Rethinking Communication in IT Project Management

Abstract

This paper is a response to the call in the Rethinking Project Management (RPM) study for new ways of thinking regarding project management. In particular, this paper presents a critique of existing thinking on communication in project management, and then presents a new model for conceptualizing communication in IT project management. Specifically, the Shannon-Weaver model, on which the Project Communications Management knowledge area in PMBOK is based, is shown to be inadequate when applied to human communications, and an alternative conceptualization is offered in this paper, drawing on alternate theories of communication from Galle and Wittgenstein. Project manager understanding of communication may be improved through recognition of the productive and interpretive aspects of communication and of the role of language games in supporting or thwarting successful communication across stakeholder groups.

1. Introduction

It is only in the twentieth century that the thinking, roles and practices that constitute project management became codified, and enshrined in a variety of methods, tools and techniques [21]. These practices and techniques were largely drawn from the principles of scientific management and the modernist, managerialist philosophies that were prevalent at that time [39, 7], and have been the emphasis in modern project management for some years [40, 41, 6]. This emphasis, which has taken place against the backdrop of a command and control approach to management, has continued relatively unchallenged, even as project management as a practice spread beyond its engineering roots into other fields such as business and IT [40, 33].

The processes, knowledge and skills associated with project management over time evolved into various defined and documented professional Bodies of Knowledge, the most widely adopted being the Project Management Institute’s (PMI) PMBOK [33], which aimed to increase the effectiveness of project management through standardized norms and practices across a range of project types [1]. Thus, it exerts a strong influence on both how projects are conceptualized across a diverse range of disciplines and project types, and also on the sorts of training and education, and practitioner development that are seen as ‘necessary’ and appropriate for project managers [9]. However, the assumptions that lie behind the PMBOK view of projects are seldom made explicit. There seems to be a consistent underlying theme of projects as linear, rational, and deterministic [42] and as such, eminently controllable by the project manager who, with appropriate planning, breaks down the project into predictable and orderly steps [15]. It follows that success is seen as following the appropriate application of methods, tools and techniques [38]. However, modern IT projects1 are characterized by complexity and uncertainty, are subject to change in increasingly turbulent business contexts, are more pervasive and integrated with a range of business activities, and are considered strategic and directly contributing to the competitiveness of an enterprise. Furthermore, they are subject to much greater scrutiny in terms of the delivery of value to the business [33, 40, 41].

Increasingly, concerns are raised about the ‘actuality’ of IT projects [6], with the implication that the conceptualization of IT projects enshrined in the PMBOK is removed from the day-to-day reality confronting IT project managers. The standardization of project management methodologies is argued to improve project success [28]. However, in the IT space, there is considerable cynicism regarding the likely success of IT projects, with some 73% of IT staff and 82% of business staff respondents believing that IT projects were always or usually doomed right from the start [14]. Despite their importance in contemporary organisations, IT projects are not always successfully implemented, with reports of somewhat alarming rates of failure [16]. Thus, despite an increase in certification amongst the IT project manager community [29], one must question the efficacy of the view promoted by PMBOK and enshrined in common ‘n-step’ [8], goal-

1 IT projects are here defined as business change projects with substantive involvement of IS/IT.
directed project management methods. Concerns about the efficacy of PMBOK and much of the orthodoxy surrounding project management has led to a recognition of the need to rethink some of the premises on which aspects of project management practice are based.

The seminal “Rethinking Project Management” (RPM) study [42] aimed to build upon existing knowledge of project management practice, and called for broad changes to the way projects are conceptualized, and hence to the ways practitioners are educated and developed. It called for greater import to be given to the people side of project management, more emphasis placed on participation, stakeholder satisfaction, and value delivery rather than product delivery. The RPM study has resulted in a spate of publications (see [9, 41] for example), in which there is evidence of creative new ways of thinking about project management, and the practices it encapsulates. In this paper, our aim is to add to the thinking and research flowing from the RPM study, and to argue that communication processes are vital in the practice of project management, and must be foregrounded and integrated with other project management processes if we are to improve the practice of project management in the contemporary business IT environment. Doing so will have substantial implications for project management education and training, as it will for academic research agendas.

