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Combining the User as Social Actor Model, Institutional Theory and a Theory of Unobtrusive Power to Understand the Acquiescence of Software Developers

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Abstract
In this paper we argue that a combination of a social actor model, Institutional theory, and a model of unobtrusive power can constitute a theoretical framework for understanding how the business client is able to exercise control and subsequent subjugation of developers in the systems development process. Specifically, the paper develops a 3-level theoretical framework grounded in institutional theory that integrates elements of Lamb and Klingâ s social actor model and Scottâ s 3-pillars framework concentrating on the relationships among systems developers, the business client, the SDM, and the context surrounding its use. The framework is strengthened through the application of a third level â Hardyâ s multi-dimensional model of power, offering explanations of political inactivity by developers. In this paper we discuss how all three theory can be combined in a framework for analyzing the power relations between developers and the business client. We apply this theoretical framework in a case study of the deployment of a mandated in-house developed systems development methodology in a large IT department of a major Australian bank Here we will show how, from the perspective of developers, the business client exercise both overt and unobtrusive power over the development process.

Keywords: User as Social Actor model, Institutional theory, Hardyâ s model of Unobtrusive Power.

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INTRODUCTION

In this paper we argue that a combination of concepts from Lamb & Kling's (2003) user as social actor model, Scott's (2001) institutional theory, and Hardy's (1985) model of unobtrusive power can constitute a useful theoretical framework for understanding the relations between developers and the business client, and for exploring the role that a systems development methodology (SDM) can play in influencing this relationship.

Markus & Mao (2004) highlighted the importance of understanding better the role of developer-client relationship, with a call to develop theory by imploring researchers to ask, "what happens when developers interact with the business client during development, and why?' These authors also identified that the literature has been largely silent on the important characteristics of developers, and that the voice of the developer compared to those of the client, has been considerably under-researched.

This study addresses the developer-business client relationship from a power perspective. It examines a combination of overt and covert control mechanisms used by the client to maintain power over the developer. The aim of the paper is to develop a theoretical framework that combines important insights from three distinct but complimentary theory and to apply this framework in the analysis of systems developers' perceptions of their relationship with the business client.

One theory is Lamb and Kling's (2003) social actor framework that enables us to explore the relationships and complexity of dynamics between developers and the business client, and for exploring human/technology interactions. The second is a unified and general theory of institutional behaviour, articulated by Scott (2001). The other is a specific theory of power relations first articulated by Lukes (1974), and adapted by Hardy (1985) and her colleagues (Hardy & Leiba-O'Sulivan, 1998), known as a theory of unobtrusive power.

Lamb and Kling's conceptualisation of a social actor provides a useful structure for exploring the milieu of SDM enactment that both developers and the business client engage in. In the analysis of the case data, Lamb and Kling's framework (presented in Table 2) consisting of the constructs of affiliations, environments, interactions and identities were used to identify sources of power, illustrated structures of power embedded within the SDM, and portrayed power inequalities between the developer and client. What is missing from the social actor framework are explanations of how power is transmitted or maintained.

Scott's (2001) view of new institutional theory (via his 3-pillars framework – see Table 4), helps bridge the gap between identifying sources of power and showing how institutional structures (such as authority, norms and values) embedded in the SDM are mechanisms to transmit power in the ISD process. In our presentation of the case data, we also uncovered how the attitudes and behaviour of developers appeared to be submissive and were oblivious to any covert power scenario. This left us puzzled about the underlying reasoning or motivations behind this political behaviour, and with a more general concern about the role of power and politics in ISD. We concluded that this level of understanding required an additional level of organisational diagnosis. As is the case of all meta theory, new institutional theory is an abstraction of actual social relations, and does not answer the question as to why developers are compliant with an unequal power scenario. Our own answer to this question makes use of a specific theory of organisational power, known as Hardy's (1985) theory of unobtrusive power (see Table 5).

The paper makes three principal contributions. First, in terms of theoretical contribution, the paper shows how all three theory can compliment each other in order to more fully understand how a SDM can influence the power relationship between the business client and the systems developer. Second, the paper presents a modified and extended version of Hardy's (1985) multi-dimensional model of power based on a source of power emanating

externally from institutionalised environmental structures (see Figure 2). Third, we present in ten theoretical statements (see Table 6), how the principles of institutional theory, and a specific theory of unobtrusive power can be used to better understand and explain politics and power relations in information systems development projects.

Conceptual Arguments

It will be argued in this paper, that methods of systems development encode organisational values in the form of institutional structures. By structures, we refer to the policies and practices embedded in the method that constitute both the "structural" and "symbolic" exercise of power (Markus and Bjørn-Andersen, 1987). We define institutions as taken for granted standardised sequences of activity (habits) which establish and maintain features of social life (DiMaggio & Powell, 1983), and according to new institutional theory (Scott, 2001) these influence mechanisms force organisations and individuals to conform to norms, traditions, and social expectations. We further argue, therefore, that the constraints based around the mandated and everyday use of a methodology by systems developers are not just a form of direct or overt power, but instead are essentially covert or unobtrusive and institutionalised in the form of development policy as a means of legitimizing power.

This argument is advanced through the analysis of power relations in a large organisation in the financial sector (*The Bank* – a pseudonym) with an internal software development division, where the business client is able to exercise considerable power over systems developers. In *The Bank* it will be illustrated how the mandated use of a method constrains systems developers through the necessity of gaining sign-off and further funding at each stage of development enabling the business client to exercise control and subsequent subjugation of developers in the systems development process.

The basis of our argument begins with a fundamental ontological assumption that the material artefact (the systems development method) shapes human social context, and

reciprocally, the method is shaped by human social context. Our key premise is that neither the material artefact nor the developer is without agency. That is, the developer's ability to shape their working practice (their individual agency) is constrained by a number of social norms and organisational constraints. Nor is the developer an abstraction that enacts the method in a social vacuum. Rather, the systems developer is best conceptualised as a social actor and not a technically focussed tool user (Lamb & Kling, 2003). Similarly, the term 'enactment' means more than 'use'. 'Use' is a simple word conjuring up an image of the method as an objective tool, and implying a separation between the technical and the social (the context of its use). Our working definition of enactment therefore is a process in which social actors (systems developers and the business client) respond in a dynamic interplay between order within *The Bank* (structure), their individual freedom (agency), and how the method is perceived by developers to build systems in a specific project situation. Most importantly, this interplay is situated in a social context and is bounded by physical surroundings and material artifacts such as the systems development method.

A focus on social context is also emphasised by Nørbjerg and Kraft (2002). They suggest that among the studies of method enactment, few pay attention to the role of context, or social and institutional structures embedded in the method. Chae and Poole (2005) go further by arguing that previous research on methods tends to focus on the features of the method and systems developer's behaviours while underemphasising the role of context and institutional structures.

