

2008

Pre-Investment Information Systems Assessment: An Actor Network Theory Account

Fouad Nagm

School of Information Systems, Technology and Management Australian School of Business, UNSW NSW, Australia,
fouad@unsw.edu.au

Dubravka Cecez-Kecmanovic

School of Information Systems, Technology and Management Sydney, dubravka@unsw.edu.au

Follow this and additional works at: <http://aisel.aisnet.org/ecis2008>

Recommended Citation

Nagm, Fouad and Cecez-Kecmanovic, Dubravka, "Pre-Investment Information Systems Assessment: An Actor Network Theory Account" (2008). *ECIS 2008 Proceedings*. 114.

<http://aisel.aisnet.org/ecis2008/114>

This material is brought to you by the European Conference on Information Systems (ECIS) at AIS Electronic Library (AISeL). It has been accepted for inclusion in ECIS 2008 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.

PRE-INVESTMENT INFORMATION SYSTEMS ASSESSMENT:

AN ACTOR NETWORK THEORY ACCOUNT

Nagm, Fouad, School of Information Systems, Technology and Management, Australian School of Business, UNSW, Sydney NSW 2052, Australia, fouad@unsw.edu.au

Cecez-Kecmanovic, Dubravka, School of Information Systems, Technology and Management, Australian School of Business, UNSW, Sydney NSW 2052, Australia, dubravka@unsw.edu.au

Abstract

The dominant view in the information systems (IS) and software engineering literature is that the application of a rigorous pre-investment evaluation methodology is the key to ensuring the selection of the best IS projects – that is those with the highest expected value for the organisation and with the highest probability of success. While the literature is replete with methodologies for the evaluation of IS projects, there is insufficient attention given to the evaluation process itself and to what constitutes successful IS evaluation. Whilst some within IS argue that the development of more elaborate evaluation methodologies is necessary for the advancement of the field, many report that it is not methodologies as such that need improvement. What is missing is an understanding of IS evaluation processes in practice and how organisations adopt and apply evaluation methodologies. In this paper we focus on the IS evaluation process in a company with a history of IS successes and examine the ways in which the evaluation process shapes and ensures the selection of the best IS projects. By adopting the Actor Network Theory lens we demonstrate a) that the view of pre-investment IS evaluation in the literature is very narrow, b) that the practice of IS evaluation produces the ‘object’ it evaluates, c) that this object, that is the IS project proposal document, is an inscription device produced by relations in the actor network formed around it, and d) that these networks and relations as well as the translation of actors’ expertise, experiences and interests into the document (inscription device) are critical for IS project proposals evaluation and their chances of success.

Keywords: Pre-investment information systems assessment; Information systems evaluation; Information systems evaluation methodologies; Actor-Network Theory

1 INTRODUCTION

There is evidence in the literature that suggests corporate investment in Information Systems (IS) is high and continues to rise (Ballantine, Galliers & Stray 1996; Bannister & Remenyi 2000; Gilchrist, Gurbaxani & Town 2001; Tallon, Kraemer & Gurbaxani 2000; Lin & Pervan 2001a; Patel & Irani 1999; Powell 1999; Seddon 2001; Serafeimidis & Smithson 1999; Willcocks & Lester 1994). This growth in investment raises the stakes as IS continue to take up a larger portion of an organisation's capital and operational budgets. The higher stakes and increased visibility by management emphasise its focus on the pre-investment IS evaluation effort. Lin & Pervan (2001b) argue that the evaluation of IS investments is becoming an important activity because of the increasing levels of investment in and significance of IS in organisations. Murphy & Simon (2002) agree, by arguing that growing expenditure in IS and their sheer importance in organisations has made the evaluation of these investments all the more critical. The increase in corporate IS investment increases the visibility of the importance of IS to management and the perceived need for IS investment success.

According to Remenyi & Sherwood-Smith (1999) IS investments need to be evaluated as they provide an assessment of how organisational funds are utilised with the overall management of an organisation's investment portfolio. This view is also shared by Fasheng & Teck (2000) suggesting that IS evaluation provides management with the information to make an effective choice between a number of competing alternatives. This brings us to the objectives of IS evaluation. IS evaluation is a part of a justification process for the allocation of resources (Willcocks & Lester 1994), that enables the organisation to exert tighter control over projects and further enables learning for future evaluations and estimations (Farbey, Land & Targett 1992); as well as providing valuable information for project planning (Ginzberg & Zmud 1988).

Over time, management has been in search of an acceptable way to solve the issues surrounding the evaluation of their IS investments (Al-Yaseen & Eldabi 2004). In practice managers frequently use simple financial evaluation methods (Willcocks & Lester 1994) like Cost Benefit Analysis (CBA), Net Present Value (NPV), Return on Investment (ROI), Payback Period, Discounted Cash Flow Analysis (DCF) and other methods borrowed predominately from the accounting, economics and finance disciplines which can only offer finance based approximations of reality (Bannister & Remenyi 2000). However, Nagm & Kautz (2007) find that these methods are ineffective when applied to IS investments, because they are simply not designed for the intricacies of IS investments, which have large qualitative and intangible components.