This paper is structured as follows: in the section that follows, we review the major contributions of RPM and subsequent research output, noting the changes that it calls for in thinking about project management, and arguing that communication processes need to be foregrounded and highlighted in this thinking. The paper then presents an argument on the criticality of communication in project management, before considering the strengths and limitations of a number of different perspectives of communication. The paper concludes with a discussion of both the theoretical and practical implications of such a reconceptualization.

2. Rethinking Project Management

The RPM initiative resulted in calls to researchers to broaden their conceptualization of projects and research activities, not by discarding accepted theory, wisdom and practice, but by extending and expanding it in five key directions. These five directions included building theories aimed at firstly, developing a better understanding of complexity in projects; secondly, at appreciating projects as social processes; thirdly, at recognizing a reorientation towards value creation as opposed to product creation; fourthly, at acknowledging and understanding the implications of the multiple and potentially conflicting perspectives and objectives that would co-exist within a single project content; and fifthly, as facilitating the development of reflective project management practitioners [42]. This so-called research agenda as interpreted by Sauer and Reich [35] is captured in Figure 1. Increasingly complex projects are seen as comprised of a number of perspectives (or processes) including action processes (the traditional activities associated with project management and often enshrined in project management methodologies, procedures and techniques). A focus purely on product delivery however, is translated to a focus on value creation, or as a perspective that emphasizes the critical economic process of projects. The traditional, somewhat instrumental view of projects is enhanced through recognition of social processes in projects focusing on the interactions of key stakeholders.

![Figure 1: Broadening the Conceptualization of Projects [33, p183]](image-url)
they are now expected to operate within. Drawing on the theories of Normann [30],

Winter et al. [43] argued that the project context needs to embrace not just ‘customers’ of the project, but the customers’ customers (see Figure 3). Value is created when an IT project (for example) delivers an IT system to customers or stakeholders of the project (a product focus), who then use that system to deliver improved service to their customers. Thus project managers and their teams need to understand and improve, or at least enable, the improvement of the service requirements of the customers’ customers rather than simply focusing internally on an IT solution. We conclude that project managers thus need to be mindful of the contexts encompassed by both dotted ovals in Figure 3, not just the one more directly associated with the delivery of the system.

Sauer and Reich [35] sought to validate the proposed research agenda outlined by Winter et al. [42], and through their empirical study involving leading project managers, identified changes occurring in the project management space, and the changing ‘mindset’ of project managers as they confront the new realities they encounter in contemporary projects. Their study validated the directions articulated by Winter et al. [42], but suggested two other key processes that warrant further research. Firstly Sauer and Reich [35] see knowledge processes, involving creating, managing distributing knowledge, and learning within projects as being critical in IT project management. Secondly they emphasise and highlight the importance of emotional processes within projects, encompassing not only the personal commitment of project team members, but the increasing need for emotional intelligence, empathy, trust, confidence, and the ability to engage with stakeholders at all levels [35]. This resulted in a re-working of Figure 1 (see Figure 4).

The ideas and practices encapsulated in Figures 2, 3, and 4 all imply increasing complexity, increasing responsibility for the project manager, and all require successful communication with an increasing number of stakeholders and stakeholder groups. However, the interesting omission from the Sauer and Reich [35] study in our view is an explicit and foregrounded recognition of the role of communication processes in successful IT projects. In the remainder of this paper, we will build a conceptual argument to the effect that these communication processes are critical to the overall successful carriage of the project, and that they are far too important to be ‘assumed’ into the background, or simply ‘subsumed’ within social processes (see Figure 5).

Lewis [24, p94] write that "communication is fundamental to organising", noting that, "organising entails the exchange of symbolic representations of ideas, events, emotions, and information in order to overcome problems related to uncertainty, identity, and interdependence", issues that were previously argued to be endemic to contemporary IT projects and project management practice. Thus within an IT project context as depicted in Figures 4 and 5, communication is the integrative element that supports organization and the
seamless interplay between the five processes argued to constitute project management. Communication is widely regarded as the key to successful implementation of organisational change [23, 40]. Indeed, Lewis and Seibold [26] suggests that it is via communication and dialogue that people make sense of change, construe the reasons for change, and that change is implemented and sustained only through humans communicating. The importance of communication processes in shaping organizational phenomena (such as organizational IT implementation projects) and changing individual cognition of change such that it is accepted and enacted appropriately, has been established in previous research [41]. Ensuring adequate communication in all IT projects thus seems imperative. Support for the argument that communication is central to successful organizing and managing [26] is further evidenced by the fact that problems of poor communication rate highly in the causes of IT project problems and failures [15, 17, 29, 13]. Indeed, Vann [41, p48] argues that “clashing grammars”, or different language used by technical and project management specialists making up IT project management teams and that used by user groups affected by the system implementation, is implicated in many of the many behaviours typically described as resistance. Given this, it follows that project managers need a deep appreciation and understanding of communication processes, as well as skills in the practical art of communication.

