpetuating what we did in everyday life, which was work in silos. What we needed was better communication and global knowledge management. We were looking for collaboration not only across the globe, but across divisions. As a company, we knew we'd be stronger if R&D and our professional services organization were tightly linked."



Dennis Story
CFO

“What excites me about Yammer is that it's changing our culture and making it a whole lot easier to solve our clients' complex problems. It has the greatest utility and usability of any application in our enterprise.”

Industry
Technology

Employees
2,200

Founded
1990

Revenue
\$329.3 Million

Region
North America

Contact Sales: [1-888-926-7377](tel:1-888-926-7377) | contactsales@yammer-inc.com

In late 2011, Manhattan Associates decided to see if social networking could enhance its IT infrastructure and drive productivity. "I'd heard a lot about Yammer, and a CFO is always a sucker for a low-cost alternative, so I signed up for the freemium version," Story says. "Within 30 days, 90 percent of our employees had set up profiles and were using it. I call it 'the revolution to evolution.' Yammer took off in such a viral way, my take-away is that there was a lot of pent-up demand to collaborate."

Staying Connected Anytime, Anywhere

Yammer is now the glue that connects not only Manhattan Associates' globally dispersed offices, but its highly mobile workforce. "We're nomadic," Story says. "We go where the customers are, where the money is. Yammer feeds our mobility footprint. It doesn't encumber us; it allows us to be free."

"I was out on the road forty weeks last year," says Senior Consultant Zach Zalowitz. "Sometimes it's hard traveling, since there's not always someone available to give you the assistance you need to do your job well. With Yammer, though, everyone I need to communicate with is just a click away. Anywhere, anytime connectivity makes the world a smaller place."

Connecting on Yammer isn't just easier, it's deeper. Says Story, "What I love about Yammer is there's no spam. It's rich internal communication that pulls people out of their silos. Plus, it's persistent and searchable. The ability to bookmark something that looks interesting and come back later really helps me be more efficient."

For Ron Carolino, Principal Business Analyst, increased efficiency is also the name of the game. "We get the same questions over and over in my department, and when they came in through email, we'd have to answer them each time," he says. "Within weeks of implementing Yammer, that was eliminated. That saves us a huge amount of time, so we can focus on documentation and design—things really add value to the product and improve clients' experiences."

As Manhattan Associates has discovered, Yammer's knowledge-management capabilities lead to a host of benefits, including a better bottom line. "By capturing and sharing the solutions our reps come up with to address clients' challenges, we're far more efficient," Story says. "That means more billable than non-billable hours. Yammer increases margin and drives profit. That's the Holy Grail for any company: effectively harnessing knowledge in a really cost-efficient manner."

"Smart companies figure out how to provide a medium to employees so that the folks who have tribal knowledge share it with others who are facing complex problems," he adds. "Yammer has done that for us. There's nothing more powerful than a workforce that self-selects the best ideas so they reach the top. Yammer has brought our network to life. It's become part of our company's DNA."



Zach Zalowitz
Senior Consultant

“We’re using Yammer to go toe to toe with competitors. It makes us leaner and better at what we do by giving us a place to share knowledge and collaborate. The more we do that, the better we get—as individuals and as a company.”

THE RESULTS

- > **Nearly universal adoption.** Employees don't just use Yammer, they embrace it. In the first month, 90 percent signed up; today 98 percent of the workforce is on board.
- > **An end to silos.** Yammer transcends organizational and geographical boundaries, so R&D knows what's going on with professional services, and workers in the Atlanta HQ are attuned to the Tokyo and Bangalore offices.
- > **An empowered mobile workforce.** Half of the company's staff is mobile, and with Yammer, they can tap into the corporate network to get the answers they need.
- > **Effective knowledge management.** Questions are answered quickly and solutions shared so they can be replicated.
- > **A better bottom line.** By bringing social functionality to Manhattan Associates' IT infrastructure, Yammer drives productivity—which increases everything from customer satisfaction to billable hours.

» Feature Spotlight



SharePoint is Manhattan Associates document-management tool of choice.

"We rely on SharePoint," says Senior Operations Analyst Susan Croteau. "It has crucial features like version control. Now that it's integrated with Yammer, we can message somebody on the fly, or throw a question out to a group—all without leaving SharePoint. Plus, global search allows us to search both Yammer and SharePoint, which really broadens our knowledge base."