While the literature is replete with methodologies for the evaluation of IS projects, there is insufficient attention given to the evaluation process itself and to what constitutes successful IS evaluation. While some argue that the development of more elaborate evaluation methodologies is necessary to the advancement of the field, many report that it is not methodologies as such that need improvement but is missing is better understanding of the IS evaluation processes in practice and the ways organisations adopt and apply evaluation methodologies so as to ensure the selection of the best IS projects. With this motivation in mind we studied a company known for its elaborate IS evaluation processes and a high success rate of IS developed and deployed in the past. By examining (and following) the actors, both human (IS managers, project managers, business managers) and non-human (IS project proposal, methodology), and their engagement in the IS evaluation processes we aim to answer the questions: How do evaluations of IS project proposals come about? What is the meaning of IS proposals evaluation processes in practice? What does it take for an IS project proposal to become successful and how do the evaluation practices shape and select the best IS projects?

Before we present our results we first discuss the IS evaluation literature and raise key problems and themes. We then briefly introduce actor-network theory (ANT) and the way we adopt it as both a theoretical lens and a methodology in our study. Next we briefly introduce the case study and discuss our research design. We then seek to answer the above research questions by providing an ANT

account of IS pre-investment evaluation practices in the case company, from which we draw conclusions and implications for research and practice.

2 EVALUATION METHODS AND PROCESSES

The IS evaluation literature is divided into two distinct areas, pre-investment evaluation and post-implementation evaluation. The focus of pre-investment evaluation is on the justification of IS investments before being initiated (Murphy & Simon, 2001) or in other words on the assessment of what, how and why organisations should invest in IS (Al-Yaseen & Eldabi 2004). It is also known as 'predictive evaluation', emphasizing the speculative nature of the estimation of an IS worth and impact on the organization in future that depends on the evaluator's judgement (Remenyi & Sherwood-Smith 1999). This differs from post-implementation evaluation which aims to evaluate IS projects after the implementation has occurred, to assess whether the perceived value was in fact achieved or whether the system is doing the job it was designed for. In this paper, we focus on pre-investment evaluation of IS projects.

Berghout (2001) identified the existence of over 65 evaluation methods, most centred around traditional financial appraisal techniques like discounted cash flow analysis (DCF), net present value (NPV), internal rate of return (IRR), cost benefit analysis (CBA) and payback period. These traditional evaluation methods offer some advantages for IS investments that are expected to produce cash flows or some other tangible benefits. However they do little justice to the IS investments designed to support a business initiative or produce an intangible outcome, but have relevance and important use to the business. While financial evaluation methods attempt to quantify everything in monetary terms, they ignore the qualitative and intangible aspects of IS investments. Accordingly, they encourage the practice of quantifying the unquantifiable with unknown risk of erroneous assumptions and unrealistic evaluations. Their limitations have made these methods rather difficult to apply in the context of IS yet they still remain widely used in practice as found in the Ballantine & Stray (1998) study. The problem with these methods in practice is that they ignore the context within which they are developed, applied and used.

Most importantly, as Nijland (2004) reports, nearly all IS evaluation methods found in the literature do not focus on the evaluation process by which the evaluation takes place. The evaluation process is concerned with "establishing by quantitative and/or qualitative means the worth of IS to the organisation" and "bringing into play notions of cost, benefit, risk and value" (Willcocks, 1992, p. 364). Furthermore, Willcocks and Lester (1994) suggest that in practice current evaluation processes are inadequate. This is surprising given that a plethora of researchers (e.g. Farbey, Land & Targett 1992, Serafeimidis & Smithson 1998, Symons 1991) have indeed argued that for evaluation to be 'successful' a richer examination of organisational setting within which the evaluation takes place is needed. These authors also contend that IS evaluation process and content are closely intertwined and that a study focussed on organisational context would further enhance our holistic understanding of IS evaluation. In fact Hirschheim & Smithson (1998) claim that the majority of evaluation processes focus on technical aspects as opposed to human, social or organisational aspects of the system.

Serafeimidis (2000) proposes that the nature of IS today demands that practitioners take a broader consideration when performing IS evaluations, one that includes intangible benefits and risks. He states "The evaluation goals need to be considered in conjunction with the role that the evaluation process plays and the people involved" (p. 99). Of particular importance is the context within which the evaluation process is performed and as such "it [evaluation process] can be viewed as the institutionalized behaviour of the evaluation participants (i.e. the expressed way in which they perform their roles). In this respect, process mediates between the evaluation content and context" (p. 99).

Lin & Pervan (2001b) found empirical evidence that in Australia large organisations had inadequate and inappropriate evaluation processes which was the most important inhibitor to effective IS evaluation. In practice managers struggle with IS project evaluations and continue to search for better ways to assess IS proposals and make IT investments (Al-Yaseen & Eldabi 2004). The search for ever

better methodologies for assessing IS proposals seems to be futile unless a better understanding of evaluation processes is achieved in practice, especially of issues faced by managers and IS practitioners when adopting and applying IS evaluation methodologies. In this paper we therefore seek to answer some more basic questions: How do evaluations of IS project proposals come about? What is the meaning of IS proposals evaluation processes in practice? What does it take for an IS project proposal to become successful and how do the evaluation practices shape and select the best IS projects?