Other IS research also feature the importance of developing a holistic understanding of the working relationships between systems developers and the business client. For instance, Day (2007) developed a framework showing how the organisational setting, attitudes of individuals, social processes and outcomes affect how relationships are built. A key finding of her work is that good working relationships between the information systems organisation

(IT department) and the business client will be established when their belief states are congruent or similar. Where belief states are not similar, or where there is a conflict of interests, Day (2007) recommends a power-based perspective to understand the unequal relations that can exist between developer and client.

THEORETICAL FRAMEWORK

Recognising that too few studies have directly addressed the enactment of methodologies in the context of power between developers and the business client, attempts were made to seek a theoretical explanation within the organisational and information systems literature. We had a need for theory and an analytical framework that addressed issues of agency, the technological artefact, the role that developers play in enacting the methodology, power relations between developers and the business client, and at different levels of analysis.

The Role of Agency

In the *Introduction*, we stated our fundamental ontological assumption that the material artifact, (the SDM) shapes human social context, and reciprocally, the SDM is shaped by human social context. This reciprocal interaction is a core premise of structuration theory and Giddens' (1984) concept of duality of structure. However, in structuration theory the agent is always a human, while the role of the technical artifact is restricted to being part of the structural foundations for human agency. Our key premise is that both the material artefact and the developer has a form of agency. Clearly our premise is incompatible with that of structuration theory.

In explicating the role of agency in our case, we argue that *The Bank's* methodology presents a combination of human and disciplinary agency. Pickering's (1995) theory of practice of science (cited in Chae & Poole, 2005) provides key insights for our discussion of agency in systems development. Pickering argues that agency refers to a thing or person that acts to produce a particular result. That is, agency at its base is the ability to do something or have

effects. He distinguishes three different types of agency: the *material agency* of the natural world, which acts via natural laws; *human agency*, characterised by human intent, reflexive monitoring of action, and meaningful construction of the social world; and *disciplinary agency*, in which the agency of a discipline – such as systems development – leads people through a series of actions and also neutralises these actions for them. Disciplinary agency therefore is defined as the shaping and channeling of human action by conceptual and cultural systems. Disciplines are bodies of knowledge that preserve concepts, practices, and values that can be employed in action (Chae and Pole, 2005:23).

In this case, we provide an argument that SDMs are institutions that exert their own form of agency. We do so by providing grounded description of systems developers working within a discipline that provides scaffolding for their actions. Through the application of Lamb & Kling's (2003) model, we identify how the discipline of systems development provides generalisable procedures (stage gate funding, sign-off, etc) applied in the enactment of the SDM that are largely based on power structures involving the client and developer. Through the application of Scott's (2001) framework – also known as the 3 pillars – we illustrate how the discipline of systems development within *The Bank* is legitimized by change resistant norms and values.

As our interest lies in investigating the interactions among actors in relation to a specific SDM in the context of a wider socio-economic and political landscape, we adopt an institutional lens in line with other IS researchers (Avgerou, 2000; Gosain, 2004; Currie, 2009; Currie & Swanson, 2009). While new institutional theory is a powerful framework to explain the effects or outcomes of institutional pressures on the actions of developers and clients in work practices, it does not explicitly take into account our question of how in a situation of unequal power relations, why conflict does not arise. To extend our understanding of SDM enactment, we thus argue for the use of complementary theories to the institutional

perspective, and recommend Hardy's (1985) multi-dimensional theory of power and Lamb & Kling's (2003) model of a social actor to add focus to details of local practices. We suggest that each theoretical perspective has its own explanatory power and that a combination of the three theories facilitates a much richer interpretation of SDM enactment by linking micro, meso, and macro levels of analysis.

An important distinction between the three theories is the level of analysis addressed. While new institutional theory primarily focuses on meso and macro-level structures addressing the organisational field level and organisational level of analysis (Currie & Swanson, 2009), the social actor model primarily addresses micro, meso, and macro level processes (Lamb & Kling, 2003). On the other-hand, in Hardy's multi-dimensional model of power the focus is on meso levels of analysis. We argue that a combination of all three theories provides a multi-level analysis of SDM enactment in The Bank, as each theory has its explanatory power in either micro, meso, or macro level processes. Furthermore, the social actor model has its theoretical antecedents in institutional theory and is logically compatible due to their philosophical tradition; all three theories can be classified as social theories; institutional theory and Hardy's model are process theories; and all three can be used to address related phenomena of power. In Table 1, we juxtapose the three theories and present their theoretical foundations, key constructs used in our empirical analysis, primary levels of analysis, and main arguments.

Below we outline the application of each of the theories in the IS literature to show their explanatory power at different levels of analysis, and then discuss the value of combining the three theory.

Table 1: Explanatory Power of Three Theory on SDM Enactment

	User as social actor model (Lamb & Kling, 2003)	**Institutional Theory (Scott, 2001)**	**Multi-dimensional Theory of Power (Hardy, 1985; Hardy & Leiba-O'Sullivan, 1998).**
Theoretical foundations	The user as social actor is based on the concepts of new institutional theory (Di Maggio & Powell, 1983; Tolbert & Zucker, 1996; Scott, 2001) and social constructivism (Leonardi & Barley, 2010). A social actor is an organizational entity whose interactions are simultaneously enabled and constrained by socio-technical affiliations and environments of the firm, its members and its industry.	Institutional theory is a body of knowledge that studies the relationships between organisations and their environments focusing on how structures become established as guidelines for social behaviour. Institutions are taken for granted standardised sequences of activity which establish and maintain features of social life (DiMaggio & Powell, 1983). According to Scott (2001) influence mechanisms force individuals and organisations to conform to norms, traditions, and social expectations.	Power can be understood through four dimensions. The first three dimensions based on Critical theory and Ideological hegemony follow Lukes (1974) concept of control over resources, processes and meaning. Dimension 1: resources influence the decision-making process; Dimension 2: control access to this resource; Dimension 3: hegemonic process, legitimation of power through cultural and normative assumptions; Dimension 4: power of the system is based on Faucauldian Post-modern theory (Foucault, 1977).
Key constructs	For dimensions: Affiliations Environment Interactions Identity	Institutions are comprised of: Regulative, Normative, and Cultural-cognitive analytical elements (three-pillars) that provide a basis for legitimacy, and hence, social conformance.	Overt power: material and structural resources (information, expertise, control over rewards and punishment). Unobtrusive power: ability to prevent conflict from arising. Symbolic aspects: ability to give meaning to events and actions. Institutionalisation of power within structural and cultural arrangements. Symbols, language, myths, rituals, ceremonies, settings.
Levels of analysis	Societal, **Macro** organisational field, organization, **Meso** organisational sub-system, Individual. **Micro**	Societal, **Macro** organisational field, organization, . **Meso** organisational sub-system Individual. **Micro**	Groups, Community, **Meso** Elites.
Main arguments	According to the *social actor model*, people's individual autonomy and their behaviours are shaped by the social norms, institutional forces, and other social and physical structures that surround them.	The three pillars of institutions are transmitted by being embedded in various types of repositories or carriers: symbolic systems, relational systems, routines, and artifacts.	Sources of unobtrusive power are: (i) ideological hegemony of wider society, and (ii) dominant organizational members have the ability to institutionalise their existing power in structures & culture to protect it from change; and to manage its meaning.