ABOUT YAMMER


Yammer is a leading Enterprise Social Networking platform used by over 200,000 organizations worldwide—including 85% of the Fortune 500—to foster team collaboration, empower employees, and drive business transformation. Yammer's freemium business model lets customers see the value of Yammer before upgrading to the premium offering. Founded in 2008, Yammer is now part of the Microsoft Office Division.

For more information about Manhattan: www.manh.com

For more information about Yammer: www.yammer.com

Molson Coors taps into Yammer for innovative employee communications

Internal social media has been brewing at Molson Coors for quite some time. The global brewer is an early adaptor of Yammer having first introduced the collaborative enterprise tool in 2009. Kelly Kass shares their story.

 [Coors-Brewery-Colorado-large.ashx.png](#) (1)

By Kelly Kass

Since 2009, Molson Coors has been a well-publicized champion of the tool recognized for best practices and continued innovation for connecting employees, fueling engagement and productivity.

I recently rang up two of Molson Coors' employees in Denver responsible for overseeing the successful Yammer implementation: Adri Jones-McMeekin, Internal Communications Manager and Miguel Zlot (pictured), Enterprise Social Networking Evangelist.

"In April 2009, I came across an article in TechCrunch talking about Yammer so I joined right away and immediately saw how it would change the way we work," Zlot explained.

He was immediately impressed. "Miguel walked over to my desk and said, 'we gotta do this thing,'" Jones-McMeekin recalled. So the two colleagues spent two months piloting the tool before unveiling it to the rest of the company.

The launch

Two months later, in the true spirit of social media, Jones-McMeekin and Zlot opted for a viral launch, ensuring they fully try out the tool themselves before launching it to the rest of the company.

"We didn't want to follow typical communications protocol; we just wanted to do it. We wanted to portray Yammer as a casual employee communications tool rather than the usual corporate channel that people were used to," Jones-McMeekin pointed out.

The aim was for employees to feel comfortable with Yammer; to dive right in and use it.

"We didn't send out a typical email from an executive to endorse Yammer; we wanted employees to feel like this was their tool and they were the ones who owned it," Jones-McMeekin explained.

To facilitate adoption, she distributed a few 'how-to' emails, however, she points out, "many employees just learned as they went along."

How Yammer was used

Zlot and Jones-McMeekin opted for the Freemium version of Yammer as they began their enterprise social networking journey - a path that would soon take them north. Zlot recalled:

"Our Canadian business unit came to me because they wanted to build a portal for Molson Coors employees there as well as retirees. The goal was to make them aware of product launches and to build pride for the brand. So we did an analysis of what their needs were and what Yammer could provide."

Soon after, Molson Coors Canada had their portal, called Club Molson Coors Canada, consisting of sale sheets, beer and food pairings, and a list of regional contacts in Sales and Marketing.

"Club Molson Coors Canada was probably the most notable Yammer network at our company. It was a one-stop shop for key account information. And because the network is external, it allowed us to engage with our retirees to involve them in our brands and encourage them to share legacy knowledge with active employees," Zlot explained.

Yammer in the C-suite

Yammer also has natural fit at Molson Coors, a company dictated by a social and interactive culture. Some of the site's biggest users come from the top.

In 2012, Molson Coors held their own YamJam Happy Hour out of its Denver headquarters, allotting one hour on Yammer for executives to discuss quarterly earnings. Employees logged on to Yammer to post questions to Molson Coors' CFO.

Keeping with the enhanced accessibility and transparency, the company also held a follow-up YamJam led by the company's Head of Strategy to field inquiries from employees about next steps following the acquisition of a European business.

In Toronto, Molson Coors Canada's CEO used Yammer to run a contest complete with a quiz which brought out employees' competitive streaks. Seeing the CEO post a picture skiing is also not uncommon, as is sending kudos and shout-outs to other Molson Coors divisions.

Zlot ensures that Yammer is accessible to all executives on their iPads and iPhones since "Executives have more disposable time because they are always stuck in planes, trains, or automobiles." He's even noticed an increase in mobile Yammer usage in the past couple of months.

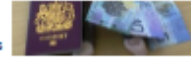
Success stories and problem solving

According to Zlot, there are project teams at Molson Coors which share milestones to keep all teams connected and informed. There was even a team mascot for one of the projects, Data Monkey (pictured), whose adventures around the world were captured on Yammer. Another project asked team members a series of rapid fire questions like "Skittles or M&M's?" or "Rock of Love or The Bachelor?" and filmed the answers and posted to their Yammer Project Group.

