Institutional Logics of IT-enabled Organizational Performance in Resource Constrained EMS Organizations

Full Paper

Yasser Buchana
University of Cape Town
ybuchana@gmail.com

Lisa F Seymour
University of Cape Town
Lisa.seymour@uct.ac.za

Abstract

Previous research in information systems (IS) have used institutional theory to explain how various institutional forces influence the use of information technology (IT) to support organizational performance in healthcare organizations. In this study, we use the institutional logics lens to theorize the institutional logics of IT-enabled organizational performance in the context of resource constrained emergency medical services (EMS) organizations. Our study is informed by the critical realist (CR) philosophy and uses interviews, participant observation and organizational data collected from a single case study to develop explanations of the institutional logics of IT-enabled organizational performance. From a CR perspective, institutional logics correspond to the structures situated in the domain of real. To identify and explain the institutional logics embedded in the EMS case, the study adapts the Berente and Yoo framework for characterizing institutional logics. The study contributes to literature on the mechanisms that influence organizational performance in resource constrained healthcare organizations.

Keywords

Institutional logics, Emergency medical services, Information Technology, Organizational performance.

Introduction

Over the past few decades, the use of Information Technology (IT) in the healthcare industry has received significant attention in Information Systems (IS) research. Mayer-Schonberger (2002) argues that IT in healthcare facilitates information exchange which in turn promotes co-operation and collaboration through the effective use of IT to achieve a common goal (i.e. saving lives). Public Emergency Medical Services (EMS) organizations are complex entities whose primary role is to provide pre-hospital emergency services to sick and injured patients. EMS organizations consist of many different elements and stakeholders such as, service providers, paramedics, patients, governments, etc. The use of IT in public EMS organizations (e.g., Emergency medical services, Law enforcement services, Fire department etc.) has played an important role in delivering emergency medical services to the public. Increasingly public EMS organizations are under pressure from governments and other stakeholders to provide explanations of variations in performance outcomes against their resources. Often, performance targets are not met due to various unpredicted factors or eventualities internal or external to EMS organizations. As such, organizational performance is a fundamental concern to all EMS organizations (MacFarlane and Benn 2003; Melville et al. 2004; Pilemalm et al. 2013).

Traditionally, for resource constrained EMS organizations, IT enabled organizational performance was assessed based or against predetermined goals. Historically, organizational performance was conceived to be closed, linear, stable and predictable. However, there are fundamental problems associated with the use of KPI measurement models when seeking to interpret and attribute the causes of performance variations. These performance KPI reports do not explain the outcomes of organizational objectives and consequences that are underpinned by IT. In other words, empirical level consequences of organizational performance in the context of resource constrained EMS organizations cannot be explained by evaluating KPI statistical reports only. In the context of resource constrained EMS organizations, KPIs are deemed

not suitable for explaining the underlying causal mechanisms that produce variations in performance outcomes. Various IS scholars suggest that organizational performance improvements are a result of a combination of many different factors, mechanisms and complex interactions between different elements of the organization which should not be studied in isolation (Melville et al. 2004). Avgerou (2000) notes that organizational practice and IT innovation are both regarded as institutions. She further argues that both IT and organizational practice constitute their specific but distinctive mechanisms operating at different institutionalization levels in an organization (Avgerou 2000).

Understanding the institutional logics would allow EMS managers to better manage performance in order to deliver fast and effective emergency healthcare services. Thus, to explain the dynamics involved in responding to emergency services, it is essential to understand the underlying institutional logics of organizational performance that are underpinned by IT. A close focus on institutional logics is often missed by traditional IS organizational scholars. Hence, this paper is guided by the following question: "What institutional logics influence IT-enabled performance in the context of resource constrained EMS organizations?" Therefore, the objectives of this paper are two-fold. First, to investigate and further explain the relevance and value of the institutional logics approach in explaining the organizational performance outcomes. Secondly, identify and explain the institutional logics that impact organizational performance in the context of emergency healthcare delivery. The rest of this paper is structured as following: the literature review section presents a review of IT-enabled organizational performance. Thereafter a discussion on critical realism in IS research is presented. The theoretical foundations and methodology of the paper are then discussed. The analysis and findings are presented and the paper culminates with the contribution and conclusion.