Social Actor Model

Lamb & Kling's (2003) social actor model is a multi-level construct spanning the individual (micro) and organizational (meso) levels of analysis. As it is relatively new, very few researchers have used this framework in their empirical research. Exceptions include Rowlands (2007, 2008) and Ferneley & Light (2008).

For this research we draw on the *user as a social actor* model (Lamb & Kling, 2003) as part of our theoretical framework with its antecedents in institutional theory. Drawing on the work of Scott (2001), Lamb (2006) describes how the social actor concept has been theoretically supported by new institutionalist approaches, whereby institutions provide a framing context within which social actors make constrained choices about ICT use, particularly when they are situated in organisations. According to the *social actor model*, people's individual autonomy and their behaviours are shaped by the social norms, institutional forces, and other social and physical structures that surround them. This approach compliments what Orlikowski and Iacono (2001) identify as the 'ensemble view' of technology where technologies are components of a more complex socio-technical ensemble that include people, work practices, and institutional and cultural factors. In terms of this research example in *The Bank*, structure includes work procedures mandated by the SDM, the day-to-day interactions within and among project groups, and authority based on power and expertise. In this view, systems developers can be seen as complex social actors acting in constrained ways, rather than simple "users" of the SDM (Lamb and Kling, 2003), and where the SDM operates largely as a structure around which systems developers operate.

A key feature of the model is that it focuses on people, their context, and their information technologies as the basic unit of research analysis. According to Lamb (2006) the term *social actor* is a construct that conflates people's interactions, their information environments, and their technologies. Consequently, the user is reconceptualised − not as a "technically

focused" or "socially thin", passive user of technology − but a person who acts purposefully with and through information and communication technology (ICT) in a social setting for particular ends. To avoid potential confusion, we need to point out that in our case involving systems developers, it is the developers and the business client who are the 'users' of the technology (the SDM), in contrast to conventional MIS literature, where the user is often portrayed (let's say) as an office worker being the recipient of a developed system.

Seen as a means to explain the role that SDMs play in influencing the systems developer-business client relationship, and as a structure for exploring the milieu of technology interactions that developers engage in, the *user as social actor model* is most appropriate and was chosen for both theoretical and methodological reasons. As Lamb & Kling (2003: 219) offered, "the model provides a framework for the systematic research of complex, highly contextualised ICT use in organisations, rather than the study of isolated aspects of ICT use in de-contextualised settings". We also considered that the model provides an appropriate theoretical lens to examine SDM enactment; first, because of its emphasis on exploring the impact of institutional structures on the enactment process in organisational settings; and second, because of its focus on networked technologies in increasingly knowledge-intensive industries such as the finance and IT industry.

In terms of research method, our case made use of the *social actor model* by illuminating enactment at multiple levels or jurisdictions of the institutional form: individual/micro (systems developers and clients as social actors), organisational sub-system/meso level (the IT department with *The Bank*), organisation (*The Bank*), and organisational field/macro level (the finance and IT industry).

The *social actor model* involves four dimensions as shown in the Table 2 — affiliations, environment, interactions, and identities, that characterise organisational members and their enactment context. According to Lamb (2006) *interactions* and *identities* relate

organisationally situated individuals to others and to the information technologies they use to interact with and present themselves to others (micro). The first two dimensions — *affiliations* and *environments* relate people to their organisation, and to the industries and environments of those organisations (meso and macro).

The *social actor model* was used *a priori* in the first stage of analysis as a coding mechanism to help make sense of what occurred in the field at primarily a micro and meso level, providing a set of sensitising constructs (codes) to be investigated, and guided our interpretation and focus. See Table 2 for codes and coded examples from the case.

Institutional Theory and the 3-pillars Framework

Institutional theory is also a multi-level construct spanning the individual, organisational sub-system, organisation, and organisational field (micro, meso and macro) levels of analysis; and is increasingly been used in IS research (Currie & Swanson, 2009). Building on Scott's (2001) view of new institutional theory, we see this as a body of knowledge that studies the relationships between organisations and their environments focussing on how structures become established and/or institutionalised as guidelines for social behaviour. Institutions, therefore, are taken for granted standardised sequences of activity which establish and maintain features of social life (DiMaggio & Powell, 1983), and according to new institutional theory (Scott, 2001) these influence mechanisms force organisations to conform to norms, traditions, and social expectations. Although rules, norms and cultural beliefs are central properties of institutions, the concept of institution also encompasses associated behaviour and material resources: that is the activities that produce and reproduce them. The concept of institution also has a broad sense in institutional theory – that is, institutions are not only organisations, they can be entities such as a SDM. In order for an entity to be considered institution however, Tolbert & Zucker (1996) contend that an institution should have gone through a historical process of institutionalisation involving three components:

habitualisation, objectification, and sedimentation. When sedimentation is reached, the new structure is completely spread among actors involved and full institutionalisation is reached (Tolbert & Zucker, 1996).

Table 2: A Social Actor View of Affiliations, Environment, Interactions and Identities

Characteristics & Behaviours of Connected and Situated Individuals (Lamb & Kling, 2003:213)	**Social Actor Dimensions and Codes**	**Coded examples from the Case**
Affiliations [A]		
Relationships are multilevel, multivalent, multi-network i.e. local/global group, organisation, inter-group, inter-organisational.	[A-SOCIAL]	Project managers & developers are required to deal with clients and development partners from various sections (SOCIAL networks) internal and external to *The Bank* to complete the project.
As relationships change, interaction practices migrate within & across organisations.	[A-CHANGE]	Developers regularly interact with external organisations when aspects of projects have been outsourced; or when dealing with contractors brought in on a needs basis. These interactions bring about pressure to CHANGE the SDM.
Environment [E]		
Organisational environments exert technical and institutional pressures on firms and their members.	[E-STAND]	With a mixture of skill sets, employee mobility from within and external to the Bank, and the requirement to conform to industry codes of practice, STANDards were necessary.
Interactions [IN]		
Organisational members seek to communicate in legitimate ways.	[IN-DOCN]	The SDM mandates documentation [DOCN] throughout all phases & calls for meetings, both formal & informal among affiliates to review them.
Organisational members build, design and develop interactions that make information actionable.	[IN-ACTION]	The SDM mandates the generation of specifications becoming actionable [ACTION] documents requiring a sign-off at each stage.
ICTs become part of the interaction process as people transform, tailor and embed available informational resources into connections and interactions.	[IN-TRANSFORM]	The SDM through virtual ownership by the business client prevents efforts from developers wanting to introduce new development techniques and overhaul [TRANSFORM] the SDM.
As organisational members, people perform socially embedded, highly specialised actions on behalf of the organisation.	[IN-CONSTR]	The SDM dictates and constrains [CONSTR] developers' actions within the bank – it tells developers what approach they must use, and therefore enforces work practices.
Identities [ID]		
Social actor identities have an ICT use component.	[ID-USE]	The USE of the SDM defines (some of) the identity of a developer.
ICT-enhanced networks heighten multiple identities as expert or novice.	[ID-IDENT]	Knowledge & competent use of the SDM can define the developer's IDENTity.
Social actors use ICTs to construct identities, legitimise their role, and control perceptions.	[ID-LEGIT]	Use of the SDM LEGITimises their role as a developer in the eyes of the business client or project manager.