Employees' Yammer use goes way beyond big sales wins and lively photos. According to Zlot, it's also a platform to rapidly solve problem that cross functional silos:



"We had a sales representative post pictures of damaged Coors case in a Canadian retail outlet on Yammer. Another employee saw the photos and was able to identify the production line and brewery responsible for the cases. As a result, the brewery manager investigated and fixed the problem. The key here is that this happened in a matter of hours where traditionally it could have taken days or even weeks."



Zlot also credits Yammer making connections in the organization that could not be made previously by allowing for more accessibility and collaboration. "Our mechanical engineers group share modifications they've made in our breweries. Problem-solving is conducted among people who haven't necessarily even met each other."

Usage and engagement metrics

To date, Molson Coors has 3,950 Members on their Yammer network. According to Zlot and Jones-McMeekin, 1,500 are engaged users, while the remaining generally read feeds and status updates of other users. A trend they are tracking is what channel their users are getting updates from. While the primary source is the companies' Intranet, Yammer use is growing at a higher rate than the Intranet as of late.

And what about Molson Coors' internal communication channels on the whole?

"When we look at engagement compared to other channels, face-to-face is still the preferred method of communication, however Yammer use has skyrocketed in the past year vs. one-way communication," Jones-McMeekin pointed out.



Employees look to CEO messaging for information on the company's mission and strategy but are more engaged when hearing and interacting with their peers in the business.

"Hearing what's happening in the business in real time is ideal for our sales and marketing teams," Jones-McMeekin stressed.

Top tips for successful Yammer implementation

As one of last year's [Yammer customers of the month](#) [1], Zlot can offer several words of wisdom to companies thinking about making a similar enterprise social media journey.

When it comes to which version of Yammer to use, Zlot feels that the Freemium version is "more than adequate" for companies to dip their toes in, however the paid version offers the support needed for a full-scale deployment as well as other premium benefits like SharePoint integration.

Zlot points out that it's also critical to identify enterprise social champions in the organization to create excitement about the new platform while spreading the benefits. A champion can also help raise the comfort levels of newbies who were previously inclined to rely on traditional internal communication channels.

Jones-McMeekin's advice is for companies to be aware of the fact that "different media solve different problems for different audiences." Know what each internal communication channel can offer individually; whereas an Intranet posting can offer company information, a site like Yammer can offer opportunities to create a conversation and collaborate on various projects.

Zlot and Jones-McMeekin both recommend Yammer as a way to combat email overload. According to Zlot, employees now opt to use instant messaging capabilities instead of solely relying on their email inbox which they generally look toward to receive official company information or follow-up notes on a departmental meeting. And when it comes to staying up-to-date with project team developments, Yammer is the go-to channel inside of Molson Coors.

Jones-McMeekin added, "internal social media needs to fit with a company's culture," but sometimes, you just have to do it:

"Even if you're perceived as a serious company, don't be afraid to try a new tool in the spirit of knowing you can't treat it as a traditional communications channel. You have to just let things happen rather than be concerned about monitoring and deleting content."

[Company Profile](#) [enterprise social media](#) [internal communication](#) [Molson Coors](#) [Yammer a site by GifGroups](#)