IT-enabled Organizational Performance

Under the global theme of "health information systems", previous research studies have extensively discussed the link between IS/IT and organizational performance. Gil-Garcia et al. (2009) argue that IT in organizations consists of a combination of social and technical factors. In the context of emergency medical services, some of these factors include the time-critical characteristics of emergency services and the need for and delivery of timely as well as trustworthy information that is used by emergency paramedics in responding to emergency situations (Arens and Rosenbloom 2003; Chan et al. 2004). Avgerou (2000, p.237) argues that "IT is a pervasive technology, which impacts on all aspects of performance of organizations ...". In the context of resource constrained EMS organizations, organizational performance depends on the efficient and effective delivery of quality as well as timely emergency services which is underpinned by IT. Organizational performance provides a framework for informed managerial decision making (Wu and Hu 2012). Moreover, performance enables the effective usage of resources (human and material) and acts as a medium through which employees or teams of an EMS organization can be held accountable for their actions. For EMS organizations, performance forms the basis for continuous improvement in delivering emergency services to the public (Schooley and Horan 2007). From an EMS perspective, the primary purpose of enabling organizational performance is to assist with decision-making and to hold various actors accountable. Furthermore, the delivery of emergency services is underpinned by IT across multiple organizational functions. Thus, the term "IT-enabled organizational performance" is used in this study to refer to the use of IT to enable organizational performance.

Research Gap

The performance phenomenon in organizations has been extensively studied from both theoretical and empirical perspectives. However, existing literature has only gone as far as testing theories and analyzing performance irregularities at the empirical level by (a) operationalizing frameworks in different contexts and (b) developing descriptive as well as predictive models of performance. Unfortunately, such studies and other approaches used in studying performance in existing literature have devoted very little attention to the causal mechanisms of organizational performance (Wood et al. 1990; Wu et al. 2015). This is primarily because the majority of existing studies aim to determine variables that yield changes in performance outcomes by defining organizational performance as a dependent variable. As a result, the causal structures associated with organizational performance outcomes have largely been ignored. Moreover, existing research in the context of EMS systems in healthcare does not sufficiently incorporate

relevant aspects needed to explore or to better explain the underlying causal mechanisms that enable performance outcomes. The critical realist philosophical stance is used in this study to inform the investigation of the mechanisms that enable IT-enabled organizational performance.

Critical Realism

Critical Realism (CR) acknowledges the transfactual existence of structures with causal powers. Hence explanations of how agency interacts with structures can be generated, as well as, how these structures are modified and reproduced through these interactions (Danermark et al. 2001). Therefore CR focuses on explanatory factors by venturing beyond descriptions of events, recognizing the role of structure and agency (Little, 2011). The interaction between agency and structure and the responsiveness to real complexity defines CR as an explanatory approach. Events that emerge are not only as a result of actions of individual agency but also as a result of contextual factors (Dobson et al. 2007). The goal of CR-based research is to seek explanations rather than predictions (Lee and Hubona 2009) and provide clear, concise and empirically supported statements about causation, that is, why and how a phenomenon occurred (Bhaskar 2013). In this study, a CR perspective that focuses on the interrelationships between the causal mechanisms, social structures and performance outcomes is used to provide explanations of how organizational performance outcomes are achieved in resource constrained EMS organizations.

