

IT Projects: Conflict, Governance, and Systems Thinking

David Johnstone

Sid Huff

Beverley Hope

School of Information Management

Victoria University of Wellington

Wellington, New Zealand

david.johnstone@vuw.ac.nz

Abstract

Triggered by several embarrassing (and costly) IT project collapses in New Zealand's public sector, a government report found that effective project control required good governance measures to be in place.

Escalating conflict amongst project stakeholders, particularly where the IT projects are large and complex, is often cited as a major contributor to project problems. Conflict, and its resolution, will be affected by factors that are difficult to control, including culture and politics.

In this paper we apply the basic concepts of systems thinking to deliver a holistic research framework, focusing on the project-related conflict resolution process. Key constructs include: input (stakeholder conflict); output (e.g. resolution outcome, satisfaction with outcome); contextual factors (e.g. power, culture); and, most importantly, the control mechanism (governance).

This framework was empirically tested using a single case study. Our research found strong support for the model.

1. Introduction

Large, complex information technology (IT) projects have been popular within organisations for decades. Yet, even with plentiful resources, experienced and knowledgeable information systems (IS) professionals, and a plethora of IS development methodologies available, organisations may still find it difficult to deliver IT projects within time, budget, and user expectations [1].

Why is this so? Approaches to IT project management have matured. Furthermore, it is now accepted that significant change will require change management at the organisational level. Yet it has recently been argued that treating these initiatives as purely IT projects, with an overlay of change management, is not enough – that a

holistic view is required because the total picture is greater than the sum of these parts [2].

It can be argued that IT projects merit special attention – there is, for example, a vast array of literature on IT project management. On the face of it, this appears curious, as IT projects share many of the essential characteristics of other organisational projects. Such overriding concerns include: budget, deadline, scope, functionality, quality, and risk.

However, IT projects have a significant technology factor, where the technology itself, and the way it is used, will be changing constantly, and require considerable expertise. Furthermore, modern IT projects can be broad in scope, as organisations seek to integrate more and more of their information functions, engulfing a considerable range of stakeholders both within, and external to, the organisation. Examples include: ERP, systems integration, and e-business projects. Even moderately sized organisations, with an in-house IT function, will very likely always have IT projects ‘on the go’ at any one time – sometimes simultaneously with other organisational projects. This may challenge an organisation’s flexibility and capability to cope with endemic change.

It appears our ability to learn about developing and implementing IT initiatives may struggle to compete with their burgeoning complexity, cost, and likely impact on a range of business processes.

Large projects typically cross departmental boundaries, and, consequently, include several different user groups. The IT project team will include a range of IT professionals. Package vendors and outsourcing consultancies may be involved. Each stakeholder will have expectations – and these may not always coincide. Actions and behaviours may occur to promote local advantage over organisational gain. Major disagreements may lead to conflict, and conflict that is allowed to escalate, or is poorly resolved, may lead to serious project damage. These are issues of control.

At the same time, there has been a rapid rise in interest in ‘governance’ – particularly since the collapse of Enron and the demand for greater organisational accountability (through the Sarbanes-Oxley Act) within the USA.

Within the Information Systems discipline, both academics and practitioners have developed a corresponding interest in ‘IT governance’, with its focus on the tools of control where IT-related issues are concerned. Certainly its importance to the management of IT projects was highlighted in a recent New Zealand government report on the way larger IT projects are governed and managed in public organisations. Triggered by several embarrassing (and costly) project collapses, the report found:

“In the past, oversight and governance has often been addressed by ‘ignore unless there is a problem’, then review and criticise. Active execution of oversight and governance responsibilities is as important as the effective execution of management responsibilities.” [3]

But how does IT governance help with IT project governance, and to what degree is the latter seen as an important part of the former?

More specifically, given a broader range of stakeholders, and the greater stakeholder involvement in decision-making, to what degree can IT project governance help control excessive and/or unhelpful actions? In this paper, the authors offer a holistic view of stakeholder conflict resolution in IT projects, by employing systems thinking to bring together the concepts of governance and conflict resolution within an organisational setting.

First, the literature is reviewed to establish the range of organisational responses to such conflict, both in terms of process (conflict resolution) and context (power, culture, and other environmental factors). These constructs are represented within a framework based on the application of systems concepts. A brief case examination of a problematic IT project is employed to test the appropriateness of the research framework. Finally, implications for research and practice are considered.