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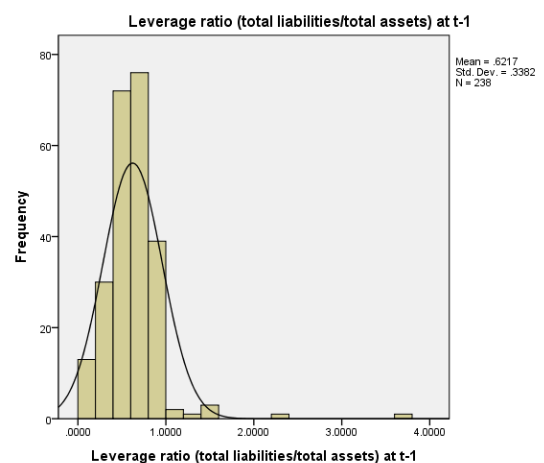
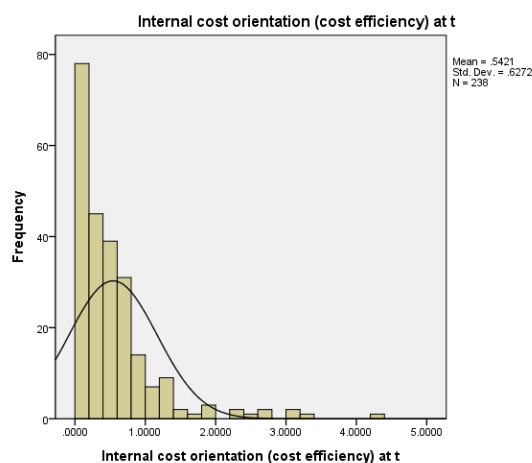
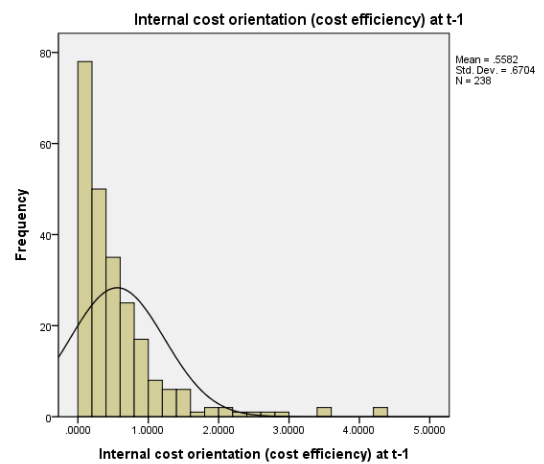
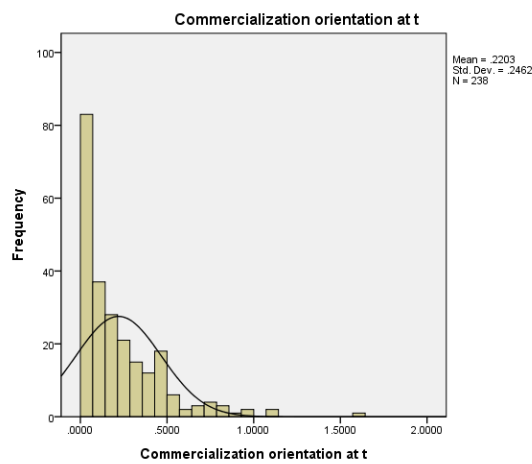
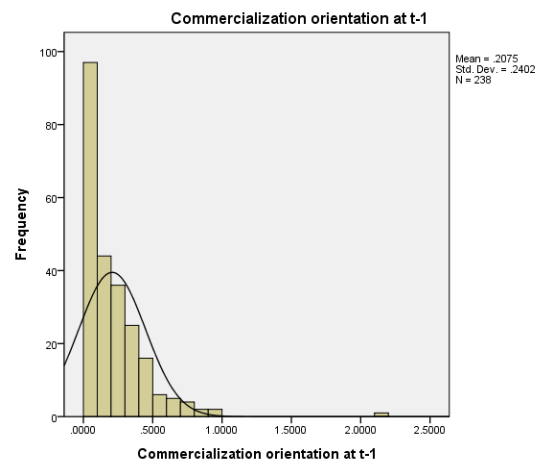
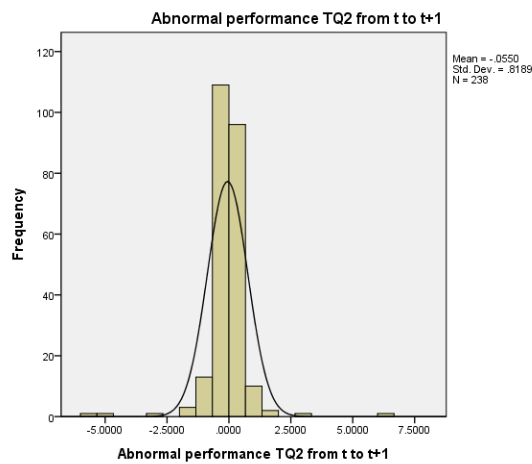
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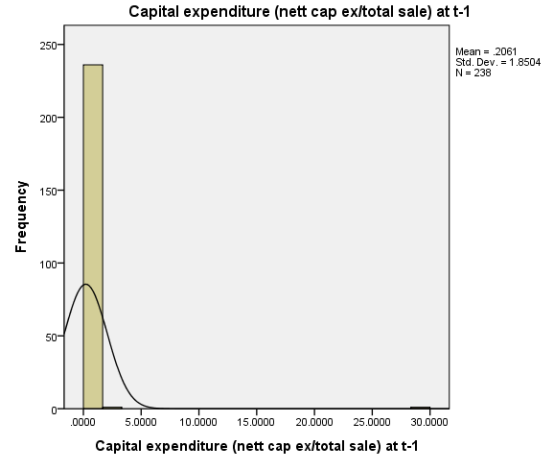
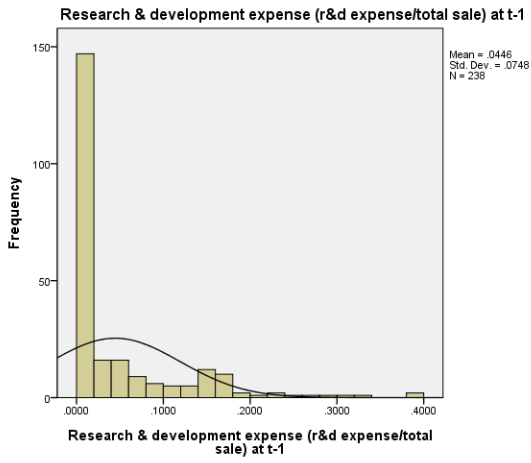
