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Managing Stakeholders in Inter Organisational Information Systems.

Lessons from an attempt to implement an electronic patient file

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SOM theme A: The human and technical side of production: the management of interdependencies

Abstract

Implementing an effective inter-organizational system (IOS) requires significant organizational as well as technical changes. These will affect stakeholders with varying degrees of power and with varying degrees of interest in the system – yet promoters depend on them if the project is to succeed.

Identifying stakeholders and understanding their attitudes enables promoters to manage implementation in a way that meets their expectations and encourages acceptance.

We examine these issues through an empirical study of a project to introduce an Electronic Patient File (EPF) system in The Netherlands. Few would disagree with the benefits of such a system – yet (at the time of writing) the promoters have been unable to implement it. The paper develops and tests a model of stakeholder management, showing how stakeholders varied in their power to affect the use of the system, and in their interest towards its use. These attitudes reflected their beliefs about the effects of the system on working routines, power, culture and finance. The analysis concludes by comparing the strategies which promoters could use to encourage acceptance. The theoretically based and empirically tested model should be relevant to those leading IOS projects in other sectors.

Introduction

Separate health care agencies routinely collect administrative and clinical information about their patients, traditionally storing it in paper files. Most now use computer systems to support their procedures, but since these typically operate independently they cannot automatically exchange patient information (Grimson, 2001). So while a patient's medical history, current conditions, prescribed medicines or allergies is probably stored electronically, it is unlikely that health workers will have comprehensive, online access to it.

The medical professions agree that patients will benefit if they have access to one consistent electronic medical record containing a patient's complete medical history - variously called an Electronic Healthcare Record (Grimson, 2001), Computerized Patient Record (Raghupathi and Tan, 2002) or, as in this case, an Electronic Patient File (EPF). The benefits include savings from "faster referrals between doctors, fewer delays in ordering tests and getting results, fewer errors in oral or hand-written reporting, fewer redundant tests, and automatic ordering and re-fills of drugs" (quoted in *The Economist*, May 6th 2005, p. 62). Online access would support hospital treatment and enable pharmacies (retail outlets supplying medicines etc to patients) and general practitioners (GPs) (doctors providing care to patients in the community) to up-date their files when patients leave hospital. Yet progress in implementing such systems has been slow.

The reason may be that implementing an IOS is not only a technical project, but also an organizational one. As Williams (1997) pointed out, an effective IOS requires high levels of rational control and/or high levels of conscious consent and co-operation – all of which are likely to be problematic between autonomous organizations. The significant organizational changes required affect the interests of many stakeholders, and promoters cannot take their co-operation for granted. They need to understand stakeholder attitudes and develop a strategy for managing them.

This paper examines these issues through an empirical study of a project to introduce an Electronic Patient File (EPF) system within a regional health care system in The Netherlands. Management at a large regional hospital proposed a system which would enable (mainly) GPs and pharmacies to share medical data. The hospital's IS department would manage the system, which the other parties would access to update and retrieve information; costs would be shared between the parties; and a representative council would control the system.

This paper examines possible reasons for the failure (at the time of writing) to implement the project. It develops and tests a theoretically-grounded approach to managing stakeholders in an IOS project. Analysing the data from this perspective identifies the issues which those involved in the system faced, and illustrates the complexity of introducing an IOS in a fragmented health care system.

The next section draws on the organizational literature on IS to develop our research questions. We then explain our research method before presenting the results of our research. That analysis leads to some practical implications for those involved in implementing similar IOS projects in health care or other sectors of the economy.

Theoretical perspectives

Failure of information systems has long been a theme in the IS literature, with Lucas (1975), Lyytinen and Hirschheim (1987) and Sauer (1993) developing models of, and explanations for, the phenomenon. Lyytinen and Hirschheim (1987) defined information system failure as “the inability of an IS to meet a specific stakeholder group’s expectations” (p.263), and in doing so brought the recently developed stakeholder concept (Mitroff, 1983; Freeman, 1984) into the IS field. The definition implies that those implementing a system need to ensure that it meets stakeholder expectations if they are to gain, or retain, their support.