2. Literature Review

Large, complex IT projects with multiple stakeholders will likely lead to stakeholder disagreement, which often grows into manifest conflict [4, 5]. There is a risk of escalation of conflict, with consequent project damage [4, 6, 7]. Conflict amongst end-user factions and IT professionals, for example, with correspondingly negative impact on project objectives, is well documented [7-9].

The following examines the IT project-related conflict environment, identifying relevant factors from the

literature with the objective of placing them within a systems framework.

2.1. Conflict & conflict resolution

Conflict is a concept with a paradoxical status in organisations; often perceived in a negative light, yet seen as a useful mechanism for highlighting otherwise hidden issues of importance [10].

One review of the organisational conflict literature found commonality amongst the diverse perspectives, providing three key facets:

“First, conflicts occur among interdependent parties. Second, there is a divergence of interests, opinions or goals among these parties. Third, these differences appear incompatible to the parties, with one party’s actions interfering with the attainment of the other party’s goals, thus leading to expressed struggles.” [11]

Within the IT project context, this means conflict represents manifest disagreement between project stakeholders over a particular project-related issue, that may escalate to the point where project objectives are threatened.

Many writers differentiate between conflict and conflict resolution processes [12, 13]. These, and other writers, offer a variety of insights into the causes of conflict, and how it is defined and recognised. In the 1980s and 90s, a few IS researchers sought to link user participation in IT projects with IT project success via effective conflict and conflict resolution processes [11, 14].

Conflict can be issue-based or structural [15], with either constructive or destructive effects [16]. While the identification and evaluation of the conflict is important, this study focuses on conflict that has already been formally identified and evaluated as requiring some form of resolution to avoid destructive impacts.

However, some commentators warn that a focus solely on resolving conflict as and when it occurs risks outcomes of variable quality and effectiveness. For example, Rahim highlighted the difference between *conflict resolution* (which “implies reduction, elimination or termination of conflict”) and *conflict management* (which “involves designing effective strategies to minimise the dysfunctions and maximise the constructive functions of conflict”) [17]. Others have also recognised the need for conflict management strategies [13, 18]. In other words, the process of conflict resolution should be managed by applying appropriate controls.

In summary, conflict resolution can be seen as an organisational process. From an IT project perspective, stakeholder conflict may initiate a conflict resolution process. The conflict may be issue-based (turf wars and project resource competition, for example) or structural (cultural differences between stakeholder groups, for

example). Controlling the effectiveness of the conflict resolution process requires high-level control strategies.

2.2. Organisational power, politics and influence

A number of studies throughout the late 1980s and early 1990s examined the impact of organisational politics on IT project-related conflict. Some established the nature of stakeholder influence as processes that directly affected the decision-making involved in conflict resolution [19, 20]. Others investigated the effects of user participation on the way conflict processes were carried out [11, 14, 21-23].

Organisational power has long been recognised as an important issue in the discipline of organisational behaviour, with the IS literature focussing considerable attention on it over the years [24]. While terms like *power*, *influence*, and *political activity* appear to be commonly used in every day discussion of organisational issues, there is little consensus on how they should be defined, analysed or modelled.

Beeman & Sharkey differentiated between the concepts of *authority* (the capacity to change the decision-maker's reality) and *power* (the capacity to change the decision-maker's perception of reality) [25]. They described methods by which each could be employed – through persuasion and obligation (exercising power) or inducement and coercion (exercising authority).

In this study, *authority* is an organisational structure set up and maintained to manage areas of responsibility, including decision-making [26]. *Power* is a “potential force” [27] or “capacity to influence” [26], and is wielded by those seeking to increase the likelihood of getting decisions they want.

Where decision-making can be seen as the exercise of authority, *influence* can be defined as the exercise of power [28] – to alter, in this case, the decision-maker's perception of the issue and its context. Figure 1 represents a model of this consolidated view.

The exercise of power can be seen positively as an effective way of getting things done [27]. But there are a number of examples where political activity exacerbated conflict, causing serious damage to an IT project [8, 29, 30]. As with conflict, this suggests unconstrained use of influence may be a project risk. Some suggest a need for political analysis of the existing power structure in an organisation – to help guide the selection and implementation of appropriate conflict management strategies [31].