For the project manager who recognizes the importance of communication in their work practices, it would not be unreasonable for them to turn to PMBOK for guidance on such matters. Indeed, Project Communications Management is one of the key knowledge areas in PMBOK [33]. However, while this may offer sound guidance on how to plan communications throughout the life of a project, it says very little at all about the challenges of successfully communicating in a project context, nor on how a project manager can learn to effectively communicate to a range of stakeholders in a project. The problems identified by Winter et al. [42] thus receive almost no treatment within the Project Communications Management knowledge area in PMBOK. When PMBOK does briefly foray into discussing models of communication and thinking about how humans communicate, however, it offers little actionable advice to project managers other than to consider how to break down communication into manageable, predictable and orderly steps. This is perhaps reflective of the linear and, rational origins of project management [42] driving a view of communication as a series of orderly steps and processes. The implication seems to be that if followed assiduously, the planning and action steps will result in successful project communication. However, we would argue that the concerns of project actuality [6] are once again evident here in that both personal experience and empirical research [27] suggest that real-life communications in projects are far removed from the steps and processes presented in PMBOK. This point is germane to our argument, and in the section that follows, concerns about the conceptualisation of communication presented in PMBOK will be analyzed and discussed and alternative perspectives offered in contradistinction.

4. Conceptualizations of Communication

4.1 Shannon-Weaver model

Fundamental to understanding and effectively practicing communication is the possession of a suitable mental model of communication to offer insights into the ways in which communication is conceived, designed and enacted. [37] articulated probably the most pervasive and influential model of communication (see Figure 6). The model was developed from a telecommunications engineering perspective and originally focused on the transmission and reception of messages by communication technologies [23]. As such the model has been argued to be inadequate in many respects when applied to human communication in social contexts [3].

![Figure 6. Shannon-Weaver Model](image)
(i.e. a sender and a receiver) rather than being situated and constructed in complex social systems [34].

Figure 7. PMBOK Model of Communication [30, p255]

As indicated above, the PMI model of communication is fashioned on the Shannon-Weaver model. This model and the associated conceptualisation of communication, which shapes and influences the way PMBOK certified practitioners think about communication, is, like the Shannon-Weaver perspective, somewhat rationalistic and limited. For example, the advice offered to project managers via the PMBOK model is as follows:

“The components in the communication model need to be taken into account when discussing project communications. As part of the communications process, the sender is responsible for making the information clear and complete so that the receiver can receive it correctly, and for confirming that it is properly understood. The receiver is responsible for making sure the information is received in its entirety, understood correctly, and acknowledged. A failure in communication can negatively impact the project.” [30, p255]

Clearly, there are few insights offered as to how a sender might ensure that their message is clear, or on how they would know if it was complete. Similarly, receivers would be at a loss to know whether the message (as sent) was received in its entirety, correctly understood, and so on. Thus, the advice of PMBOK seems of little help to the project manager who is wondering where to start with the communications needed to gain support for planned change, carry out the change and evaluate and finalize the change measures. Others however have elaborated on both the Shannon-Weaver model and on the advice in PMBOK, and have written books which provide consideration detail: for example, Pritchard [32] reduces the complexity of communications to a series of tools that can be applied to various phases of a project, while Kliem [19] acknowledges some of the complexity but still attempts to reduce communication to a series of structured steps and processes. While a practitioner may find some helpful tools and techniques within these and other similar publications, our concern remains that the underlying model (the Shannon-Weaver model) is inadequate to develop the types of communication processes that have been argued as being required for successful IT project management [23, 24, 25].

Much of our understanding of communication in organisations and in projects has evolved from the Shannon and Weaver ‘conduit’ or ‘transmission’ model of communication that focuses on information flows, without consideration of context, content, intention, interpretation and meaning [17]. Viewing communication as involving the transmission of information is an oversimplification, limited in its applicability and helpfulness [24], suggesting that other perspectives on communication need to be appreciated and embraced, and then enshrined in practices. While we argue this is true for traditional project management, it holds with substantially more force for the expanded mode of project management advocated by the RPM initiative and other researchers [40, 9, 33].