Meeting those expectations will be especially necessary when implementing an inter-organisational system since the promoters are unlikely to have direct formal authority over stakeholders in other organisations. While coercion by a powerful trading partner can encourage acceptance (Morris et al., 2003), those who lack that power over potential partners in an IOS need to use other means to convince them of its merits.

Pouloudi and Whitley (1997), Pouloudi (1999) and Pan (2005) all use the stakeholder concept to study why internal and/or external stakeholders (as individuals, groups or organisations) develop positive or negative attitudes towards a proposal. Pouloudi (1999), for example, showed how an inability to meet the expectations of the medical profession limited the use of a health information network in the UK, even though other professionals were able and willing to participate. More recently Pan (2005) showed the value of identifying stakeholders and evaluating how their interests correspond to project objectives.

There is however a difference between identifying stakeholders and developing a practical approach to managing them. Mitroff (1983) defined stakeholders as “all those parties who either affect or who are affected by an organisation’s actions, behaviours and policies”. The

management problem arises from Mitroff's observation that stakeholders do not generally share the same definition of an organisation's problems, and hence do not share the same solutions. This implies that "approaches to organizational problem solving, which generally pre-suppose prior consensus or agreement among parties...break down. Instead a method is needed that builds off a starting point of disagreement..." (Mitroff, 1983, p.5). This paper aims to offer such a method, by developing and testing a theoretically-grounded approach to managing stakeholders in an IOS project. The approach has three steps - identifying stakeholders, assessing their relative power and interest, and choosing a strategy to secure their support.

Identifying stakeholders

Mitroff's definition implies that an analysis could include a very large number of stakeholders, encompassing organizations, units within them, and individuals. Others (Freeman, 1984; Bryson, 2004) also take an inclusive approach with the latter urging "consideration of a broader array of people, groups or organizations as stakeholders, including the nominally powerless" (p.22). In contrast, Eden and Ackermann (1998) take a utilitarian approach to stakeholder analysis, with the aim of "identifying stakeholders who will, or can be persuaded to, support actively the strategic intent of the organization" (p. 120) – that is, prioritising them. Since our interest in this paper is on stakeholder management, we build on the Eden and Ackermann approach, seeking to identify and analyse only those stakeholders who were active in the project at the time of the research. Other stakeholders would of course become significant if the project were to progress, and would then need to be included as the dynamics of stakeholder management change their perceptions.

Stakeholder power and interest

Eden and Ackermann (1998) advocate using a power-interest grid, which distinguishes stakeholders according to their power to affect the project, and their interest in it. This tool helps to "determine which players' interests and power bases must be taken into account in order to address the problem...(and)...provide some information on how to convince stakeholders to change their views" (Bryson (2004) p. 31). That is, they can show those promoting a project which of the many potential stakeholders they should focus on at a particular phase of the project – which of course may change as the project progresses. Those with both power and interest represent the most significant actors, as they will ensure that the system deals with "their" problem (McLoughlin, 1999):

"Each group will be identifiable through the different views they have (about) the artefact, or even whether it is a desirable technology at all" (p.92).

Hales (2001) identified four organisational sources of power:

- Coercive – the authority to give instructions, with the threat of sanctions or punishment available;
- Reward – the authority to use organisational resources to reward desirable behaviour;
- Administrative expertise – the authority to create policies or rules
- Technical expertise – the authority to access expertise, information and ideas.

Being able to use any of these sources to influence others' action as depends on the target recognising the source (such as technical expertise) and being willing to be influenced by its use.