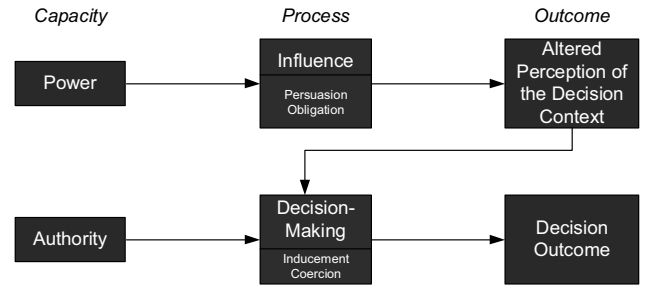


Figure 1. A model outlining the relationship between power, authority, influence and decision-making.

In summary, authority is an organisational factor that legitimises, and provides the basis for, the decision-making process. Power is an organisational factor that provides the basis for the process of influencing the decision-making process. Stakeholders with some organisational power are capable of influencing the outcomes of decision-making in conflict resolution.

2.3. Governance

In its broadest organisational sense, governance is concerned with control. Whereas management involves making and implementing decisions, governance is more concerned with guiding and constraining these actions [32].

Corporate governance covers the entire enterprise and its activities. Subsets relevant to this study include IT governance (controlling IT-related decisions and behaviours) and IT project governance (controlling IT project-related decisions and behaviours).

There are three key components of governance within organisations, though few authors have identified all three at once. A commonly discussed component, particularly within the IT governance literature, is the *authority structure* – outlining the positions of responsibility for decision-making and who should occupy those positions (often referred to as the allocation of decision-making rights). Determining the best authority structures to deal with IT-related issues has been the subject of considerable debate over the past two decades, a debate often embedded within the IT function centralisation/decentralisation debate [33-35]. Strangely, important, IT-specific authority structures like steering committees have received only limited attention [36].

The second key component to governance involves what can loosely be called *mechanisms*, which include all manner of formally adopted processes, procedures, and methodologies that help decision-makers both make and implement decisions. The IT Governance Institute, through their increasingly popular, comprehensive governance framework, COBIT, offers a highly

prescriptive set of mechanisms with a focus on audit control [37].

The third, and perhaps least discussed component, is *policy*. Providing an explicit link between strategy and decision-making, policy enables senior management to formally promulgate their views on decision guidelines and constraints [38]. Strassmann asserted that organisational executive management frequently abdicated responsibility for IT-related matters, often resulting in policy vacuums over stakeholder issues such as resources, data ownership and data sharing. Policy vacuums gave managers free reign to act with local interests in mind, encouraging political fallout and increasing project risk [39]. He sees effective governance as a way to successfully constrain potentially damaging political activity where conflict ensues.

However, the authors argue that these three components are not considered in any coherent, comprehensive manner when dealing with IT projects. Comprehensive studies on IT governance, such as those of Peterson [5] and Weill [40], don't appear to consider IT projects as falling within the aegis of IT governance. In fact, virtually none of the examinations of IT governance to date make an explicit mention of IT projects (see [35] for a rare exception).

Within the IT project context, some have looked separately at the role of *policy*, including the use of project charters [41]; *authority*, including the project sponsor [41], the project office [42], and the project steering committee [43, 44]; and *mechanisms*, including methodologies for project management, conflict management, and system development [45].

While neither IT project management nor change management approaches appear to be enough to successfully control IT projects in isolation, there is a need for a more holistic approach to IT project governance.

In summary, governance consists of three distinct, but related, components: policy, authority structure, and prescriptive control mechanisms. These specify why, where and when decisions are made (policy), who should make them (authority) and how they should be made and implemented (mechanisms). Governance is an organisational factor capable of affecting IT project related conflict, and related political activity, at three different levels: corporate, IT-based, and IT project-based.

2.4. Culture

Culture is also a difficult concept to define and analyse, and the degree it can be measured and manipulated is the subject of some debate [46]. The very nature of organisational culture appears ephemeral, and may evolve quite independently of formal goals and objectives. It is certainly less controllable, with less predictable outcomes, than governance. Frequently it is defined using terms like

attitude, belief, value, and feeling [47], but these, too, may suffer from ill-definition. Yet culture can have a significant impact on IT-related issues, including ensuing conflict and its resolution [48, 49].

Where decision-making is affected by organisational imperatives, governance and culture can be differentiated by examining the degree of formality involved. Governance measures tend to be formally developed, documented, promulgated, and enforced, whereas culture evolves, and would not normally be documented or officially recognised.