In our field study, we understand *institution* to manifest itself as taken for granted or standardised activities that shape and in our case, they represent constraints on the options that individuals and collectives are likely to exercise on work practices. Using this working definition and the historical requirements of Tolbert & Zucker (1996), we consider the SDM has become institutionalised within *The Bank* because of its longevity of use and its associated practices have become routine. Similarly, as the analysis will show, the SDM goes relatively unnoticed where developers take it for granted in performing their day-to-day work.

Scott (2001) provides an encompassing framework bringing some coherence to the wide-ranging literature on new institutional theory. This framework known as the 'three pillars' or three pressures (see Figure 1) posits that institutions are comprised of *regulative*, *normative* and *cultural-cognitive* analytical elements, that together with associated activities and resources, provides a different basis for legitimacy, and hence, social conformance (Scott, 2001:48). The *regulative* pillar gives emphasis to the role of coercion, mandates, monitoring and sanctions to establish and maintain formal and informal systems of behaviour. The *normative* pillar draws on the concepts of appropriateness, expectation and introduces an obligatory dimension to social life. This view defines what people should do and prescribes how things should be done, legitimising role-based actions of individuals. The *cultural-cognitive* pillar stresses the frames through which meaning is made by individuals. This view explains how individuals' everyday actions are constrained by the common beliefs and culturally supported norms and values that shape their interactions in their social world. The three pillars form a continuum moving from the conscious (legally enforced) to the unconscious (taken for granted). These three pillars of institutions, according to Scott (2001) are transmitted by being embedded in various types of repositories or carriers. Scott (2001:77) identifies four types of carriers: *symbolic systems, relational systems, routines*, and

artefacts (see Figure 1) and we provide examples from the case where these carriers materialise.

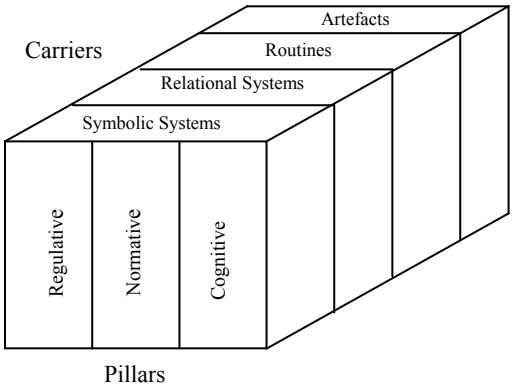

Figure 1. Institutional Pillars and Carriers (Adapted from Scott, 2001:77)

- Symbolic systems (rules, standard processes, values, to widely held beliefs or ideas in the heads of organisational actors). For example, many developers held the view that the method is helpful in that it provides a common language enabling communication of ideas between developers, the client, and those external to the organisation.
- Relational systems (governance systems emphasising authority or power). For example, the business client maintains control over the development process based on funding and the Bank's insistence on the mandatory use of the method
- Routines (habitualised behaviour or repetitive patterns of activity such as standard operating procedures encoded into technology or soft organisational routines such as jobs). For example, developers were required to produce documentation at all stages of development, and to report to the client for sign-off before the next stage of development can occur.
- Artefacts (objects complying with mandated specifications, meeting standards, or objects possessing symbolic value). For example, we argue that the methodology itself is an 'artefact created by human ingenuity to assist in the performance of various tasks' (Scott,

2001:81). We illustrate how the method mandates signatures; follows recognised industry conventions of systems development; and for developers, possesses symbolic value in terms of demonstrating their professional identity.

An institutional perspective offers several advantages for our research. Firstly, according to Orlikowski & Barley (2001:154) an institutional perspective offers 'a more structural and systematic understanding for how technologies are embedded in complex interdependent social, economic, and political networks, and how they are shaped by such broader institutional influences'. Second, a central principal of new institutional theory is that institutions operate at various levels, from the world system (macro) to individual action (micro); and are transmitted by various types of carriers, including technical artefacts (Scott, 2001: 81). In terms of our study, Table 3 illustrates these various levels, with an additional level added – individuals – based on the *user as social actor model*. Thirdly, institutional theory can be used to analyse all types of organisations, because all organisations are institutionalised, albeit to varying degrees (Scott, 2001). For instance, all organisations (and in particular, The Bank) are subject to regulative processes and operate under local and general governance structures. All organisations are socially constituted and are subject to institutional processes that define what forms they can assume and how they may operate legitimately (Scott, 2001).

Table 3. Levels in Institutional Analysis, adapted from Scott (2001:85)

LEVEL	THE CASE
World system	
Societal	Australia
Organisational field	The finance & IT sector
Organisational population	Australia's top 4 trading banks
Organisation	*The Bank*
Organisational subsystems	IT division within *The Bank*
Individuals	Systems developers

Gosain (2004) called for empirical evidence, through qualitative studies, of how technical

artefacts act as institutional carriers. In response to Gosain's call, the second stage of analysis provides examples from the case demonstrating how the day-to-day work activities of developers are constrained by the institutional nature of the technical artefact – the SDM.

While institutional theory is useful in describing and explaining how political pressures, institutional constraints, professional traditions socially construct the context in which the SDM is enacted, it is less useful in explaining how individuals respond to these institutional pressures, or explain the dynamics between developers and the client, and why in our case grievances did not exist. We suggest complementing institutional theory with a specific model of power (Hardy, 1985; Hardy & Leiba-O'Sullivan 1998) to understand better the dynamics between developer and client.

Power Frameworks

In this section, we rectify the omission of power from discussions of method enactment by discussing power as a complex, multidimensional concept. In general, 'power has to do with relationships between two or more actors in which the behaviour of one is affected by the behaviour of the other' (Jasperson et al, 2002:399). Recognising that this concept has multiple meanings, Jasperson et al (2002) defined power to include authority, decision rights, influence, politics or power. These authors also identified a number of paradigms underlying power research and four lenses to better understand researcher's views regarding the causal structure between IT and organisational power. The four lenses (based on a modified version of Burrell and Morgan's (1979) framework of sociological paradigms) are: rational, pluralist, interpretive and radical.