4.2 Galle’s Model of Communication

Galle [12] offers a perspective on communication that seems apposite in furthering insights on communication in the context of project management (see Figure 8). Galle’s theory, adapted here to the context of project management, suggests that to arrive at the final outcomes of an IT project (both delivery of a product and business value), key communication processes involve both production and interpretation of ideas amongst key stakeholders, supported by appropriate artefacts. Arguably, this is essentially in keeping with the view enshrined in the Shannon-Weaver model. However, Galle [12] builds on and expands this basic process in some critical ways. An idea, problem, opportunity or solution, for example, is initially a mental construct inside a person’s head (for explanatory purposes, we use the term ‘client’). This must be made explicit, communicated to other key players, mediated through words, gestures, sketches, diagrams, models, and so on. There is potential for the clients to struggle to adequately communicate their ideas and there is likely to be an iterative, social communication process as involved actors struggle to make sense of ideas, check their own understanding of the others’ ideas, and so on, before the specified idea satisfactorily matches the mental construct of the client(s). Interpretation of both the design brief and the attendant spoken and written communicative activities by others, such as analysts, developers and project managers is essential. However, the potential for breakdown [20] is acknowledged as being ever-present in these interpretative processes, taking place amidst different political agendas, and as projects span global contexts, within differing cultural, social and historical backgrounds [12]. This provides much more insights of the ‘reality’ with which a project manager must contend.
The final project outcomes, both an IT artefact (product) and the delivery of value for key stakeholders, will only occur successfully if there are no substantial breakdowns in the sequence of productive and interpretive iterative, social interactions that occur amongst key players in the IT project context. Clearly this is immensely complex and fraught with uncertainty in the actuality of a real-world IT project.

Figure 8: Communication involving production and interpretation [12]

Galle’s [12] conceptualisation positions communication as a social process and the theory allows for the addition of participants other than those depicted in Figure 8, such as business analysts, technical specialists, business subject matter experts, business managers, vendor representatives, and the like. A strength of the Galle model, we would argue, is its ability to recognize the complex, iterative production and interpretation activities in communication, combined with the reliance on various artifacts, through which emerges understanding, agreement, and a willingness to take negotiated action within an IT project context. The essence of all these productive and interpretive activities is communication, both verbal and non-verbal, mediated by the artefacts produced along the way.

However a limitation of Galle’s conceptualisation is that it does not offer insights into the contextual nature of meaning and understanding, and the implications of this to the successful completion of an IT project, nor about how breakdowns and miscommunications may occur. By failing to deal with the contextual nature of communication, it thus fails to explicitly address the social, cultural, historical and political filtering that shapes interpretation and understanding [Page 1972, in 22]: arguably it is this social, cultural, historical and political conditioning that results in the clashing grammars previously mentioned [41]. Further, the model does not take into account the gaps or boundaries that may exist between the communicating parties in the process [45], which is particularly problematic given the participants in these processes may themselves be unaware of the existence of any such gaps [4], and in contemporary projects, may now be physically remote from one another. The concept of gaps or boundaries is important to communication, and is the focus of the theory of Language Games [44].

4.3 Language Games

Wittgenstein [44] saw communication as composed of a multiplicity of language games in which meanings are constructed and understood by actors in specific contexts [44]. Thus, meanings, information and communication are socially constructed and context-dependent, and the meanings of words are not simply denoted by the things they refer to: that is, reference does not establish meaning but relies on meaning and understanding [10]. Thus language games are not just associated with words and meanings but include people, their worldviews and motivations, non-verbal forms of communication and the artefacts they deal with in social interactions in particular contexts [39, 11]. This theory suggests therefore that different business groupings within organizations will develop and redevelop their own language game(s), which differ somewhat from other language games employed by other groups within the same organization.

The term ‘language game’ conveys the sense that the use of language is governed by rules that have to be learned by actors in a context. An individual can and will partake in many different language games in the course of their daily lives. Further, some language games resemble each other and share commonalities, but also differ in key aspects [40]. Indeed, Wittgenstein’s theory suggests that communication relies on relevant parties understanding the language game involved in a specific context and interaction, and meaning can only be understood within the context of the language game [10]. Sharing meanings and communicating are thus dependent on knowing (understanding), adopting and following the rules of the language game in which a person is acting at a given time [40], and understanding emerges through realignment of language games [11].