In summary, culture is an organisational factor that, like governance, is capable of affecting the decision-making process, including conflict resolution situations. However, unlike governance, culture is difficult to wield in a purposeful way.

3. Framework development

As the critical factors identified in the literature are represented as either organisational processes, or organisational factors that affect the processes, it is argued that systems thinking is a powerful tool for first representing, then analysing, the nature of conflict in IT projects. In the following section, the outcomes of the literature review are used to build a system model representing a research framework of the conflict environment.

Systems thinking is based on providing a holistic view – the idea that the whole may be more than the sum of the parts. Checkland provides a detailed history of the systems movement and the variety of classification systems available. In particular, he focuses on what he calls *human activity systems*, which are "... sets of human activities more or less consciously ordered in wholes as a result of some underlying purpose or mission." [50].

Systems concepts like input, process, output, feedback, and control, have proven to be particularly useful in areas where the more traditional scientific approaches have failed – where the problem domain is unstructured, poorly understood, complex, or based on human behaviours.

A system is typically evaluated in two ways: how well the system achieves its objectives in terms of its outputs (*effectiveness*); and how few resources are required, as inputs, to achieve its objectives (*efficiency*). Appropriate measures are required in both cases (in organisations, effectiveness is often based on quality measures, while efficiency is normally based on financial measures). The measures offer the opportunity for the system to provide feedback information about issues relevant to system performance. A point of control will collect and evaluate the feedback, and determine if action is necessary to adjust the system process in some way.

A system model provides a diagrammatic method for exploring the nature of the system. Almost all

organisational activities could be considered to be parts of different systems and subsystems.

Other external influences on the processes, located in the system environment, are contextual and may be outside immediate control.

3.1. Systems thinking and IT-project conflict

The following extends earlier work done on establishing a framework to examine conflict in IT projects [51].

Figure 2 represents a system model of the conflict resolution process that transforms project-related conflict (input) into some kind of resolution (output). It incorporates the contextual effects of culture, power and other relevant, pre-determined, external effects. It includes the dynamic process *influence* as an exercise of power to affect the conflict decision outcome.

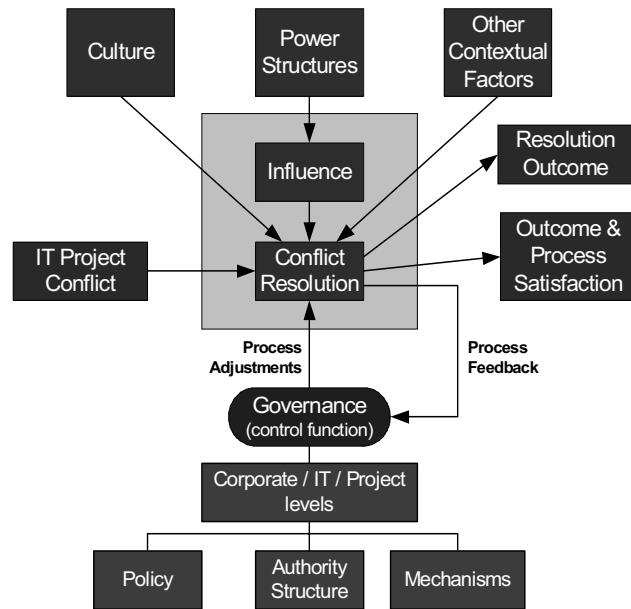


Figure 2. A systems framework of IT project-related conflict resolution.

Whereas power and culture can be seen as elements that are difficult to control, governance is represented here as a set of pre-determined control functions, applying at all three relevant levels (corporate, IT, and project), employing a combination of all three different approaches (policy, authority, and mechanisms). Feedback is collected at key points in the conflict resolution process, so that it can be monitored. If necessary, based on the feedback, aspects of the resolution process may be changed.

At this point, the framework represented in Figure 2 is sufficiently detailed to identify and differentiate the essential constructs, and their relationships, that have been

identified in the literature. The model is flexible enough to cater for additional factors, or decomposition into further detail (another strength of systems models). The input-process-output relationships are clear, and the role organisational factors can play – particularly those within management control – can be identified, measured, and redesigned if necessary.

4. Research Method

A case study approach is used to validate the use of the research framework and establish its usefulness for analytical insights into the resolution of IT project-related conflict. Initial contact was made with the CIO of an organisation, who, in turn, provided information about recent IT projects, including the names of the major project stakeholders. Two related, recently completed IT projects were selected.