To answer these questions we examine the practices of IS evaluation in a company that has extensive experience in assessing, developing and deploying IS, and a track record of successful IS. It also has well established processes for developing and evaluating IS proposals, including the use of a range of evaluation techniques. Throughout the empirical study, lasting 16 months we encountered many actors, such as business managers, IS managers, project managers; a plethora of documents including an IS evaluation methodology, IS project ideas, project proposals, IS business case, etc. We came to realise that all of them, human actors and various documents and technologies (that can be seen as non-human actors or ‘actants’) play a role and exert agency due to their mutual interactions and influences. This led us to adopt actor-network theory (ANT) to enable an understanding of both the social and material nature of IS project proposals and their evaluation methodologies and processes (Latour, 2005; Callon 1986; Law 2004).

3 ADOPTING ACTOR-NETWORK THEORY

ANT has a natural affinity with the IS discipline as it enables analysis of the conditions, constraints and modification of agency within networks that intertwine the humans, culture, language, artefacts and technology (and many other things). ANT addresses one of the key problems that troubled IS research (and one might equally argue IS practice): the conceptual segregation between the human and the non-human (technical). Due to such a segregation, IS researchers tend to approach IS in organisations either from a social constructionist, scientific objectivist or technological determinist perspective. In contrast ANT rejects the essentialist divisions between the social world and the material world and allows – in fact postulates – a symmetrical treatment of human and non-human actors, who are as heterogeneous actants mutually interconnected to form actor networks (Callon 1996; Latour 1986, 2005; Law 1999, 2004).

Law (2004) defines ANT as “an approach to sociotechnical analysis that treats entities and materialities as enacted and relational effects, and explores the configuration and reconfiguration of those relations” (p. 157). The key difference in adopting ANT to study IS in practice is the view of organizational realities and their representations and mediations via IS as relational and continuously produced. The researchers are sensitized to see materiality and relationality of processes of IS project evaluations and development as part of organizational socio-material context. However, how to adopt ANT in conducting empirical studies remains open to researchers’ imagination and is not prescribed by ANT’s proponents and followers. For instance in their particular kinds of ethnographic studies – Latour’s investigation of a “laboratory life” (1979) and later on a failed technology project called Aramis (1986), Law’s aircraft stories (2002) and Mol’s treatment of atherosclerosis in a hospital (2002) – they followed their objects and subjects, recorded events and collected other material evidence in many different ways. The major feature in their work is a detailed description of a story, sometimes even with fictional elements, as a basis for theorizing novel and often complex concepts. Latour himself describes ANT as a “very crude method to learn from actors without imposing on them an a priori definition of their world building capacity” (1999, p. 20). We learn from him and other ANTs to ‘follow the actors’, let them tell their own stories, use their own vocabularies and unfold their own meanings, while tracing the emergence of heterogeneous actor-networks.

Our study started without any pre-conceptions about a theoretical foundation or a research model. It is motivated and initially driven solely by the research questions. It focused initially on the human actors and what they do, how they go about proposing ideas for new projects and how the ideas grow into official IS proposals. It turned, almost intuitively, into a ‘journey’ of following the actors, not only

humans but also objects, documents and other devices employed during projects' evaluations. By recognising mobilisation of actors and the ways they used inscription devices (such as initial PowerPoint presentations of an idea, the business case, and other documents with signatures) we began to appreciate the materiality and relationality of the evaluation process.

While we observed the evaluation processes emerging as actor networks, we came to understand the importance actors assign to building and maintaining them. We also became more aware of how realities that are multiple, diffuse and not always coherent get inscribed in seemingly coherent IS project proposals. Most importantly we were able to answer (tentatively and contingently as it happens) our research questions and draw some interesting conclusions. In this paper we tell this story and re-produce the way we came to the answers.

4 CASE STUDY

The case study organisation is a large multi-national financial services company in Australasia – we shall call ‘ALFA Bank’ – with a history spanning approximately 150 years and with an investment portfolio in excess of \$1 trillion dollars. One of its divisions, ALFA Invest, was the prime focus of the study. This organisation was selected because firstly, it is known to have a well established practice of IS project proposal evaluations; secondly, it has a track record of successful IS deployment and implementation; and thirdly, the company was quite receptive to our invitation to study these practices in depth.

Our study focused on pre-investment IS evaluation processes in ALFA Invest. However, to the degree to which these processes included actors and actions of the parent company ALFA Bank, our data collection included them as well. Data collection includes a) interviews with 35 senior executives and managers of ALFA Invest division as well as some from ALFA Bank over a 16 month period from July 2006 to October 2007 (see Table 1), and b) company documents in excess of 1,000, documentation related to IS project evaluation processes and some examples of about 25 past IS project proposals.

Our investigation started with an interview with a Project Analyst who explained how projects are viewed by people in the company, as well as how they are evaluated as part of broader business initiatives. From that point the inquiry emerged into several directions following these actors and their actions. We started with semi-structured interviews guided by an interview schedule but soon departed from it and adopted unstructured interviews more suitable to addressing emerging issues. The length of each interview on average was approximately one hour, but in some cases interviews spanned two hours over two separate sessions.