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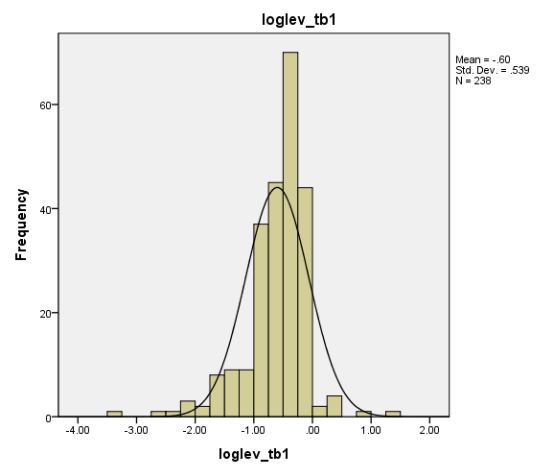
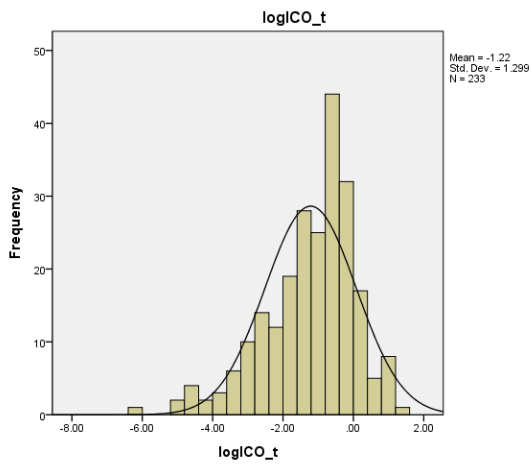
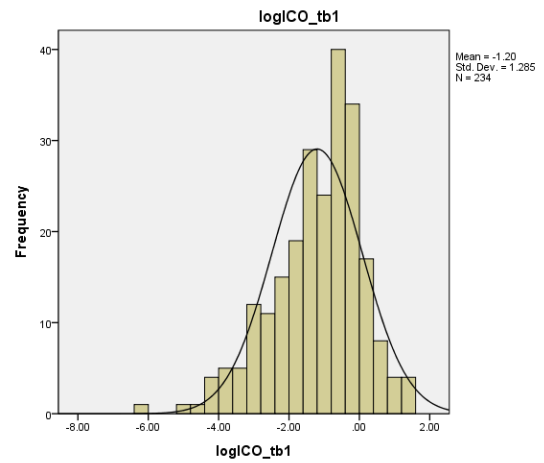
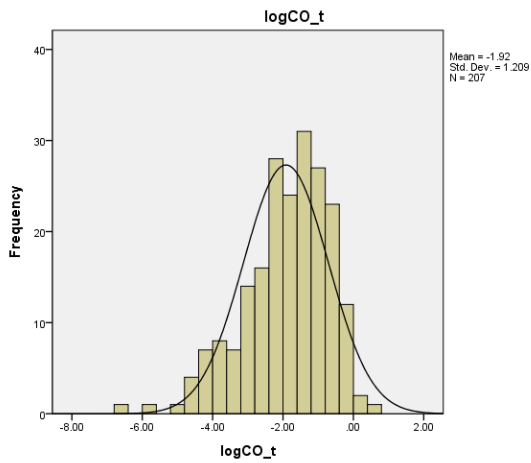
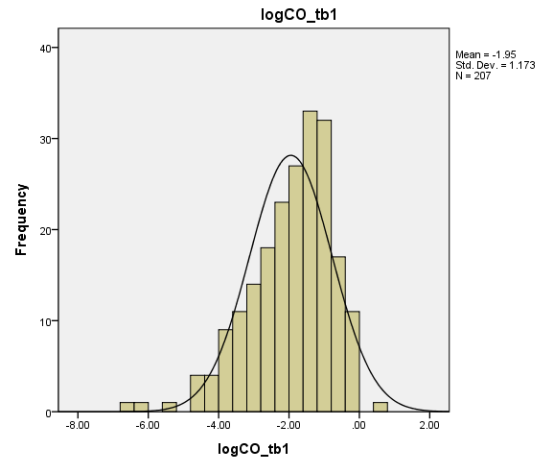
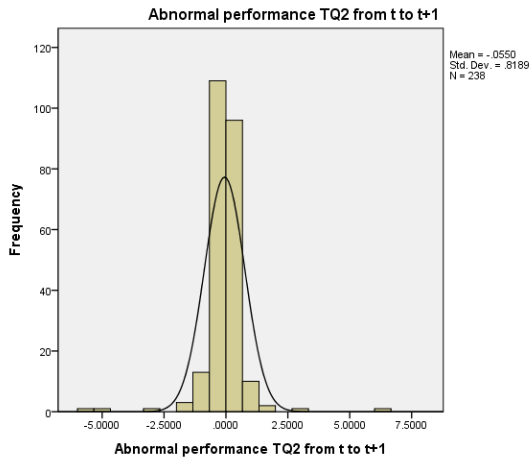
- [1] https://www.simply-communicate.com/sites/default/files/Coors-Brewery-Colonado-large.katn_png
- [2] <http://blog.yammer.com/blog/2012/06/mel-miguel-zlot-august-customer-month.html>