Six major stakeholder representatives directly involved in the projects were selected and interviewed. Employing the critical incident method for collecting data, each interviewee was asked to recall an incident of conflict between stakeholders (not necessarily themselves), including the events that led to conflict, the nature of the conflict itself, what responses occurred to resolve the conflict, and finally, how satisfied project stakeholders were with both the conflict resolution process and the resolution outcome.

4.1. The case site

A single case site was used. The organisation is a moderately-sized public entity funded by the New Zealand government. It provides essential services, and is organised around a network of regional offices connected by the centralised Head Office located in Wellington (New Zealand’s capitol).

The projects involved the modification and implementation of two ERP modules covering (1) financial reporting, and (2) asset management. The first project was regarded as a complete success, while the second had serious problems that introduced considerable risk to the project objectives. Such differences have proven insightful.

Interviews took place with the CIO, two senior user representatives, the project manager, an external vendor consultant, and the external QA consultant. The 1-hour interviews were recorded, coded based on the constructs identified in the literature, and set up for analysis.

4.2. The IT projects

The first project went smoothly, meeting all project objectives in terms of budget, deadlines, functionality, quality and scope. Interviewees found it hard to recall

incidents of conflict, and where they did, the conflict was deemed minor and dealt with effectively. Satisfaction with both the process and the outcome of conflict resolution was high.

The second project went ‘off the rails’ when the asset management project became stalled waiting for accurate data to populate the asset register database. The data needed to be collected from the regional offices – this involved Head Office employees touring each region with the intention of counting their assets. The regional offices, having been through this exercise before – when a previous CEO used their cooperation to then remove any assets deemed ‘surplus to requirements’ – were understandably suspicious about the outcomes of this initiative. Furthermore, it was to prove very time-consuming for the operational staff in the regions, who would derive no direct benefit from the system beyond better maintenance of the expensive, and sometimes life-dependent, equipment. Several iterations of data gathering ensued, taxing the patience of all concerned and seriously delaying the progress of the main IT project. The conflict centred on Head Office wanting accurate data, as opposed to the regional offices wanting to dispense with the data collection exercise as soon as possible.

4.3. Preliminary results

The following is a preliminary assessment of the insights offered by the different framework constructs.

Conflict (INPUT) – The conflict is issue-based (in terms of the data collection exercise), but is also structural (there were pre-existing tensions between Head Office and the regional offices based on past, acrimonious conflicts).

Culture (CONTEXTUAL MODERATOR) – Both Head Office and the regional offices can be clearly identified with different cultures. Such cultural divides are common in many dispersed organisations, where the former are focused on centralised control and administrative objectives, while the latter are more concerned with operational issues.

Another cultural issue was the attitude towards IT. Head Office embraced the advantages that ICTs brought to their administrative functions. However, regional operatives, often involved in dangerous physical activities, were more focused on equipment and safety, and saw little value in information technology. Many of them were considered to be “IT illiterate” by Head Office staff.

Power (CONTEXTUAL MODERATOR) and Influence (PROCESS) – when the two factions (Head Office and the regional offices) last collided, there was considerable publicity as the operations staff felt that budget cuts were impeding their ability to provide services in a safe and effective manner. While the CEO had authoritative power, the regional staff were able to exercise considerable influence by going on strike and

making their concerns public. The issue was not as serious this time, but it was clear that formal authority alone was not sufficient to gain the kind of cooperation required. Head Office were aware of the power held by the regions, and were anxious to find other ways to resolve the conflict.

Other contextual factors (CONTEXTUAL MODERATOR) – there were at least two other major organisational projects going on at the same time as the asset management implementation. The QA consultant noted that this was a risk that needed to be managed. One interviewee expressed interest in a project office for this reason.

Governance (CONTROL) – in terms of policy, little was available to help guide how the issue could be resolved – at the corporate, IT, or project levels.

In terms of authority, extensive use was made of a project steering committee, made up of mostly Head Office staff from various departments, but did not normally include a representative from the regional offices. However, in anticipation of possible conflict, a senior operational manager was brought out of recent retirement to help bring the regional offices on board. While this move was helpful, it was not sufficient to avoid trouble, as this stakeholder representative did not always agree with the Head Office perspective either.