Communication exchanges are goal-directed, purposeful and generally intentional, and are evaluated by others in the same language game as being appropriate, reasonable, involving appropriate word and gesture use, or not. Thus, language games are described in terms of interrelated actions, socio-cultural contexts, goals and/or purposes, and evaluation [10], with the criteria for evaluation being socially negotiated and hence subject to change over time: as Boland and Tenkasi [2, p353] note, “we continuously evolve new
ways of talking and acting together”. Effective communication thus relies on mutual appreciation and understanding of, and participation in a particular shared language game. An appreciation of the theory of Language Games this may prove an effective in supporting IT project managers to recognize that their language game may differ in important and subtle ways form those of their key stakeholders. Understanding this, and making explicit attempts to both recognize and bridge those differences may result in them more effectively communicating across different stakeholder groups.

If this theoretical lens is applied to the context of an IT project, arguably the respective groups (such as the project team, technical IT staff, various business groups, external parties such as vendors, and consultants for example) may all rely on their own language games to communicate within the bounds of their group. This aids communication within the group and builds social ties. However, when ‘thrown together’ for the purpose of implementing innovative IT systems for instance, communication between and amongst these groups may become more complex, misinterpretations and misunderstandings can occur, as participants fail to realize others may be relying on different language games, and thus not sharing their interpretations of events, nor having insights into their intentions in communicating.

5. Discussion

The preceding discussion in this paper has reviewed the ideas of the RPM network arguing for an enhancement of the theory of project management to match the actuality of contemporary projects and project management along a number of themes. This was empirically extended in the work of [35], who demonstrated the need for two additional themes or perspectives, as discussed above and depicted in Figure 4. We have argued that for these five perspectives to be enacted effectively throughout the life of a project, there is a need firstly, to foreground the role of communication, and to explicitly recognize that communication activities are the integrative processes that enable, facilitate and support the successful carriage of all the other five processes (see Figure 5), and furthermore, are inextricably linked to project success and failure. As Cicmil et al. [6] and other researchers have noted, there is considerable complexity inherent in the communication processes and activities within a modern project context. All stakeholders, but especially project managers need to appreciate that they are contextually bound in their activities: that the social, cultural, historical, and political influences of context will and do impact on their actions and project outcomes. They need to also realize that as the scope of project and attendant project management activities expands (see Figure 2), as the interconnections between and amongst projects increases, and the uncertainties associated with change in the organizational environment increase, they are having to interact with and manage an increasingly diverse range of stakeholders, each with their own worldview of what constitutes the ‘problem’, and what constitutes a suitable solution. While PMBOK may make useful suggestions in terms of thinking about how one might plan and manage project communications, it does not offer insight or understanding of the criticality and complexity of interpersonal communication, nor offer actionable advice about communication to project managers. We thus recommend the adoption of thinking enshrined in Figure 5, where communication processes feature prominently in our conceptualization of project management. This leads to the conclusion that the current conceptualization of communication as enshrined in PMBOK needs to be extended, reworked and deepened, such that it can lead to training and education being provided that will lead to a more sophisticated appreciation and practice of communication in projects. These revisions need to better reflect the communicative challenges of contemporary project actuality and management, cognizant of the recommendations and developments stemming from the RPM study [42].

Thus, a conceptualization of communication is needed that extends beyond a simple engineering-based process of encoding, transmission and decoding. Specifically then, what is required is a conceptualization of communication that respects greater consideration of the complexity of communication processes and activities within the contemporary project management context (see Figure 9). By drawing on the ideas of Galle [12] we are able to highlight that successful delivery of project outcomes depends upon multiple complex interactions amongst multiple stakeholders and stakeholder groups. These interactions involve productive and interpretive activities, often mediated by the use of artifacts such as diagrams, models, and the like. There are no guarantees that firstly, the productive activity of making an idea explicit exactly matches the cognitive intentions of a speaker (writer). Neither is there certainty that the interpretive activities of listeners (readers) result in a received understanding that matches the intentions of the speaker. Being aware of these issues is a step forward from the current model adopted by PMBOK.