This research adopts aspects of a combination of Jasperson et al's (2002:406) pluralist and interpretive perspectives of power. In the pluralist lens, actors are assumed to have different, potentially conflicting interests. This perspective defines power in terms of actors' ability to influence others' behaviours. A pluralist conceptualisation of power assumes that resources,

possession of resources, and the resulting dependency relationship are characteristics of the social context. Unlike the pluralist perspective with a focus on resources, the interpretive perspective deals primarily with perceptions and the processes that shape them. Power is defined in terms of actors' (the business client's) ability to control and to shape the dominant interpretation of organisational events. In this perspective, 'whoever controls the dialogue, and hence the formation of subjective meaning, has the power to alter another actor's perspective, and ultimately determine outcomes' (Jasperson et al, 2002:412).

Only a few studies focus on the deployment of methods in their social and organisational contexts and the power relations existing between developers and the business client in this context. Markus and Bjørn-Anderson (1987) provide some reference of its early occurrence by providing a framework to identify different forms of exercised power to make business clients and systems developers more aware of the influence of power. Their framework presented two dimensions of context and target demarcating four types of power exercise: technical, structural, conceptual and symbolic. Their view of power was somewhat controversial because the dominant literature on power (at the time) tended to focus primarily on overt power, that is, when two parties disagree and the behaviour of one party is intended to influence the outcome.

Markus and Bjørn-Anderson (1987) drew on the work of Lukes (1974) to consider covert issues: looking beyond observable conflict to consider why grievances are not formulated, and why conflict does not arise. Their 'structural' and 'symbolic' exercise of power is relevant to this study as it describes the exercise of power taking place, not within a particular project, but rather over time as organisational structures and routine operating procedures – in the form of institution – offer the client formal authority over developers or foster dependence on them for resources. According to Markus and Bjørn-Anderson (1987:500) "in this structural exercise of power it is primarily the development of policies and practices that

constitutes the exercise of power, … and that structural constraints on [developers] can obviate the need for more direct [or overt] forms of power".

Since the publication of Markus and Bjørn-Anderson (1987) other writers have utilized and adapted Lukes (1974) three-dimension view of power. Hardy (1985; 1996) and Hardy & Leiba-O'Sullivan (1998) integrated Lukes' three-dimensional view of power into a four-dimensional model which incorporates both the use of power to defeat declared and identifiable opponents, and its use to prevent resistance, known as covert or *unobtrusive power*. Unobtrusive power concerns attempts to create legitimacy and justification for certain arrangements, so that outcomes are never questioned. From our search of the information systems literature, Hardy's model has rarely been used in prior IS studies, with three notable exceptions: Dhillon (2004), Howcroft and Light (2006), and Howcroft and McDonald (2007). However, Hardy's model of unobtrusive power has been used extensively in the organisational and management literature.

In this research we apply Hardy's (1985) multi-dimensional model of power to help us understand the dynamics between developers and the business client involving power and authority, and how these relations shape method enactment. Hardy's model is appropriate to our case as it examines both overt and unobtrusive uses of power, and offers explanations of political inactivity. That is, understanding a situation of unequal power relations, where grievances do not exist, or conflict does not arise. In the Discussion section, we return to Hardy's power model, to examine the conditions that resulted in the subjugation of developers by the business client.

Combining all Three Theory

By applying the four constructs of identities, interactions, affiliations and environment, the social actor model, together with constructs from institutional theory on regulative, normative and cognitive pressures; and the construct of meaning from Hardy's model of power, we are

able to conduct a multi-level analysis of SDM enactment. Before we apply the three theories to our study of SDM enactment, we briefly present our research approach.

RESEARCH APPROACH

Complete descriptions of the research procedures have been presented and published elsewhere as work-in-progress (Rowlands, 2007). This paper only presents follow-up analysis and further discussion of the findings.

The original research approach adopted in this ongoing study is that of an interpretive case study (Walsham, 1995; Klein & Myers, 1999). The research study was carried out in a large Australian bank. The banking and financial services sector was chosen because of the extremely important role that IT plays in the success of companies in this industry, and *The Bank* selected has extensive experience and use in practice of an in-house developed systems development method.

ANALYSIS

Preliminary analysis of data has been presented previously (Rowlands, 2008) and due to space restrictions cannot be repeated here. However in summary, the findings (1) illustrated structures of systems development embedded in the method; (2) portrayed power inequalities where systems developers are dependent on the business client; and (3) identified that the business client can be considered a methodology user too.

Using the *user as social actor model*, the *affiliation* examples presented in Rowlands (2008) confirm the inherent power of the business client. The interviews confirmed that in the end it is the business client who has control over the systems development process, and bears the most responsibility for the system in terms of funding and signing off on it. Systems developers need the business client to fund the design and construction of new or enhanced systems. However, there is a dichotomy of mind-sets. The business client is portrayed as

more interested in controlling costs, monitoring deadlines and delivering projects on time, whereas the developer is more interested in building quality systems and employing their technical expertise.

The *affiliation* examples also tell us that it is the policies and practices embedded in the method through sign-off and stage-gate funding constitutes a form of 'structural' exercise of power (Markus and Bjørn-Anderson, 1987) in the form of developer dependence on the business client for important resources. While a form of overt power, this finding indicates that the constraints based around the accepted and everyday use of a methodology by systems developers obviates the need for more direct forms of control. Our findings also indicate that control structures embedded in the methodology, while not undetected by developers, remain largely un-discussed. For instance, many interviewees when asked if they discussed the relative merits of the methodology with other colleagues said 'they did not' as the following excerpt from a programmer illustrates:

> *It's one of those things that you discuss when you're relatively new to the organisation but after that it's just accepted. You do it because it's part of the culture. You don't necessarily discuss it in a meeting or at lunch. You don't say to someone 'Awww crikey, I'm having a problem with that part of [the method], so I probably wouldn't discuss it very often.*

Second, in the *environment* section, Rowlands (2008) provided where the environment the bank operates in greatly effects the enactment of the method. Examples of adherence to industry-wide and global work practices included: development phases being based on the traditional water-fall life-cycle, systems built complying to standards imposed by regulatory agencies such as the Australian Prudential Regulatory Authority, *The Bank* mimicking other organisations by placing the methodology on an intranet site, and having to conform to specifications agreed to with major technology partners. These examples illustrate a source of power emanating from other than the business client. The environment imposes on the

developer a requirement to comply with industry, national and global work practices, where the enactment of the method is subject to external institutional forces.

From the *interactions* section, excerpts from Rowlands (2008) illustrate how the development life-cycle, sign-off, and routine patterns of work embedded within the method create a mechanism for the business client to exert and maintain control over the systems development group. The excerpts illustrate that the business client has 'ownership' of the method and therefore has control over important aspects of systems development, and accordingly is able to exert unobtrusive power over systems developers. What has not been reported in the literature before is that through ownership and control, the business client can be considered a user of the methodology too.