Lyytinen and Hirschheim (1987) observed that stakeholder interests “are formulated through a number of expectations, i.e. the beliefs and desires concerning how the IS will serve the group's interests” (p. 263). Such interests may relate to the system itself and/or to its wider context (Fitzgerald and Russo, 2005): the significance of the latter being stressed by Czarniawska (2004) who argues that “it is impossible to understand human intentions by ignoring the settings in which they make sense” (Czarniawska, 2004, p.4).

Such settings, or contexts, have many dimensions: stakeholders may take a positive view of some, and a negative view of others. Cummings and Doh (2000) therefore advocate “context-specific” stakeholder mapping to identify the threats (or benefits) seen by each group of stakeholders, and their likely reactions. These reactions reflect an interpretive process (Walsham, 1993): an IOS proposal is not an objective phenomenon, since a promoter has consciously created it to reflect their responsibilities, experiences and interests. Those with different responsibilities, experiences and interests will evaluate the proposal from their perspective, and perhaps attach a quite different meaning to it: do they recognise the problem? is the proposal a feasible solution? how may it affect their interests.

Such “context-specific” stakeholder analysis can draw on cumulative IS research to identify the aspects of a system and its context that are likely to shape interpretations. Davis (1993) developed the Technology Acceptance Model (TAM) which proposes that acceptance depends on perceptions about a system's usefulness and ease of use. Others have looked beyond the immediate features to the wider context. One line of research has examined the links between a new system and established routines (Marakas and Horninck, 1996) or business processes (Currie and Brown, 1997; Mellin, 2002). Markus (1983) and Knights and Murray (1994) focus on the interaction between a system and the distribution of power, while others focus on culture (Cooper, 1994; Boonstra et al. 2004) or finance (Boonstra et al. 2004).

This leads us (in the present case) to examine how stakeholder attitudes (positive or negative) arose from the perceived usefulness of the system itself, or from its likely effects on contextual factors such as established routines, power, culture or finance.

Choosing a strategy

The third theme is that of choosing a strategy to secure the support of stakeholders for a proposal, such as an, in this case, an electronic patient file. This introduces a dynamic element into the discussion, in the sense that the context of a proposal, and stakeholder attitudes towards it, are not fixed: “IS failures should be studied as dynamic processes that can be shaped by stakeholders’ action. This action depends on available interpretations and ‘mappings’ of the situation, i.e. how...stakeholders make sense of the situation’ (Lytinen and Hirschheim, 1987, p. 295). Having recognised the range of stakeholders involved in a proposal, analysed their relative power and interest, and understood how they interpret the evolving context of the proposal, promoters can then consider how best to secure their support. They may, for example, act to increase their own power so that they can require others to use the system, or they may re-design the proposal so that it better serves stakeholder interests.

This discussion suggests these questions to guide our analysis:

- Which stakeholders were important in the initial stages of the EPF project?
- What was their relative power and interest in the proposal?
- Were stakeholder attitudes (positive or negative) to EPF shaped by their perceptions of the system itself, or of its wider meaning for established routines, relative power, culture or finance?
- What does this analysis suggest that those promoting the system could have done to encourage acceptance by other stakeholders?

Method

A qualitative, single case study approach reflects the nature of the issues under discussion, since the research questions are exploratory (Yin, 1999; Dubé and Paré, 2003), intended to identify the attitudes, interests and power of various stakeholders towards the proposed system. The issues were unclear and had to be studied in their natural setting to understand the nature and complexity of the proposed system in its context (Benbassat et al. 1987). The unit of analysis of the research is the EPF system and its possible acceptance by intended users and other stakeholders.

To ensure construct validity multiple sources of evidence were used - interviews, written reports, letters, observations, minutes from committee meetings and media coverage. Internal validity was enforced by looking for patterns, dominant themes and explanations in the material and by asking respondents to comment on our interpretation. We sought external validity by interviewing several people from each stakeholder group.