Critical Realist Ontological Assumptions

Fundamentally, the ontology of CR is transcendental (Bhaskar 2013). This means that the nature of reality is objective and certain properties of this reality are not necessarily observable (Avgerou 2013). CR posits that a given phenomenon possesses some hidden powers that are enacted through a set of mechanisms or laws as a result of their basic structural characteristics (Fleetwood and Ackroyd 2004). These powers are enacted in the domain of the actual and may not be observable by human observers. This is primarily because of the limited perceptions humans have of the world or because of interference and concealing by other counteracting events (Dobson et al. 2007). Therefore, real powers sometimes are enacted to generate actual experiences, and these experiences might or might not be empirically observable. However, some actual events are observable by humans and these take place in the domain of the empirical (Mingers et al. 2013). The actual domain includes actual events, generated by mechanisms, while the empirical domain includes observable experiences. These experiences are acquired by direct observations (Mingers 2004). Therefore, real rules/laws or powers recurrently can produce actual events, which might or might not be empirically perceptible.

Events

Events are known to be detailed actions or occurrences that are direct or indirect consequence of an interplay of mechanisms. Bhaskar (1998) maintains that events are characteristically and ontologically different to the structures and mechanisms that cause them. Since events are the outcomes of the interplay between causal mechanisms arising from the underlying structures, no change may occur due to the opposing effects of interacting mechanisms (Wynn and Williams 2012). Moreover, the resulting effects of the mechanisms may intensify the outcomes of other mechanisms as well as the outcome direction of actual events (Wynn and Williams 2012). Although many events can be generated from structures and mechanisms, CR epistemology acknowledges the limited ability of humans to recognize and measure them. Wynn and Williams (2012, p. 792) argue that "[t]his is especially true for complex events which are less likely to be directly perceived". However, the events may be known through abstraction from their effects. CR classifies "real" entities as rules, mechanisms or structures that have the ability to perform some actions. Because of their inherent structure, events have underlying powers, which are produced through some set of rules by which structures exercise their powers, i.e. mechanisms. An important property of CR lies in its emphasis on the concept of causal mechanisms (Archer et al. 2013; Danermark et al. 2001). The section to follow discusses the concept of causal mechanisms in CR.

Causal Mechanisms

The term causal mechanism is used to refer to a set of entities, elements and/or activities that produce some observed change from a set of initial conditions (Archer et al. 2013). Mechanisms are the building

blocks used to generate causal explanations of a particular phenomenon of interest. In addition, mechanisms serve as the intermediate links through which the observed outcomes are attained (Wynn and Williams 2012). Collier (1994, p.62) defines mechanisms as that "aspect of the structure (or entities) by virtue of which it has a certain power". However, Astbury and Leeuw (2010, p. 368) define mechanisms as "underlying entities, processes, or structures which operate in particular contexts to generate outcomes of interest". From a CR perspective, mechanisms have three fundamental characteristics. These are: (1) mechanisms are usually hidden; (2) mechanisms are sensitive to variations in context; and (3) mechanisms generate outcomes.

Theoretical Foundations

The fundamental principle for theory in CR is that, real mechanisms have latent powers to occasionally produce actual events in the real world (Avgerou 2013). CR as a philosophical approach incorporates the elements of structure and agency (Archer et al. 2013). Both IT and organizational practice constitute their specific but distinctive mechanisms operating at different institutionalization levels in an organization (Avgerou 2000). The public healthcare sector is a complex industry in which institutionalization of work practices are common. Institutional theory affords a theoretically resilient source for investigating the nonlinear dynamics of IT mediated work practices and assimilation in EMS organizations (Currie and Swanson 2009). Furthermore, given that EMS organizations operate in time critical and highly unpredictable and highly dynamic environments, the institutional logics perspective is a valuable theoretical lens for investigating the structures and mechanisms that underpin organizational performance outcomes. In addition, the institutional logics lens offers an approach for theorising IT enabled organizational performance which are influenced by technological, cultural and structural forces, as well as, external environmental dynamics.