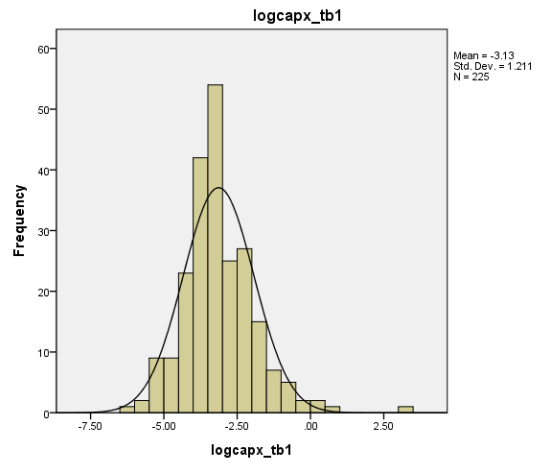
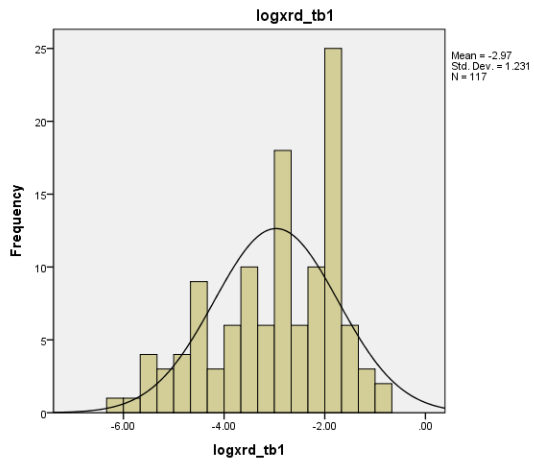
APPENDIX B1: FREQUENCY HISTOGRAMS OF VARIABLES BEFORE NORMALIZATION AND STANDARDIZATION