Roles	Positions
IS Management	CIO, Head of Business Support (IS Department), Head of IS Architecture, Head of Local Business Demand, Head of Regional Business Demand, Business/IS Relationship Manager (x4), Head of IS Development
Business Management	CEO, COO, Executive General Manager, GM - Business Unit (x2) Head of Financial Planning, Senior Business Manager, Head of Central Operations, Head of Strategy
Projects and Project Management	Head of Projects, Head of Program Office, Project Portfolio Manager, Program Director (x2), Project Delivery Manager, Head of Project Methodologies, Senior Project Manager, Senior Test Manager, Business Project Manager (x2), Business Analyst (x5)

Table 1 Interviews conducted in ALFA Invest and ALFA Bank

The analysis of empirical data started early on and cannot be clearly separated from data collection. Namely, following the actors and their relations with others prompted the chain of interviews and collection of documents. The analysis of the interviews and documents in turn led to seeking explanation of activities, events and outcomes by interviewing new actors. These interviews revealed how different business realities and interests are negotiated and inscribed in the production of IS project proposals. After data collection the analysis became more refined focusing on stages in the

production of IS project proposals, the roles of specific actors or actants and the ways they enrolled and acted upon the production of the proposals while creating actor networks. This was the basis of coding the interviews and documents using Nvivo. The coded texts were then extracted in a systematized form, assisting our writing the story of IS projects evaluation processes.

The pre-investment assessment of IS projects in the ALFA Invest company is considered the ‘demand’ side of projects. The actual delivery of projects is referred to as being the ‘supply’ side. The demand side of projects in ALFA Invest is broken down into two phases - I Evaluation and II Assessment. These phases will be discussed below with reference to the key activities, the actors involved and the artefact products before an investment decision is made.

Phase I - Evaluation - The major activities conducted in this phase include the identification of stakeholders and a business sponsor for the project. Estimates for the technology component of the business case are prepared along with a brief description of the project. Stakeholders are informed of their roles within the project, and engaged in putting together high level business requirements as well as available solution options along with an analysis of the impacts of each option to the business as part of the feasibility analysis of the project. The key activity which is conducted here is an evaluation of whether the project (if it can be called a project at this stage) should commence, if so the project picks up momentum as it becomes more formalised. The artefacts that may be delivered as part of this phase include: business case, project brief, impact analysis, business requirements (high-level), roles and responsibilities, risk and impact evaluation, solutions architecture and feasibility assessment.

Phase II - Assessment - In this phase the project becomes formalised by having a Project Manager (PM) assigned to the project. This not only has symbolic value that the company has started to see potential value in the project, but the PM begins to increasingly engage stakeholders with the view of developing the preliminary project management plan. The technology related estimates are revisited as well as the business case along with the assessment of the risks (potential risks identified as well as risk mitigation strategies). The key outcome which the PM and the project sponsor work toward achieving is organisational commitment to the project including continuation of funding for the project. The artefacts that are produced as part of this phase include: project management plan, detailed costs and benefits, signoff from IS department, risk management plan, benefits realisation plan, as well as any packs that go to the Steering Committee or other governance bodies.

5 PRODUCING EVALUATIONS WHILE PRODUCING BUSINESS REALITIES

The two phases introduced above have clearly defined purpose. Phase I involves informal discussions and fermentation of ideas until they converge into a coherent proposal that is drafted as an IS business case in Phase II. The informal process that begins with an idea and emerges through the formation and evaluation of an IS project proposal is illustrated in Table 2 using our codes and extracted texts - the words of actors. Every innovation or business improvement (that typically implies an IS) starts with an idea which, as the Head of the Central Business Operations explains, ‘you have to sell...to someone else’ (see Table 2). Selling the idea to other people and talking to stakeholders focuses on issues related to particular business processes and their outcomes (e.g. low productivity), the need for change and the purpose of proposing an IS to innovate and transform these processes (e.g. achieve improved performance), etc. These engagements and efforts enable fermentation of the idea and garnering support from relevant people. Within the ANT view this initial step of proposing an IS project idea involves enrolment and mobilization of actors – those perceived to be relevant and building initial relations around the idea.

The idea for an IS at this moment is presented somewhat vaguely and ambiguously in a form of a PowerPoint presentation or a short document. This document importantly leaves enough space for the actors to read into it their view of problems, demonstrate their expertise, exercise their power as well as translate their interests and inscribe them in the new versions of document. The IS idea document thus becomes an inscription device that transforms into different forms (versions of the document) as a

consequence of the relations among the involved actors. The IS idea document emerges through enacted and relational effects that depend of configurations of these relations (Law, 2002). The key issue here is, in the words of a Senior Business Manager, to ‘influence’ the relevant people: ‘The influencing is the key part that...gets done in phase 1’. It is the idea document that enables people to ‘come together’, exchange and confront their views of business processes reality and envisage changes of this reality.