Institutional Logics

Institutional logics are defined by Thornton and Ocasio (2008) as "the socially constructed, historical patterns of cultural symbols and material practices" which include assumptions, values, and beliefs, by which individuals and organizations provide meaning to their daily activity, organize time and space, and reproduce their lives and experiences. Institutional logics are the fundamental logics that provide the key values of organization and legitimacy (Pache and Santos 2013; Reay and Hinings 2009). They help to provide guidelines of action that assist agents to deal with ambiguity and decision making under conditions of uncertainty by determining important concerns and problems (Leca and Naccache 2006; Scott 1995). In addition, logics allow agents to clearly identify which of these issues/problems are significant and which ones require managerial attention, and finally they help to guide agents to possible resolutions (Thornton and Ocasio 2002). According to Scott, (1995, p. 60), Institutional logics provides frameworks and rationalization principles to make claims. As such, Leca and Naccache (2006, p. 630) argue that if "institutions are the rules of the game, institutional logics are the underlying principles of the game". Therefore, in the same way that it is impossible to reduce structures to simple parts from the domain of actual, institutional logics also can't be reduced to mere institutions. Institutional logics will be revealed in the domain of actual as institutional forms depending on the actions of agents and contextual factors. Thus, institutions are the outcome of agents rearranging institutional logics through fixed routines, rules, and norms in specific contexts. In this research, institutional logics and EMS work practices are considered fundamental factors that contribute to organizational performance. From a CR perspective, institutional logics correspond to the structures which are situated in the domain of real. At this level, an institutional logics approach is considered an appropriate lens for such analysis.

Institutional Actors

Prior research has emphasized the role of institutional actors and their interactions in creating, influencing and changing institutions (Garud et al. 2002). Thus, institutional actors play two important roles both as "producers and carriers" of institutional logics. Institutional actors may exist as either teams/groups or organizations or simply as individuals. From a micro level perspective, organizational performance is influenced by mechanisms that regulate the relationships between the different institutional actors, and help define the actors' relevant roles.

Methodology

The CR methodological approach is based on the assumption that there exist underlying mechanisms that cause observed outcomes in the phenomenon. For this study, methodological choices were primarily guided by CR's epistemology and ontology. Case study was found to be appropriate given the objective of the study. The aim of the CR case study approach, is to gather the necessary and sufficient empirical facts about the particular phenomenon to be able to make theoretical statements about the underlying mechanisms at work (Archer 1998). Eisenhardt (1989) defines case study methodology as a research strategy, whose focus is on understanding the dynamics that exist within a specific setting. The case study approach provides opportunities for deep understandings of a single phenomenon through comprehensive and detailed data collection procedures (Yin 2013). Multiple data collection sources and analysis techniques were used in this case study. The rationale was to identify and explain the institutional logics that underpin IT-enabled organizational performance. These are now described.

Data Collection

In this study four types of data were collected; 1) Interviews 2) Participant observations, 3) Organizational documents (e.g., policies, procedures, rules, reports) and 4) Performance data (e.g., performance reports and system data logs). In total 14 interviews were conducted with different individuals at different levels and functional areas of the organization. The interviews ranged from approximately 35 minutes to 1 hour. A set of predetermined and open-ended questions guided the interviews. This gave the researcher flexibility to adapt follow up questions based on responses of the interviewees (DiCicco-Bloom and Crabtree 2006). Moreover, the researcher asked for clarification where it was required in order to get a better understanding of the phenomenon. Participant observation data allowed the researcher to document and gain first hand experience and an understanding of the context of resource constrained public EMS. Field notes from participant observations described the complex actions and interactions between human actors and their interaction with the IT artifact. Observation that were made and documented included observations relating to humans actors in their work space, their interactions with other individuals and their complex usage and interactions with IT as well as, other related observations.

Data Analysis

Interviews were transcribed and qualitative content analysis was used to analyze the data. ATLAS Ti v.7 software for qualitative analysis was used to organize the different categories and code the material. The interview transcripts were analysed together with organisational documents from the case. The interview transcripts were systematically organized into (i) main categories and (ii) subcategories. To identify and explain the institutional logics embedded in the case study, the analysis of data followed the Berente and Yoo (2012) framework of identifying institutional logics.