The theory of Language Games [44] offers an important new dimension in emphasizing that individuals operate in different language games according to the situation in which they find themselves. As they are socialized and enculturated into a group,
they learn and adopt the language game of the group. This suggests that the many different stakeholders and stakeholder groups in a modern IT project may well be operating with different language games. For a project manager this raises a considerable hurdle, as they need to manage the communications across potentially many different language games in their day-to-day activities. Arguably, the more different the language games are from one another, the more likely the potential that productive and interpretive activities lead to communication breakdown. Raising awareness of this potential we would suggest is an important step forward. In Figure 9, we use dotted lines to indicate and make explicit the potential for different language games to be invoked by the many stakeholder groups involved in an IT implementation project.

![Figure 9. Revised Conceptualization of Communication](image)

These ideas are made more concrete through consideration of previously published empirical studies. This phenomenon of complexity in communication has been described in the cases outlined in Vann [41] and McKay et al. [27]. In Vann [41], the problem of IT project failure in the public sector is considered, where a range of cultural, social and linguistic “clashes” between career public servants, enculturated in a particular style of operating, and IT professionals (either internal to or external to the agency of interest) attempting to implement large package software systems led to perceptions of resistance on the part of the bureaucrats. [41, p64-67] argues that much of the perceived resistance of the public servants was “inadvertent and unconscious”, as employees steeped in one language game struggled to adapt to “a confounding array of new terminology, abstract concepts and specialized disciplines” and the introduction of “new and radically different lexicons into the work environments of public organizations”. In McKay et al. [27], the case of the attempted implementation of a similar large package software solution in a private, global company that proved an embarrassing failure is detailed. The project team and the intended business users of this system were drawn from different national branches of the company, and over the period of the project, failed to communicate effectively with one another over critical issues, and this ultimately led to the demise of that system for an extended period of time. Episodes are recounted where failure to effectively communicate on all sides about key issues resulted in interpretations that proved unhelpful and ultimately terminal to the first attempted implementation of that system. It was only after an extended period of deliberately closely engaging the business users, and trying to understand their concerns, and ensuring that they understood the strategic initiative of the company, that the project team were able to finally implement the IT system.

Both cases provide insights into the need for IT project teams to consider a much broader array of issues when communicating with stakeholder groups. They indicate the importance of gaining an understanding of the socio-cultural, political and historical context in which projects are undertaken. The cases indicate the criticality for project teams of learning to recognize and effectively communicate across language games. They demonstrate the need to better appreciate the intricate complexity of the productive and interpretive aspects of language use throughout the project life cycle. The cases also suggest that the model enshrined within PMBOK may not be an adequate reflection of the complexity of the task in the real-world. And they indicate that further research into better understanding communication is important for improvements in practice to take place.

There are, of course, practical implications of the above, as there would seem to be a need to radically revise the training and education offered to project managers in terms of communication within project contexts. We have argued that viewing communication as simply involving the transmission of information is an oversimplification that is limited in its applicability and helpfulness, and that other perspectives on communication (in particular those discussed in this paper) need to be appreciated, embraced, and then enshrined in project management practices. We would argue that firstly, there needs to be a revision of the Project Communications Management knowledge area in PMBOK, such that it offers better frameworks for project managers on which to build sensitivity to the complexity of communication, and base understanding and practice. This needs to be supported through the development of realistic case study materials for use in training and education programs.
6. Conclusion

This paper has reviewed the ideas of the RPM Network including the extension of these ideas by Sauer and Reich [35]. These ideas have been radically extended and consolidated in this paper by the addition of communications processes as one of the key processes in project management and the provision of the basis for a suitable conceptualization of communication to augment the new focus recommended by the above authors. We have shown how selected ideas from the writings of Galle [12] and Wittgenstein [44] can be used to build the new conceptualization of communication. The new conceptualisation highlights the productive and interpretive aspects of communication and includes considerations regarding the different worldviews of multiple project stakeholders and stakeholder groups, and the difficulty of communicating across those groups. Such a conceptualization should form the basis of a new research agenda into project management based on the work of the RPM Network and Sauer and Reich [35] complemented by the ideas put forward in this paper. In addition, the articulation of the theoretical model of communication in projects in this paper both responds to and contributes to the articulation of theories that explain communication and social processes in the context of managing the implementation of IT systems.

7. Bibliography