Informal process: from an idea to the formation and evaluation of an IS project proposal	
Codes	Extracts from interviews
Sell an idea to someone else	<i>[If you have an] idea you have to sell that to someone else... [You have] to come up with the concept and then work it out, how to do it, then is anybody actually going to use it? So you have to break it down to that human thing, you have to say: does it have a need, a purpose, yeah – then its got to go. How do I sell it? I have no idea. So that’s where the people have to come together. Processes are good as a framework but if people lived their life by a process then you suddenly find that things start to get hazy. ... [Y]ou garner support early and people think that guy is on to something. (Head of Central Business Operations)</i>
Relate to other people, build relations	
Fermentation of an idea	
Garner support from people, enrol and mobilize actors	
Identify key people that matter in the company, that have responsibilities	<i>I think the onus is on you as an individual to really get inside the culture, the psyche of the organisation; as part of the process you really need to identify who are the key people in that organisation, who are the people that have had that informal responsibility around? Who owns advice? Who owns investment? Who owns insurance? Who are the key strategic thinking people? You should do that as part of just coming into an organisation, in my view, because sooner or later you are going to need them. Sooner or later you are going to have to influence them and it’s the influencing that’s the key part and that’s what gets done in phase one. How do you influence the business ... is really important and gets the priority. (Senior Business Manager)</i>
Influencing relevant people is the key part in phase I	
How to influence the business?	
Business and technology guys – weekly meetings	<i>That’s what I call the art rather than the science, but a couple of things that we are doing right now on our program from a process point of view is, we have weekly meetings – we call it the business architecture meeting – we make sure that the business engagement guys are there with the technology guys; we actually go about doing PowerPoint packs or word documents, saying here is the hypothesis at a 50,000 foot view, here are your options, then we go down to the next level, OK we have found a couple of other things here that we haven’t found at this level (above), now we are testing it; now we know that we have some more decision making that we need to do, so we are sort of using a process if you like – informally making sure that we are testing it and taking people on that journey. (Program Director)</i>
IS ideas presented and discussed; hypothesis tested	
Idea development and testing at a more detailed level	
Taking people on the journey	
People’s suggestions and contributions to the idea encouraged	<i>Its part of the culture, people are encouraged to suggest things and when they suggest something they start to buy the idea, go and talk to that person over there and see if there are implications in that area in terms of business-as-usual; go and talk to that person and get some people together and we will put some in that team and that team and become a little project committee and away it goes. Then all of a sudden it starts to grow some legs and they will say oh well lets push this up to this person, and things get filtered up. (Senior Business Manager)</i>
Building relations around a focal actor (IS project proposal); Building an actor network	
Enrolling stakeholders early in the process; ownership and buying in	<i>... [You engage] any stakeholders that you need to be involved and onboard – we have quite a strong ethos around getting those people involved early and engaged and owning it, rather than not having them involved and handed over [something] they may not want to in the end. So I think that’s definitely the culture and part of that I think is that through that collaboration is actually where a lot of the thinking happens in terms of workshopping and working through what that actually is. (Head of Business Technology)</i>
Building the actor-network – creating reality	
Strengthening the actor	<i>.. [building up support collectively through actual evidence as opposed to just an idea] generates interest without anybody having to put their hand in their pocket.</i>

network for the business case	<i>Therefore by the time you need money you already have support so it doesn't become a big deal. Because people are engaged in what you are doing, they can see the benefits already – therefore all the formal part is putting together a paper [business case] to justify it. (Head of Central Business Operations)</i>
Estimates and evaluations done by the most experienced people	<i>I think the approach we take in this organisation...has been more of a splatter gun approach of get the smartest people you can find, get them to put their ideas on papers and do some estimating, and then get everyone you can consider it and give you their input and try to improve and find tune it...We just try to get the most experienced people to use their best judgement to come up with evaluations and then get a lot of people to review them. (Senior Project Manager)</i>
Review of evaluations by a lot of people	<i>Exactly [organisational commitment is an issue], it comes back to, if you look at it from a political context it comes down to electoral passion for it...It either goes well or not because there is no passion to make it happen. Certainly in organisations and particular on the project stuff...you need to have good passionate sponsors and passionate sponsorships comes from the top. (Head of Projects)</i>
Commitment to the project, electoral passion or strength of relations; sponsorship by top management	<i>Exactly [organisational commitment is an issue], it comes back to, if you look at it from a political context it comes down to electoral passion for it...It either goes well or not because there is no passion to make it happen. Certainly in organisations and particular on the project stuff...you need to have good passionate sponsors and passionate sponsorships comes from the top. (Head of Projects)</i>

Table 2. *The emergence of the IS project proposal*

A particular organizing form in ALFA Invest through which an idea for an IS project ‘garners’ enough support from relevant people is ‘weekly meetings’ also called the ‘business architecture meetings’. At these meetings the ‘business engagement guys’ and ‘technology guys’ (gendered expression are common despite female participation) talk together. Having different expertise and roles, often coming from different sections of ALFA Invest, they discuss, question and clarify ideas and drill down requirements to the next level of detail. In such a way their views and visions are transformed into a relational construct: the future business processes (business reality) and the implied content and purpose of IS (IS reality), meshed together as a preliminary business case.

The preliminary IS business case document (consisting of text, figures, graphs, etc.) becomes a focal actor that attracts and assists enrolments of other actors into the network. As they further develop and test hypothesis about the future business and IS realities actors re-negotiate and re-create these realities. In other words they develop relations and by doing so buy in and commit themselves to the constructed realities enacted by the IS proposal document. The more they commit themselves to the (re)production of the IS proposal document the more they strengthen the actor network that brings into being the imagined business and IS realities. The document thus reflects making, negotiating and remaking of the imagined realities, hypotheses testing and arguments building. It is important to observe here that these realities do not exist outside of the actor network around the focal actor (the document). The forming of the actor network first around an IS idea and then around the preliminary IS business case describes thus how evaluations of IS project proposals come about.