Case study: Resource Constrained EMS organizations in South Africa

In general, the public health system in South Africa is characterized by numerous problems. These include lack of resources (e.g., lack of skilled human resources), poor management, over-centralised decision-making, lack of transparency and accountability, as well as, inefficient health service delivery (Benatar 2004). Contextually, South Africa has 9 provinces. The Gauteng province is the economic hub of the country; is densely populated and has the most resources in terms of EMS infrastructure and equipment (Clarke, 1998). The government at the national level funds EMS. However, each province manages its own budget and allocation of its resources. The case under examination is a single case study of an EMS organization in the Western Cape province of South Africa, labeled for the purpose of this study WCEMS. According to Yin (2013), case studies are appropriate for investigating events in contexts in which the boundaries of the phenomenon are not clear. WCEMS is a public service organization which provides 24-hour medical response and pre-hospital care service to the public. WCEMS is one of the largest EMS services organizations in South Africa with approximately 2000 personnel. These include ambulance paramedics, call takers and dispatchers, etc. It has six control centers of which five are located in rural areas. WCEMS is structured into medical emergency response and HealthNET, a specialized unit which deals with the transportation of non-emergency patients. The organization responds to more than 515 000 emergency cases per annum.

The IT Artifact

In 2014, WCEMS implemented a state-of-the-art IT system to help solve its clinical requirements and operational computational needs. The purpose was to improve response times, quality of services, and clinical outcomes. In this paper, the IT artifact is referred to as the CADEMS system. CADEMS supported the execution of core WCEMS functions such as call taking, incident details capturing and registration, location identification, ambulance dispatching, and reporting. CADEMS allowed call takers to categorize and sort emergencies, based on a set of predefined questions which were answered by the caller, into high and low priority cases. The high priority cases were internally referred to as priority 1 emergencies (P1). P1 cases included for example; life threatening or limb threatening injuries, motor vehicle accidents, gun violence related injuries, cardiac arrests cases, and children under 7 years old. All other emergencies that were deemed not life-threatening or limb-threatening were categorized as priority 2 (P2).

CADEMS also helped to analyze the captured records for performance reporting purposes. In addition, CADEMS enabled integration with mobile devices installed in ambulances for real-time status updates. These devices facilitated the updates of both ambulance and patient information back to the emergency management center from the time the ambulance was dispatched to the time the patient was handed over to the medical facility (hospital or local clinic). Moreover, CADEMS was also designed to support and enhance managerial performance management routines. Supervisors and managers were able access reporting features of the system that allowed them to monitor individual performance for each call taker and dispatcher. The system also facilitated monitoring of all dispatched as well as unattended or outstanding P1 and P2 emergency cases resulting from a shortage of resources (human and material). From these performance reports, managers devised strategies that aimed (as much as possible) to minimize the number of P1 emergency cases in order to meet the organizational performance targets and to comply with the requirements from the department of health.

Findings and Discussion

Berente and Yoo (2012) describe four dimensions of institutional logics (Principle, Assumption, Identity and Domain). The identification of institutional logics provided both, a suitable reasoning and categorization of the different antecedents of IT supported organizational performance in the context of EMS as well as explanations of the factors that influenced the performance outcomes. Six categories of logics were identified, but three were deemed relevant and are presented in Table 1. They are now described.

Logic 1: Real-time Performance Analytics

In the WCEMS case, performance was monitored in real-time using a number of dedicated IT services and tools. The real-time performance monitoring system was responsible for monitoring, reporting (using advanced visualization reports) both individual and aggregated performance for the entire organization. Maximizing and optimizing organizational performance was considered an essential requirement for delivering emergency services and to improve response times. A number of performance improvement initiatives were introduced in an attempt to improve response times. These included effective measurement and analysis of individual performance in real-time and the introduction of digital performance display boards for call takers and dispatchers. The display boards allowed for transparency and facilitated more effective communication and coordination between call takers and dispatchers.