As reported in Rowlands (2008) the *identities* section, developers are dependent on the business client to validate and legitimate their contributions to the organisation. Knowing how to use the methodology and using the methodology competently can construct their *identities*, legitimise their role, and construct perceptions that they are professional. There were multiple data points confirming that the enactment of the methodology legitimises their role as a systems developer in the eyes of a project manager or the business client. Hence, systems developers pursue their interests directly by invoking 'directives' prescribed by the methodology, while acknowledging the legitimacy of the business client.

In sum, examples in Rowlands (2008) of how structures operating at various levels of the organisational field provide an overarching, framing context within which systems developers often made constrained choices about methodology use. The first author inquired into the circumstances within which systems developers used the method, and identified conditions that resulted in the subjugation of developers by the business client, leaving them with little control over the development process. We conclude that the advantages in terms of

whose interests are met in the systems development process are clearly in favour of the business client.

DISCUSSION

You will recall that our motivation for this paper was to develop a theoretical framework that combines important insights from three distinct but complimentary theory; to apply this framework in the analysis of systems developers' perceptions of their relationship with the business client; and to explore the role that methods can play in influencing this relationship. Our particular concern was with the views of systems developers enacting a local and mandatory method in their workplace, and in understanding the unequal power relations between developers and the business client. The following section revisits these motives in the light of the research findings.

How does the Method Influence the Developer/Client Relationship?

Using Lamb & Kling's (2003) *social actor model* as a means for analysing the case text, Rowlands (2008) found that pre-existing structures embedded in the method constrain the actions of the systems developer. An analysis of the transcripts through the lens of the *social actor model* enabled us to identify the source of authority and power afforded the business client, and to identify mechanisms of unmistakable power operating in The Bank. One local source of covert power in favour of the business client is a set of development procedures (sign off, and the stage gate approval process) that have transpired over time to institutionalize their interests in structures embedded in the method. As a consequence of the method being 'virtually' owned and controlled by the business client, and the method being mandated, developers were constrained in their actions by the apparent neutral technology of the method (the methods and techniques of systems development); and the need to 'rationalise' their work practice – a common theme among developers is that 'we all need to use the method to speak a common language'. A local source of overt power in favour of the

client is the inevitable market pressures such as the clients' ability to outsource development work rendering the developer dependent on the client and subject to unreasonable demands in terms of schedules.

To extend our understanding of the role that methods can play in influencing the relationship between developer and client, we frame our discussion by drawing upon contributions from institutional theory (Scott, 2001) by showing how institutional structures (such as authority, norms, and symbolic values) embedded within the methodology (*c.f.* Table 4) are active forces in the systems development process. We found that the method is a carrier of institutional logics and can be used to explain how the method carries power.

In illustrating how institutional logics (processes and social structures) shape the method enactment process, the case shows that pre-existing structures that have developed over time (such as rules, norms and beliefs) embedded in the method play an active role in constraining and enabling developers in the ISD process. As this case demonstrated, the day-to-day work activities involved in systems development are rather fixed or predetermined by the institutionalised nature of the technical artefact – the method. For instance as summarised in Table 4, the structures of the method provide a repertoire of already existing institutional principles of work (e.g. conventions, work practices, common understandings, authority relationships) that developers enrol in their activities.

With reference to Table 4, under the headings of the regulative and normative pillars, examples from the case provide grounded evidence of how the method encodes and embodies institutional principles that constrain the routines of organisational actors. Examples from the cultural cognitive pillar show how enactment of the method over time, leads to the development of change-resistant cognitive schemas (norms and values) that are perceived as natural and legitimate by developers. These findings accord with that of Orlikowski and Robey (1991:159), who claim that "systems developers draw on the values and conventions

of their organisation, occupation, and training to build information systems…. They are informed by information systems development methods and knowledge about their organisation to build information systems." Furthermore, this case has demonstrated, as it is the business client who is in control, it is the values and conventions of the business client that holds legitimacy in The Bank.

Table 4. Institutional Pillars and Carriers from the Case (adapted from Scott, 2001:77)

		Pillars	
Carriers of institutional logic	**Regulative: regulations and rules that govern behaviour.**	**Normative: appropriateness, expectations and customs that define and prescribe how things should be done.**	**Cultural-Cognitive: frames through which meaning is made, such as shared beliefs and mental models.**
Symbolic systems	"Walk-through" meetings took on a ritualistic character in order to convey a powerful message to developers: 'cooperate, come to us, and we will reward you'.	Through the habitual use of the method template in producing lifecycle deliverables, developers used this as evidence of design creativity and work performance.	Many developers held the view that the method provides a common language and valued standardized terms enabling communication of ideas between developers, the client, and those external to the organisation.
Relational systems	The business client maintains control over developers through funding. Developers can't proceed until each stage is signed off.	Systems developers wanted the method to be changed (updated) but the business client resisted.	Developers when they join The Bank accept their role in the existing order of things because they see it as natural.
Routines	Systems development requires a standard set of documents to be completed.	The Bank has standard job roles of consultant, senior consultant, project leader, CIO etc, involving a hierarchy of authority.	The use of the method goes relatively unnoticed by developers. It is habitualised and part of the work culture of the organisation.
Artefacts	Method use is mandated for all new projects & maintenance projects	The method is based on the traditional SDLC. External parties: contractors, H/W & telecoms. providers know the phases used within The Bank.	Using the method creates an image for developers that they are professional.

IMPLICATIONS FOR THEORY-BUILDING RESEARCH

Lamb & Kling's (2003) *user as social actor model* has been applied to the study of information systems elsewhere: Rowlands (2007, 2008) in a study of the institutional aspects of method use, and Ferneley & Light (2008) in a study of different user groups' appropriation of mobile and ubiquitous computing, however these works do not draw upon institutional theory (the three pillars) to understand the active role of the ICT as an institutional carrier. Our research, on the other hand, does.

Our findings show that the method can assume the properties of an institution on the basis that it constitutes the background condition for action, enforcing constraints, giving direction and meaning, and setting the range of opportunities for undertaking action. Accordingly, we view the method as a social institution that exerts its own type of agency interacting with human agency in the systems development process.

The case reported in this paper builds on research suggesting that methods significantly inform and shape the cognitions and actions of organisational members engaged in systems development (Hirschheim and Klein 1989). We found that the influence of the methodology occurs through the constraints and prescriptions of process mandated by the methodology, through the experiences and learning from previous use of the methodology, and through habitualised behaviour or routines that shapes developers' approaches to using the method in their workplace. This finding is consistent with other research (Gosain, 2004) that technical artefacts act as an important institutional embodiment (as a carrier) serving to preserve rules by constraining the actions of human agents on the one hand; and that the technical artefact is subject to institutional forces and institutional processes that set the rules of rationality, on the other.