Initial access was negotiated in 2004 through the manager of the IT department in the hospital proposing the EPF. We then interviewed him and the hospital's general manager. These initial respondents identified other stakeholders who would be affected by the system, whom we then asked to participate. Almost everyone agreed, and we interviewed them by telephone or at their place of work between August and November 2004. Respondents included hospital managers, IT staff, GPs, physicians at the hospital and EPF vendors (see Table 1).

We assured the interviewees that the discussions were confidential. Interviews typically started with open-ended questions about the proposed system, followed by more specific questions about their involvement with, understanding of, and attitudes towards aspects of the system, such as the likely impact on working processes, relative power, culture and finance. Most interviews lasted 30-90 minutes, with notes being taken to prepare an account of the meeting. Respondents checked these accounts for accuracy and sometimes this led to a revision.

Table 1 **Number and professional groupings of those interviewed.**

<i>Professional groups</i>	<i>Coding in Tables (see below)</i>
2 pharmacists	PH1 and PH2
3 hospital managers	M1 - M3
3 hospital doctors	D1 - D3
2 IT managers	ITM1 - ITM2
5 general practitioners	GP1 - GP5
2 representatives of IT vendors	ITV1 - ITV2
2 experts from insurance and government	EXP1 – EXP2

The interviews contained three sets of questions. The first set was directed at identifying the most relevant stakeholders. The second set was directed at identifying and interpreting the attitudes and interests of the immediate stakeholders towards the system. The third set was directed at assessing the relative power of parties, either to promote or to inhibit implementation of the system.

We used other sources (written reports, letters, observations, minutes from committee meetings and media coverage) to validate and complement the interview data. We then identified key issues around the EPF implementation effort in order to verify the categories of support or resistance towards this system. Then, we analysed the data by allocating them to one of the categories which theory suggested would affect their attitudes to the EPF proposal - the system and its likely usefulness, and the possible effects on working processes, relative power, culture and finance. We discussed this categorisation extensively, also with some initial respondents (M1, ITM2 and GP2). In some cases this led to defining new categories or a reformulation of attitudes of respondents. This data is presented in the following section.

Identifying stakeholders

Our early discussions on the first set of questions showed that the groups shown in **bold** in Table 2 were the most significant at that stage of the project. They were aware of the proposed system, and could see that it would affect their interests.

Table 2 Stakeholders in relation to the proposed Electronic Patient File

<i>Immediate stakeholders inside the hospital</i>	Hospital management
	IT management
	Physicians
	Pharmacy
<i>Immediate stakeholders outside the hospital</i>	General practitioners
	Pharmacies
<i>Other stakeholders</i>	Patients
	Insurers
	Nursing homes, home care institutions etc.
	Government agencies
	Consultancies
	Vendors of electronic patient files

Patients, insurers, nursing homes, government agencies, system vendors and consultancies are potentially relevant stakeholders but at the time of the study were either unaware of the system, had not developed a coherent representation about the arrangements, or were not yet involved in discussions about it.

Stakeholders' power and interest in relation to EPF

How did the main stakeholders vary in their interest in the EPF system, and their power to affect implementation? Most of the parties are autonomous players, and approach these issues with serious reservations, despite the potential benefits of better

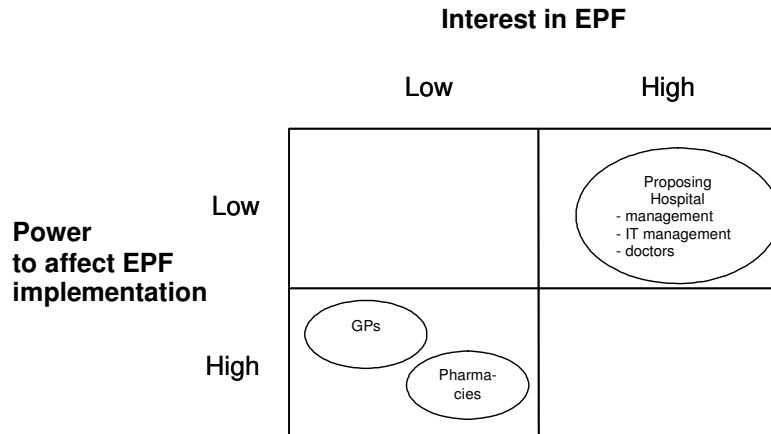


Figure 1 Power-interest matrix of main stakeholders in EPF in 2004

patient care and lower costs. The power-interest matrix (Eden and Ackerman, 1998) allows us to compare the position of the parties at the time we conducted the research.