The above analysis reveals the meaning of IS proposals evaluation processes in practice. The informal process continues by enrolling more people and teams (sometimes also a ‘little project committee’) so that ‘all of a sudden it [the proposal] starts to grow some legs’ (Senior Business Manger, see Table 2). The enrolment of key actors and strengthening of relations in the actor network around the proposed IS project document describes how ‘people are taken on the journey’. This journey is the key to our understanding the evaluation process and the emergence and transformation of the IS project document as the focal actor around which the actor-network creates and grows, ultimately becoming the business case in Phase II.

Now the question arises: What does it take for an IS project proposal to become successful and how do the evaluation practices shape and select the best IS projects? Typically the IS proposal document, as an inscription device, first presents contested realities – different actors tend to view multiple, diffuse and non-coherent realities – but the discussions and hypothesis testing clarify differences and reduce ambiguities so that the IS proposal can transform into a sufficiently coherent reality. In other words, the negotiated business reality gets inscribed in the document. It is not the result of ‘objectively’ and meticulously mapping the business needs into various models (diagrams), as many methodologies

assume possible and prescribe, but rather the consequence of relations emerging and strengthening in the actor network. The reality, as Law persuasively argued, is produced together with inscription devices. “Without inscription devices, and the inscriptions and statements that these produce, there are no realities” (Law 2004, p. 31).

However, network building, enrolments, negotiation of inscriptions and realities do not necessarily converge. In ALFA Invest they talk of such cases. For example Program Director told us a story:

we had a classic case of a project, a number of years back, where the guy [who was a consultant from a leading consulting firm] followed the methodology to the letter, pissed off every stakeholder in town, and ... when the review was done, he said ‘well what’s the matter? I have ticked every single box! I have followed the methodology to the letter’... He used the scientific approach, he was a great left brain thinker, he had used the methodology to the letter. But he hadn’t engaged his business, he hadn’t engaged technology [department], he hadn’t engaged a whole heap of people and he didn’t get it.

This ‘guy’ couldn’t understand why his project proposal failed given that he followed the evaluation methodology to the letter. When the Program Director asked him ‘have you taken your guys on the journey?’ he didn’t even understand what he meant. ‘Taking your guys on the journey’ encapsulates what it means for an IS project proposal to be successful. It also tells a lot about the evaluation practices and the way they shape proposals that have high chances to be selected and ultimately successful.

From this case and the steps in the evaluation process (illustrated with quotes in Table 2) we can see that the IS project proposals do not present fixed and given realities, but instead gradually create and enact new realities. In early stages they tend to be vague, abstract and potentially highly questionable. But once they have become the business case the realities get more stabilized. As Mol puts it, realities are “framed as parts of events that occur and plays that are staged. If an object [in our case the IS project proposal] is real this is because it is part of a practice. It is a reality enacted.” (2002, p. 44). As part of the evaluation process IS project proposals gradually become reality enacted.

During an IS project evaluation journey the same project is viewed in different ways by the risk management team, the IS architect, the IS infrastructure expert and so on. They each see a particular side and business reality of the proposed system. While different, each side is meaningful from a particular business unit or locality vantage point. Together they often make sense, and hang together. Using Mol’s concept of fractal objects (2002, p. 55) we can see how the enactment of an IS project proposal as it emerges through the evaluation process is not necessarily singular but multiple or fractional. Sometimes multiple enactments consolidate themselves to make coherence – Law talks of ‘fractional coherences’ (2002). Alternatively they may remain a fragmented set of loosely connected realities when the proposal fails.

In this context we can see the role of the evaluation methodology as yet another important non-human actor. It exerts influence on the evaluation process by providing inscription forms and rules, and common matrices, thus allowing a consistent and comparable presentation of business and IS realities and evaluations across different projects. For example, the Head of Projects explains that methodologies exist:

for consistency across the organisation. First of all methodologies exist ... to document activities. Especially with long stream projects, the likelihood of having the same people engaged at the start then at the end probably is low. The likelihood of someone hanging around to the full cycle of project is low, they need to move on, they get promoted, they work on a new project. So the whole thing about the business case and methodologies surrounding it is about communicating what are these core objectives, be it to the sponsors, be it to the project team, be it to the powers, be in the organisation, be it to the executive who sponsors it. Even though I am not on the core sponsorship team, we meet weekly, monthly, CEO is by de facto the sponsor so we need a tool to communicate to him in a simple way and in a consistent way. So when he sees Dianne’s project, he compares it to Fred’s project he has common metrics. So it’s about the business case exists as a communications tool and as a common set of metrics in terms of being able to, if you like, bring together and be able to compare likes.

From a point of view of a single IS project proposal the methodology is not in the centre of attention but acts on distance – we would say from periphery. If we see IS project proposals as complex and fractional objects we can understand the role of the evaluation methodology as enabling and enhancing fractional coherence. From this perspective we can see that while acting from the periphery, an evaluation methodology may be crucial for enacting sufficiently coherent business and IS realities inscribed in IS project proposals. On the other hand, at the company level at which different proposals compete for the limited resources, the evaluation methodology is a more visible actor as it regulates ‘communication tools’ or inscription devices, including a ‘common set of matrices’ that enable comparative evaluations and selection. In this sense the evaluation methodology can be seen as among the key actors in IS evaluation and selection from the company vintage point.