Second, in discussing the findings in terms of power, the case depicts through the eyes of the

developer that the business client exercises near complete control over the development process. This key differential finding sheds new light on understanding the recurring conflict of interest between developers and the business client during systems development, not reported in the literature so far.

The case depicts business exercising nearly complete control over the development process and systems developers as playing a cooperative, but submissive role. This finding is in direct contrast to the deconstruction of text of the Information Engineering (Martin, 1990) systems development methodology (Beath and Orlikowski, 1994) and more recent findings (Hussain and Cornelius, 2009) about the distribution of power, control and responsibility between systems developers and the business client. Our case study specifically indicates that it is the policies of the business client embedded in the method that constitutes both overt and the 'symbolic' or unobtrusive exercise of power by the client over the systems developer.

The excerpts from Rowlands (2008) also portray the business client as protecting their sphere of activity while developers are not seen as protective of their interests, and are relatively silent on the power issues which concern them. Why would this be the case, and why is the business client dominant and the systems developer compliant within an unequal power scenario? In answering these questions, we have found that Lamb & Kling's (2003) model enables us to identify concepts of control, authority and power, but doesn't explain how the concepts of power operate. We then used institutional theory and an application of Scott's (2001) three pillars framework to explain how the local method carries power (as summarised in Table 4). While we identified power mechanisms and authority structures, the user as social actor model and institutional theory are silent on explanations as to why developers are compliant with an unequal power scenario.

To explain this scenario, an answer is provided by Hardy's (1985) multi-dimensional model of power. This model (summarised in Table 5) offers a plausible explanation in terms of

explaining an absence of resistance, and why there is apparent cooperation from developers with the business client. Hardy's model suggests that power can work at a number of different levels. In terms of how power is mobilized by dominant actors, on the surface (dimensions 1 & 2), power is exercised through the mobilization of scarce, critical resources, and through the control of decision-making processes. At a deeper level (dimension 3), power is exercised through the managing of meanings to create legitimacy for an issue and prevent conflict (Hardy & Leiba-O'Sullivan, 1998).

Table 5. Hardy's (1985) Multi-dimensional Model of Power

Model dimension and Explanation	Examples from the Case
Dimension 1: power of resources. The powerful are able to deploy key resources on which others depend, such as the control of funding. This is **overt power**.	The business client has the ability to procure services in-house or external to the organisation. Developers are therefore reliant on the business client for funding of projects.
Dimension 2: power of decision-making processes. Some issues can be excluded from decision-making, and the agenda confined to 'safe' questions, with opponents side-lined.	Developers were prevented from replacing the existing method and acquiring a new method based on new techniques and re-use of code. The client said they 'couldn't understand the diagrams' and decisions were prevented from being taken, even though there was an observable conflict of subjective interest.
Dimension 3: power of managing meaning. People can be prevented from having grievances by shaping their perceptions and preferences in such a way that they accept their role in the existing order of things, because they see it as natural. This is an example of **unobtrusive power**.	Developers were influenced by symbolic aspects of power – the use of language and rituals in the workforce. For example, standardised terms for communication; the habitual use of the method in producing lifecycle deliverables as evidence of work performance; and the ritualistic use of "walk-through" meetings with clients to validate the 'accuracy' of design decisions and to gain their signature of approval. Developers saw this as natural and legitimate.

Hardy's model also clarifies the conditions necessary for why opposition or conflict does not arise. In the first dimension, developers lose out to the client by being unable either to procure or deploy critical resources; in the second, by being unable to secure access to the

decision-making forum; and in the third, by being unaware of political issues (Hardy & Leiba-O'Sullivan, 1998). According to Lukes (1974) and Hardy (1985) power can be used to prevent people from having grievances by shaping their perceptions and preferences in such a way that they accept their role in the existing order of things, either because they see or imagine no alternative to it, or because they see it as natural. In other words, to explain why developers are accepting of their situation in relation to an unequal relationship with the business client, we need to move our thinking to why grievances are not formulated, why demands are not made, and why conflict does not surface. In Hardy's 3rd dimension of power, quiescence may be the result of the unobtrusive exercise of power.

Whereas Hardy's (1985) first two dimensions are grounded in access to material and structural resources such as information, expertise, control of rewards, and budgets (also known as overt power), unobtrusive power refers to the ability to secure preferred outcomes by preventing conflict from arising. The unobtrusive side of power revolves around attempts to create legitimacy and justification for certain arrangements, actions and outcomes so that they are never questioned. The essence of unobtrusive power, in this case example, is the ability of the business client to give meaning to events and actions, and to influence the perceptions of developers so that they either remain unaware of the political implications, or view them in a favourable way.

The transcripts in Rowlands (2008) reported that developers are influenced by symbolic aspects of power – the use of language, symbols and rituals in the workforce (as illustrated in the row 'Symbolic systems' in Table 4). Developers value standardized terms for communication; the habitual use of the method in producing lifecycle deliverables as evidence of design creativity and work performance; and the use of "walk-through" meetings with clients to validate the 'accuracy' of design decisions to gain their signature of approval.

These meetings take on a ritualistic character in order to convey a powerful message to developers: 'cooperate, come to us, and we will reward you'. Unobtrusively, these symbolic aspects of systems work are seen by developers as legitimate development policy. Developers do not work outside this policy because it is seen as natural, habitual, acceptable, and is contextually and culturally grounded (see the Cultural-cognitive pillar in Table 4). Developers comply with these work arrangements because it meets their sense of professional reality. In terms of symbolism, the method stands for something more than a 'way to build systems'. The meaning of the method comes from its context and use within the organizational sub-system. Analysis using the *Identities* dimension of the social actor model found that the method defines developers' identity as competent and legitimizes their role as professional. Unobtrusive power then is derived from symbolic sources which are brought into play to legitimize outcomes in a process called the 'management of meaning' (Hardy, 1985).

Hardy (1985:396) documented a model showing the complex relationships among overt and covert aspects of power. In terms of theory-building, this model has been adapted and modified to the specifics of this case by the inclusion of external power (vii) and a necessity to conform (viii), and is presented in Figure 2. Figure 2 (with descriptions below) illustrates that the various forms of power are interwoven and should not be viewed separately.

(i) Overt power is based on the control of resources. Success depends upon bringing these resources into action through power mobilization.

(ii) The mobilization of overt power resources enables the business client to achieve outcomes they desire, for example control over the development process in the form of budget or resource allocations, or a decision outcome to outsource or not.

(iii) Unobtrusive power is derived from symbolic sources which are brought into play to legitimize outcomes in a process called the management of meaning.

(iv) Unobtrusive power can be used to influence sentiments with the use of mechanisms such as symbols, language, and rituals.