Logic 2: Individual Performance Management and Reporting

Actors who were responsible for call taking and dispatching emergency services understood the use of computers, as central to delivering emergency services. Individual performance measurement which was built within both applications tracked each actor's progress and hourly performance. For call takers, individual performance was measured against the number of calls accepted, the number of P1 calls registered and how long each call took. For dispatchers, individual performance was measured against the number of P1 calls dispatched below the 2 minutes. Aggregate scores were calculated for each individual incident from when the call was accepted to when the ambulance reached the patient. A real-time report was displayed on the performance boards as well as on the managers monitoring desk.

Institutional logic and dimension	Characterization of logic of real-time performance analytics	Empirical observation quote
Real-time Performance Analytics: **Principle**	Focus on analysis of real-time performance health of the entire organisation.	*"… what the real-time reports brought in, is the ability to go into the system and see at any particular time, what performance percentage they are at, to view the work outstanding in order take necessary action …" Manager#2*
Real-time Performance Analytics: **Assumption**	Real-time reports provide the capability to have a global view of performance in real-time.	*"… When we didn't have these real-time reports, our performance was at our lowest. It was like being in a desert and not having a clue of where you are going …" Manager#1*
Real-time Performance Analytics: **Identity**	Real-time performance monitoring facilitates a better situational awareness of organizational performance and determines areas that need improvements.	*"… if you are not measuring [real-time performance], then you are not managing it. That's the reality of it. So I don't know that I am doing badly, then how do I know that first, I need to improve, and secondly, how I should improve…" Manager#2*
Real-time Performance Analytics: **Domain**	Real-time performance monitoring implies a better management of resources.	*"… the idea is that we have all the 6 control centres linked up so that in case any of the centre goes down for any reason, other centres can operate as backups…" Manager #1*
Performance Management: Principle	Focus on monitoring of individual performance	*"… Agents know that they supposed to work as a team but they still worry about their individual performance and also the staff performance…" Training Manager #1*
Performance Management: **Assumption**	Individual performance measurement was a built feature of CADEMS and monitored and reported on each agent's hourly performance progress.	*"… we introduced the real-time reporting, and case status reports so as you know we are highly driven by performance …" Supervisor#1*
Performance Management: **Identity**	For call takers, individual performance was measured against the number of calls accepted, the number of P1 calls registered and how long each call took. For dispatchers, individual performance was measured against the number of P1 calls dispatched.	*"… if you look at the dispatchers, I think they have some form of awareness that their performance has an effect on the entire system, but I don't think they understand it fully …" Supervisor#1*
Performance Management: **Domain**	Large inter-organisational emergency medical services	*"… the idea is that we have all the 6 control centres linked up so that in case any of the centre goes down for any reason, other centres can operate as backups…" Manager#3*
Resource Optimization: **Principle**	Creative use of resources to facilitate mobilization.	*"… All these different applications integrate directly with the CADEMS and obviously integrates with all other 5 control centers. All the 6 control center has a uniform CADEMS integrated across the board …" Manager#2*
Resource Optimization: **Assumption**	Optimization of resources is a necessary condition for delivery of EMS services.	*"…The main thing in any organization and particularly in ours, is the resources. There isn't enough of them. So there's not enough people and there is not enough money. When that happens, you've got to use what you have more efficiently…" Manager #1*
Resource Optimization: **Identity**	High degree of inter-organizational dependence between organizations based on resources.	*"… We've implemented the call overflows, so that we the agents in Eden are busy the calls can automatically go to the Karoo centre and they can be able to answer those calls on behalf of Eden, they can register the calls in Karoo and it would end up in Eden for dispatching…" Manager#3*
Resource Optimization: **Domain**	Resource optimization implies better delivery of EMS services.	*"… From an information management perspective, it has allowed us to have a comprehensive view and to manage our resources efficiently, which has impacted on the care that the patients receive …" Project Manager#1*