6 CONCLUSION

The traditional view of the IS pre-investment evaluation that assumes that we first develop project proposals and then evaluate them using as rigorous as possible methods, seems to be quite a mechanistic one. Our ANT account of the evaluation processes in the case company suggests that it is not possible to separate out the development of IS project proposals from their evaluation. Our major argument is that the IS evaluation practice (including the evaluation methodology itself) produces the object it evaluates, that is, the IS project proposal, together with evaluative statements about this object. In other words the reality of business processes and their imagined IS (inscribed in the IS project proposal documents) and the evaluative statements of these realities are produced together. If we accept that then the question of an IS project proposal success and the nature of IS evaluation processes can be seen from a different and hopefully more useful perspective.

The key to understanding the meaning of evaluation processes and methodologies in practice is to appreciate relational materiality of actor-networks forming around IS project proposals as focal actors. As actors (business managers, IS experts and managers) mobilize and enrol in an actor network around an IS project proposal document, this document emerges and transforms (into different versions) as a consequence of the relations forming within the actor-network. The IS project proposal document – from an idea to concept to preliminary business case – is an inscription device that emerges through its relations with and among different actors. The IS project proposal document thus can be seen as an enacted and relational entity which inscribes visions and interests of these actors. It emerges depending on configurations and reconfigurations of the relations in the actor network. Learning from ALFA Invest we can conclude that the enrolment of relevant actors (with required expertise and experience, from relevant parts of the business,) in the actor network of the IS project proposal and the translation of their expertise and interests into the project document are critical for IS project proposals evaluation. In the words of actors, the success of your IS project proposal depends on knowing your key people, taking ‘your people on the journey’, and engaging them in the production of the document so that they become committed and feel ownership.

Another lesson from the ALFA Invest is about how evaluation practices cope with different perspectives of pre-existing business, social and technological realities, how new realities (a vision of business processes with embedded IS proposed to be built) and statements about these realities are created, and how (and why) these realities hang together and become sufficiently coherent. Fragmented and loosely connected realities lead to IS proposal failure. When different realities seen in an IS project proposal document converge and consolidate so as to become sufficiently coherent – while not necessarily expressing singular reality – we are dealing with ‘fractional coherence’. Given that a singular meaning and perfect coherence are not likely to be achieved, fractional coherence may be sufficient to produce a successful project proposal. While it seems that actors in ALFA Invest know this and also know to recognize when sufficient coherence is achieved, their experience is not translatable into descriptions meaningful to others. Further research should address the practical meaning of fractional coherence of business and realities in the IS project proposal documents.

Finally, the practice of IS evaluation – for which various methods propose a range of rigorous and well structured processes, models and calculation techniques – is shown to be vague, sometimes messy, and

seemingly unsystematic. Is the IS evaluation vagueness a sign of poor evaluation methodology? Should (could) the practice be improved by the adoption of and stringent adherence to a more precise and exact methodology as most of the literature argues? We answer this question by showing that the key part of IS evaluation process is informal and vague “because much of the world is enacted in that way” (Law, 2004, p.14). In ALFA Invest they learned the problem is not a more precise and more stringently applied methodology, but

yeah there is a methodology, and the challenge is actually in the application of the methodology. Like with a lot of methodologies it could be beautifully bound in terms of the theory and then the practice comes down to well ..., how good was I at estimating how much the costs were going to be. I said it wasn't going to cost more than x to run this, and you get to go live and you say no way we can run this without hiring 6 people so now your business case has changed from when you first started. So the challenge is in the application of the methodology not the methodology itself. (Head of Projects)

No guarantors, no golden standards or best practices. But still we learn from ALFA Invest about ways of living with ambiguity and uncertainty; we learn how the proposal and evaluation of an IS is at the same time an enactment of the new reality, that is, a vision of a business process incorporating the new IS, where IS is also a vision documented by requirements, broad design, estimated costs of development and estimated infrastructure; we learn how these visions are created and negotiated discursively through relations in heterogeneous actor networks by the people ‘taken on the journey’.

We conclude this paper with a quote from the recent book *After Method – Mess in Social Science Research* by John Law (2004) which encapsulates our experience of adopting and living ANT as a research method but also of what a method in IS research is all about:

“Method? .. It is not just a set of techniques. It is not just a philosophy of method, a methodology. ... It is also and most fundamentally, about the way of being. It is about what kind of social science we want to practice. And then, and as a part of this, it is about the kinds of people that we want to be, and about how we should live ... Method goes with work, and ways of working, and ways of being. I would like us to work as happily, creatively and generously as possible in social science. And to reflect on what it is to work well.” (p.10)