(v) Unobtrusive power can produce outcomes directly. Factors such as 'walk-through' meetings with clients to obtain their signature of approval ensure that certain demands and challenges are never made. In this case the business client achieves outcomes by default: benefiting from a situation that favours them, rather than having to consciously manipulate it for their own needs.

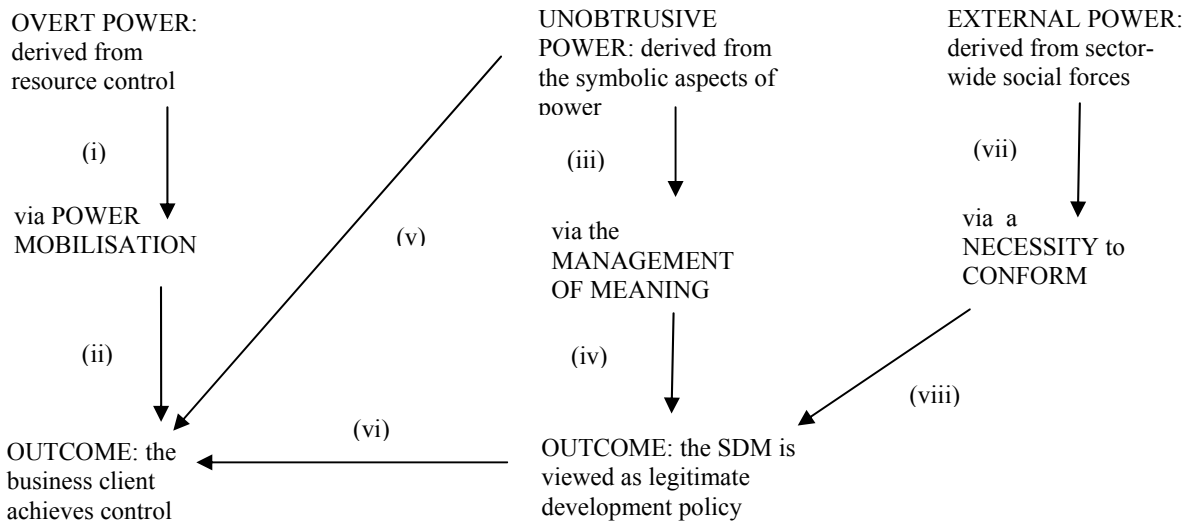

Figure 2. The External, Overt and Unobtrusive Aspects of Power.

(vi) Unobtrusive power can be consciously used by the business client to achieve outcomes. In this case the lifecycle, sign-off and routine patterns of work are used to legitimize and justify desired outcomes, producing favourable sentiments, and removing the threat of opposition – steps are taken to 'influence' developers to accept certain outcomes although they may be unaware of this.

(vii) External power is derived from sector-wide social and organizational requirements in the form of mimicking or a necessity to conform.

(viii) External sources of power are brought into play through a process of isomorphism (DiMaggio & Powell, 1983) or a necessity to conform. For example, in this case regulatory agencies, professional codes of practice, and industry-wide practices directly influence method enactment outcomes.

In conclusion, we have argued that an institutional and power perspective of methodology enactment brings about the identification of different elements across various levels of the organizational field that might otherwise escape analysis. As stated in the *Introduction*, a lack of established theory about method enactment necessitated the generation of a number of new perspectives and empirical insights adding to the existing body of knowledge in this arena. Indeed, the findings developed in this study and summarised in Table 6 define ten theoretical statements or high-level propositions about the distribution of power, control and responsibility between systems developers and the business client from an institutional theory, and power perspective.

CONCLUSION

Our theoretical contribution is the adaptation of the user as social actor model to identify sources of authority and power; an application of the three pillars framework to understand how the method carries power; and the use of a model of unobtrusive power to understand why developers are compliant with an unequal power scenario and how power can be used to prevent conflict from arising. To our knowledge, no other research has sought to combine the user as social actor model, institutional theory, and a power theory to investigate social phenomena. However, others to employ a multi-theoretical perspective to analyse politics and the function of power in a case study of IT implementation include Levine and Rossmore

(1994). Furthermore, few studies in the IS literature have addressed multiple levels of analysis (Jensen et al, 2009).

Table 6. Theoretical Statements from the Findings.

1	Enactment is a complex INSTITUTIONAL process. Methods of systems development encode organisational values in the form of INSTITUTIONAL STRUCTURES.
2	The developer is CONSTRAINED. Pre-existing structures (such as rules, norms and beliefs) embedded in the method and EXTERNAL forces to the organisation play an active role in constraining human agency in the systems development process.
3	The method is a CARRIER of institutional logic. The method acts as a major institutional CARRIER where its enactment becomes taken for granted in the form of habitual behaviours and routine patterns of work.
4	Enactment is CONTROLLED by the business client. The business client has 'ownership' of the method, controls the resources, and is able to exert OVERT power over the systems development process.
5	Enactment is POWER based. The life-cycle and sign-off process embedded within the method creates a mechanism for the business client to mobilise OVERT power and thereby maintain control over the systems development process.
6	Power is LEGITIMISED. Constraints based around the accepted and everyday use of a methodology by systems developers are not just a form of overt power, but can instead can be covert or UNOBTRUSIVE and institutionalised in the form of development policy as a means of LEGITIMISING power.
7	The business client manages the MEANING of the method – so that using the method is considered by developers as LEGITIMATE development policy. Therefore, the business client should be considered as a METHOD USER too, and not as an independent, arbitrary provider or withholder of cooperation in systems development.
8	Enactment of the methodology LEGITIMISES their role as systems developers in the eyes of the business client.
9	Developers see the systems development process as UNEQUAL. However, enactment of the method acquiesces any CONFLICT of interest in which the business client achieves their objectives (CONTROL) to the relative disadvantage of developers.
10	EXTERNAL power is derived from sector-wide social and organizational requirements in the form of mimicking or a necessity to conform.

All research designs have limitations. First, data for our case only came from developers, and

no business clients were interviewed or their opinions heard. We recognise the limitation of this approach. A natural area for future research is to study the other half in the business client – systems developer pair.

Second, while we claim to have conducted multi-level research by focussing on constructs such as affiliations, interactions and the environment, all our empirical evidence was arrived at from an individual perspective or collection of individuals (group level) through personal interviews. The evidence collected under-represents influences of the organisational field. This limitation poses opportunities for advancement in terms of methodological tools for the collection and analysis of data at a level higher than the individual or organisational population (*c.f.* Table 3).

Third, relatively little consideration has been given to the processes whereby institutional practices are established, transposed or decomposed. This research has examined, through a cross-sectional design, one organisation and its practices at a given point of time. While the strength of this research is on identifying the constraining nature of institutional life at various levels, its weakness is that it remains silent on the dynamics associated with change. Further research to extend Lamb & Kling's (2003) model by adding a temporal dimension (Lamb, 2006), is also warranted.

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