Figure 1 (Boonstra and de Vries, 2005) shows that the hospital had a high interest in this system, and our interviews with its management showed that they believe it should take the lead in developing and implementing it. It already uses many advanced information systems, including electronic patients records, and so has a reasonably full view of the medical history of patients within the hospital. However, these systems do not include information from GPs and pharmacies, and systems of different hospitals are not connected, meaning that physicians do not have a full view of their patients' medical history.

Hospitals are the largest entities within this health care network, and their senior management usually feel that they should take the lead in improving practices. Many specialist doctors believe they bear the full responsibility for the care of patients while in hospital. If they do not trust patient files, they set up their own file and conduct tests again to be sure that they can rely on the medical data. An IT director at the hospital explained why the hospital should take the lead:

As a large hospital we have the facilities to set up and manage one single file with medical data for each patient, to be used by doctors, pharmacies and nursing homes. I believe that this would be a major step in improving patient care.

However, the hospital has very little power to force others to cooperate. In terms of the sources of power identified by Hales (2001), the hospital has no coercive or administrative power over the independent pharmacies and GPs. It has no sanctions over them, nor has it any authority to create policies or rules governing their behaviour. It does have some potential reward power, and the power of technical expertise in relation to information systems – especially in relation to the GPs. However this is only relevant if the other parties recognise and accept that power – which in this case the pharmacies and GPs were not prepared to do.

GPs run their medical practice as independent businesses and have complete autonomy in their working practices, including how they deal with a patient. All GPs we interviewed emphasized that a joint EPF would bring benefits such as lower administrative costs, better patient care and possibly a reduction in IT problems. They also expressed significant reservations, such as the potential loss of autonomy, privacy, working practices and who would pay for the change – given that many GPs had already invested in their own systems. Some mentioned wider issues such as liability for mistakes and the possibility of more disciplinary cases and lawsuits.

Most pharmacies use advanced computer systems, connected in regional networks, to keep precise records of the drugs prescribed to patients. However, these systems are not connected with GPs' or hospitals' systems, nor are the various regional pharmacy systems linked. This limits the ability to exchange electronic data exchange with GPs, health workers and hospitals. The chairman of a group of pharmacies said:

Pharmacies have invested heavily in joint IT systems and networks which enable them to trace their customers' drug use, even if they buy them at different pharmacies. These systems are very advanced and work quite well. A big improvement could be achieved if GPs and hospitals would open up their systems and transfer their data to our systems. We believe that we are the appropriate party to manage and operate an EPF, to be used by all other providers of health care. We already possess the best infrastructure and the systems are there.

This quotation illustrates that pharmacies feel that they are in a strong position to 'roll out' this idea to others. They often use modern information systems and have an effective lobbying body. Some pharmacies expressed concern that the hospital would use its working practices as a starting point, rather than those of other parties. They felt that an EPF managed by the hospital would reduce their power and increase their dependence on the hospital.

A hospital director commented:

There are so many parties with their own specific view on this problem. We need a project champion with the vision and the power to bring the parties together and to force them to invest and cooperate. But there is no such person who can force others to contribute or participate. All participants are autonomous and cannot be forced. Everyone sees the benefits of the system, but no single party wants to pay the costs in time and money.

These quotations show that stakeholders have different perspectives on the EPF. During the period of the research the proposal made very little progress, as none of the other parties were willing to put resources into it. In the next section we examine the sources of these differences in attitudes to EPF.