APPENDIX B2: FREQUENCY HISTOGRAMS OF VARIABLES AFTER NORMALIZATION





APPENDIX B3: MODERATED MULTIPLE REGRESSION ESTIMATION RESULTS WITH COLLINEARITY STATISTICS

Model	Variables	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	Intercept	-.547	.155		-3.515	.001		
	Event Year	.051	.015	.227	3.353	.001	.878	1.138
	Total Sales	-.036	.056	-.044	-.644	.520	.870	1.149
	Leverage	.091	.056	.111	1.628	.105	.861	1.161
	Research & development expense	.037	.076	.032	.490	.624	.943	1.060
	Capital expenditure	.013	.056	.015	.226	.822	.924	1.082
2	Intercept	-.752	.165		-4.565	.000		
	Event Year	.057	.015	.251	3.724	.000	.848	1.179
	Total Sales	-.073	.059	-.088	-1.244	.215	.763	1.311
	Leverage	.080	.056	.098	1.444	.150	.834	1.199
	Research & development expense	-.023	.084	-.019	-.270	.788	.756	1.322
	Capital expenditure	.050	.059	.060	.853	.395	.787	1.270
	Enterprise Communications Initiative (ECI) Dummy	.305	.107	.186	2.846	.005	.898	1.113
	Commercialization Orientation (CO) _{t-1}	.098	.167	.112	.587	.558	.106	9.425
	Commercialization Orientation (CO) _t	.013	.170	.015	.077	.939	.102	9.761
	Internal Orientation (IO) _{t-1}	.265	.164	.321	1.617	.107	.097	10.257
Internal Orientation (IO) _t	-.255	.162	-.308	-1.572	.117	.101	9.949	
3	Intercept	-.731	.167		-4.388	.000		
	Event Year	.054	.015	.241	3.545	.000	.832	1.202
	Total Sales	-.060	.060	-.073	-1.008	.314	.740	1.351
	Leverage	.083	.056	.101	1.479	.140	.824	1.214
	Research & development expense	-.038	.084	-.032	-.449	.654	.738	1.355
	Capital expenditure	.058	.059	.069	.976	.330	.777	1.287
	Enterprise Communications Initiative (ECI) Dummy	.291	.107	.178	2.717	.007	.893	1.119
	Commercialization Orientation (CO) _{t-1}	.058	.235	.066	.245	.806	.054	18.667
	Commercialization Orientation (CO) _t	-.041	.237	-.047	-.175	.861	.053	18.877
	Internal Orientation (IO) _{t-1}	-.014	.358	-.017	-.039	.969	.020	48.933
	Internal Orientation (IO) _t	.021	.353	.025	.058	.953	.021	47.434
	ECI x CO _{t-1}	.209	.360	.162	.580	.562	.049	20.367
	ECI x CO _t	.006	.363	.004	.016	.988	.050	20.165
	ECI x IO _{t-1}	.386	.405	.327	.955	.341	.033	30.489
ECI x IO _t	-.378	.405	-.314	-.933	.352	.034	29.482	

4	Intercept	-.733	.162		-4.525	.000		
	Event Year	.055	.015	.245	3.707	.000	.832	1.202

Total Sales	-.015	.060	-.018	-.254	.800	.700	1.429
Leverage	.061	.055	.075	1.124	.262	.814	1.228
Research & development expense	-.047	.082	-.040	-.569	.570	.734	1.363
Capital expenditure	.047	.059	.056	.800	.424	.733	1.365
Enterprise Communications Initiative (ECI) Dummy	.083	.132	.051	.630	.529	.561	1.783
Commercialization Orientation (CO) _{t-1}	.041	.229	.047	.180	.857	.053	18.692
Commercialization Orientation (CO) _t	-.021	.230	-.024	-.091	.928	.053	18.889
Internal Orientation (IO) _{t-1}	-.009	.348	-.011	-.027	.979	.020	48.957
Internal Orientation (IO) _t	-.001	.344	-.001	-.002	.998	.021	47.465
ECI x CO _{t-1}	.319	.352	.247	.905	.367	.049	20.604
ECI x CO _t	.048	.353	.037	.137	.891	.049	20.219
ECI x IO _{t-1}	.341	.394	.289	.865	.388	.033	30.647
ECI x IO _t	-.278	.398	-.232	-.699	.485	.033	30.197
ECI x CO _{t-1} x CO _t	.278	.072	.321	3.859	.000	.526	1.901
ECI x CO _{t-1} x IO _t	-.058	.064	-.073	-.905	.366	.562	1.780

N = 238; Dependent Variable: Abnormal performance TQ from t to t+1

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