Table 1. Dimensions, Characteristics and Quotes of Institutional Logics Identified

A ranking of the highest performing board, and lowest/struggling board was monitored in real-time by managers and supervisors. The performance tracking and reporting system was considered by actors as both enabling but also constraining. Some agents cared more about their individual performances than

the performance of their teams. Team work was highly emphasized by management, however, some agents ignored the managers calls for team work. Some agents believed that their individual performance counted more than the performance of the team.

The dimension of individual performance versus group performance can be said to be the extent to which individual actors understand the effect of their individual performance on the group. Triandis (1995) argues that "individualistic cultures emphasize rationality, rights and contracts, individual decision making and accountability, and place the goals of the individual over those of the group". Conversely, actors who understand their roles as part of groups consider their individual performance as interconnected and interdependent. This in turn promotes unity, teamwork, resource sharing as well as good collaborative relationships. Previously, agents were oblivious of the effect of individual performance on the team. After being made aware by management that individual performance impacts overall team performance, agents devised their own creative methods of using the systems to suit their work tasks, thereby changing or modifying the predetermined rules set out by management. As a result, a new sub culture of practices developed between the actors on how to get the most out of the tools in order to improve their team performance.

Logic 3: Resource Optimization

An important logic in the context of resource constrained organisations is the creative use or optimisation of resources. The CADEMS system allowed identifying the resources that were already in use and determining how the resources were being used. This allowed experienced senior managers to interrogate the resources that were already engaged to be able to devise strategies that enabled the creative use and optimisation of the resources. Due to the high demands of EMS in the Western Cape province, achieving a high percentage response rate of emergency incidents was considered an important priority to the success of the WCEMS mission. Since the analysis of the data was focused on explaining the causes of performance, the resources of interest are categorized into two groups: Firstly, the human resources (i.e call takers, dispatchers, ambulance paramedics, emergency doctors, supervisors and managers). Secondly, the material resources (i.e ambulances, equipment, etc). It follows from the data analysis that in order to achieve organizational performance, WCMES needed to optimize the limited resource available to ensure maximum utilization and to eliminate waste. The resource optimization mechanism was triggered by skills specialisation and lean practices, as well as lean principles embedded in the call taking and dispatching applications, to ensure that no time is wasted performing mundane tasks.

Conclusion

In this article, an institutional logics lens was used to identify the institutional logics of IT-enabled organisational performance in the context of resource constrained emergency response services. Three institutional logics are identified and explained. The institutional logics proposed in this paper can be used as a useful foundation for making inferences of the generative mechanisms at play that help to explain performance outcomes.

Prior literature has recognized organizational performance phenomenon to be influenced by many factors, yet most of these studies have been limited to the empirical level. This has limited the extent to which the underlying mechanisms of the performance phenomenon can be investigated. Instead, this study was informed by the CR paradigm, which allowed to go a step further by analyzing and elucidating the hidden mechanisms through the ontological stratifications of CR. CR asserts that there are real underlying causes, structures, processes and entities that give rise to the observations humans make of the world. CR has a stratified ontology (Empirical, Actual and Real) and allows for a broader and flexible epistemic approaches.

This research paper makes the following contributions. The paper first identifies three important categories of institutional logics based on the institutional lens perspective using Berente and Yoo (2012) framework. These institutional logics explain the mechanisms that underpin IT enabled organizational performance outcomes. Secondly, the paper makes use of the categorization of the identified logics to form a foundation for developing a configuration outline that depicts emergent organizational performance as an outcome of contextual factors in combination with the mechanisms. This perspective

improves on existing knowledge of institutional logics of IT enabled organizational performance in resource constrained EMS organisations.

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