References

- Al-Yaseen, H. and T. Eldabi, (2004). A Quantitative Assessment of Operational Use Evaluation of Information Technology: Benefits and Barriers, In Proceedings of the Tenth Americas Conference on Information Systems, pp. 688-692. New York, New York.
- Ballantine, J.A. Galliers, R.D. and Stray, S.J. (1996). Information system/technology evaluation practices: evidence from UK organisations, *Journal of Information Technology*, 11, pp.129-141.
- Ballantine, J.A. and Stray, S.J. (1998). Financial appraisal and the IS investment decision making process, *Journal of Information Technology*, 13, pp.3-14.
- Bannister, F. and Remenyi, D. (2000). Acts of Faith: instinct, value and IT investment decisions, *Journal of Information Technology*, 15(3), pp. 231-241.
- Berghout, E. (2001). A dilemma between decision quality and confidence in the decision: experimental validation of investment analysis methods, *The Electronic Journal of Information System Evaluation*, 5(1).
- Callon, M. (1986). Some elements of a sociology of translation: Domestication of the scallops and fishermen of St. Brieuc Bay, in J Law (ed.), *Power, action and belief: a new sociology of knowledge?*, pp. 196-233, Routledge, London.
- Farbey, B. Land, F. and Targett, D. (1992). Evaluating investments in IT, *Journal of Information Technology*, 7, pp. 109-122.
- Fasheng, Q. and Teck, Y.K. (2000). IS/IT Project Investment Decision Making, ICMIT 2000, pp. 502-507.
- Gilchrist, S. Gurbaxani, V. and Town, R. (2001). Productivity and the PC Revolution, Prelim. Draft.
- Ginzberg, M.J. and Zmud, R.W. (1988). Evolving criteria for information systems assessment. In: *Information Systems Assessment: Issues and Challenges*, Bjorn-Andersen, N. and Davis, G.B. (eds), pp. 41–55. North Holland, Amsterdam.

- Hirschheim, R. and Smithson, S. (1998). Analysing information systems evaluation: another look at an old problem. *European Journal of Information Systems*, 7(3), pp. 158-174.
- Latour, B. (1986). *Aramis or the Love of Technology*, Harvard University Press, Cambridge, MA.
- Latour, B. (2005). *Reassembling the social: An introduction to Actor-Network-Theory*, Clarendon Lectures in Management Studies, Oxford University Press, Oxford.
- Law, J. (1999). After ANT: Complexity, Naming and Topology, in J. Law and J. Hassard, *Actor Network Theory and After*, pp.1-15, Blackwell Publishers.
- Law, J. (2002). *Aircraft Stories: Decentering the Object in Technoscience*, Duke University Press, Durham, NC.
- Law, J. (2004). *After Method: Mess in Social Science Research*, Routledge, London.
- Lin, C. and Pervan, G. (2001a). A Review of IS Evaluation and Benefits Management Issues, Problems, and Processes, Wim Van Grembergen (ed) *Information Technology Evaluation Methods and Management*, pp. 2-24, Idea Group Publishing, Hershey, PA.
- Lin, C. and Pervan, G. (2001b). Issues in IS Investment Evaluation, Benefits Realisation, and Outsourcing in Australian Organisations: Results from a Case Study, 4th Western Australian Workshop on Information Systems Research (WAWISR), pp. 1-13, Western Australia.
- Mol, A. (2002). *The Body Multiple: Ontology in Medical Practice*, Duke University Press, Durham, NC.
- Murphy, K.E. and Simon, S.T.J. (2001). Using Cost Benefit Analysis for Enterprise Resource Planning Project Evaluation: A Case for Including Intangible, Proceedings of the 34th Hawaii International Conference on System Sciences, pp.1 – 11, Hawaii.
- Nagm, F. and Kautz K.L. (2007). It doesn't up add: why financial evaluation methods are inadequate in appraising IS investments 18th Australian Conference on Information Systems, pp. 284-298, Toowoomba, Queensland.
- Nijland, M.H.J. (2004). *Understanding the Use of IT evaluation methods in Organisations*, University of London, PhD Thesis.
- Patel, N.V. and Irani, Z. (1999). Evaluating Information Technology in Dynamic Environments: A focus on Tailorable Information Systems, *Journal of Enterprise Information Management*, 12(½), pp. 32.
- Powell, P.L. (1999). Beyond the IT Productivity Paradox, Leslie P. Willcocks and Stephanie Lester (eds), *Evaluation of Information Technology Investments: Business as Usual?*, John Wiley and Sons, Ltd, West Sussex, England.
- Remenyi, D. and Sherwood-Smith, M. (1999). Maximise Information Systems Value by continuous participative evaluation, *Logistics Information Management*, 12(½), pp. 14.
- Seddon, P. (2001). IT Evaluation Revisited: Plus a change, Proceedings, on Eight European Conference on Information Technology (ECITE), Oxford, United Kingdom.
- Serafeimidis, V. and Smithson, S. (1999). Rethinking the approaches to information systems investment evaluation, *Logistics Information Management*, 12(½), pp. 94-111.
- Serafeimidis, V. (2000) Information systems evaluation in practice: a case study of organizational change, *Journal of Information Technology*, 15, pp.93-105.
- Tallon, P.P. Kraemer, K.L. and Gurbaxani, V. (2000). Executives Perceptions of the Business Value of Information Technology: A Process-Oriented Approach, *Journal of MIS*, 16(4), pp. 145-173.
- Willcocks, L. (1992). Evaluation Information Technology Investments: Research Findings and Reappraisal, 2 (4), pp. 243-268.
- Willcocks, L. and Lester, S. (1994). Evaluating the Feasibility of Information Systems Investments: Recent UK Evidence and New Approaches, In *Information Management, The Evaluation of Information Systems Investments*, Willcocks L (ed), pp. 49-80, Chapman and Hall, London.