Low-level conflicts were dealt with by a representative committee drawn from the IT project team, facilitated by the project manager. If they could not be resolved there, or if the conflict was of a more serious nature, the project steering committee became the default approach to conflict resolution. Representation of key stakeholders was seen as critical to the success of the project steering committee.

Few mechanisms were employed to help with conflict resolution, either in terms of the conflict issue or conflict relationships. Consequently, there was no standardised approach – each conflict issue being dealt with on an ad hoc basis.

The project sponsor (always the CIO for an IT project) generally did not become involved, and the project manager did not have the authority to deal with issues at the senior management level (as represented by the project steering committee).

Conflict resolution (PROCESS) – the resolution process involved the project steering committee meeting regularly (usually monthly) to deal with problems as they arose. The decision required in this case involved the number of iterations of asset data collection from each regional office before it could be signed off. The fact that this issue kept returning to the meeting agenda, with previous decisions up for reconsideration, suggests they were not well equipped to resolve this issue. There were no such problems with the first project, as that did not

involve regional offices beyond their local finance managers.

Resolution outcomes & satisfaction (OUTPUT) – although all the regional offices eventually had their asset register counts signed off, there was little satisfaction amongst the stakeholders. The project steering committee were unhappy with the variable quality of the data going into the new system, while many of the regional offices felt they had wasted much of their time for an outcome that did not seem to have much benefit for them. Worse, the new system would require many of them to start using computers, which left them very uncomfortable.

In this case, the authors were able to employ the framework to quickly delineate where the problems occurred and why. While allowing for stakeholder representation in the decision-making through the project steering committee is laudable, and was strongly supported by all the interviewees, it is possible that the addition of stronger governance measures could help anticipate conflict and avoid its escalation. Policies focused on consultation and representation, additional authority structures like a project office, and mechanisms for resolving conflict, encouraging consensus, and providing impact reports where political and/or cultural issues look likely to be significant, all may help avoid damaging stakeholder conflict in future.

5. Further Research

Other cases will be added to the data collection exercise for this study. Based on the findings of this qualitative data collection exercise, the constructs will be further explored in the following phase. A survey questionnaire will be designed and used to gather data across a broader spectrum of organisations and project types.

Ultimately, a final, validated version of the framework will emerge. The systems model will provide an effective approach to either design new, or analyse existing, approaches to governing IT projects in general, and more specific processes (such as conflict resolution) in particular.

6. Limitations

Like any model, a system model only seeks to provide a simplified, yet useful representation of reality. There is no guarantee that the constructs and relationships identified and represented in the model are either correct or complete. By developing the model from existing literature, and validating it using case sample data, it is hoped this limitation is minimised.

Furthermore, there are always risks when employing ill-defined terms like culture, influence, power, conflict, and even governance. Other, equally valid definitions could lead to quite different interpretations about how they should be represented. Nor should those being questioned during the data collection phases be expected to understand these terms in the same way. However, by looking for commonality amongst the definitions in the literature, and creating from them an intuitively clear set of definitions, it is hoped this limitation will also be minimised.

The case study used to validate the framework is limited in terms of size, complexity and illustrative conflict. However, at this stage, its purpose was to illustrate the applicability of the framework, rather than to argue for its universality.

7. Conclusions

This paper raised concerns about the paucity of material taking a comprehensive look at IT project governance. There are many studies looking at different parts of the equation, including project management, IT governance, authority, and power, but few bring them together to consider IT project governance from a holistic perspective.

Furthermore, where IT projects encompass a wide range of stakeholders – both internal and external to the organisation – such a holistic view of control needs to come from senior levels. Yet recent studies confirm that the CEO and Board continue to underestimate the business value and risk involved in IT projects – instead assuming that anything incorporating the acronym ‘IT’ must remain within the purview of the IT Department [52]. The authors assert that modern IT projects must be seen as business projects (with a complicating IT component), with governance measures explicitly designed to deal with high impact issues as they arise.

It has been said that the art of good modelling involves revealing what interests us, and hiding what does not. A systems model is highly flexible in this regard. Diagrammatic representation enables quick understanding of the important components and how they are related. High-level models provide a good overview, while employing decomposition enables lower level views to be used for detailed analysis and /or design.

A systems model was developed and tested to look at one important aspect of human phenomena that appears endemic in IT projects – stakeholder conflict. The authors are confident that such an approach can be employed on a broader scale to look at other aspects of project control.

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