Sources of stakeholder attitudes to EPF

In this section we present typical comments from each group of stakeholders on each factor affecting their attitude to EPF, followed by a short commentary. Where more than one person in a stakeholder group made similar comments they are not repeated – but we believe that the tables fairly reflect the full range of opinions expressed during the interviews.

The idea of an EPF system and its likely usefulness.

As Table 3 shows, none of the respondents oppose the concept of sharing data on patients, or disagree with the broad objectives of the system. However, some stakeholders did raise possible difficulties, such as liability issues and the possibility of a misfit with current systems and working practices. They also raise some issues which occur in later tables, such as greater visibility of practice to other professionals, suggesting that they see this as a threat to the privacy of patients and/or the professional autonomy of health care providers. This could be interpreted as a move towards more control, and towards health care provision according to strict protocols.

Table 3 Attitudes to the idea of an EPF system and its likely usefulness

Hospital Management	
Positive	Negative
M1 <i>'It is essential for a professional health care provision to have a joint view on patients.'</i>	
Hospital doctors	
Positive	Negative
D1 <i>'This is a beneficial development if the system supports our working procedures'</i>	D3 <i>'It may become complicated if so many parties will influence the final outcome. This can be a compromise rather than a focused solution.'</i>
Hospital IT department	
Positive	Negative
ITM1 <i>'It is very important to move on and realise a patient file that covers the most relevant providers of health care'</i>	ITM1&2 <i>'If many parties try to influence the system, it may not fit with our current IT'</i>
General Practitioners	
Positive	Negative
GP3 <i>"It will give me more insight into medical backgrounds of my patients"</i> GP2 <i>"It will save time. Now much information exchange is still by post, phone or e-mail"</i> EXP2 <i>'In the long run, life will become easier for GPs. They don't have to manage their own system because they become part of a chain'</i>	GP1 <i>"I may be liable due to someone else's erroneous entry"</i> GP5 <i>'I think that we have to adapt or to replace our current systems, which work quite well'</i>
Pharmacies	
Positive	Negative
PH1 <i>'It is very important for us to know what GPs and hospitals prescribe to our customers.'</i>	PH1&2 <i>'We are in favour of a joint EPF. But we don't like the dominant role of the hospital in this process'</i>

Perceptions of how the EPF would affect working practices

Table 4 shows that the parties generally agree that an EPF would improve patient care, and enable smoother administration.

Table 4 Attitudes of stakeholders to effects on working practices

Hospital Management	
Positive	Negative
M1 'We will gain insight into operational processes'	
M2 'This will help us optimise our processes. It will save our doctors' and administrators' time.'	
Hospital doctors	
Positive	Negative
D2 'It should be very helpful to have a full view of the medical history of my patients. That improves speed and quality.'	D3 'There are so many medical specialisms. I wonder whether EPF will give room to all of them'
Hospital IT department	
Positive	Negative
ITM1 'Our task will become broader'	
ITM2 'Now we have to support all kinds of patient files. It will be much easier for us to support one generic patient file'	
General Practitioners	
Positive	Negative
GP2 'I hope and expect that the administrative workload will be reduced by the system. This might lead to more time for patients'	GP1 'Family doctors have a way of working which differs considerably from doctors in hospitals. I suspect that the proposed EPF will use the hospital as a focus' GP3 'Misfit with own working practices' GP5 'Since hospitals dominate the development towards an EPF, their processes will be the starting point of the system'
Pharmacies	
Positive	Negative
PH1&2 'The EPF we aim for will save time that we use for exchanging information'	PH1&2 'the system will use the hospital processes as a starting point'

However, the GPs especially comment that changing to an EPF may be complicated. A potential problem seems to be the starting point. If the system reflects the current working practices of one speciality, the others may see this as detrimental to them. Pharmacists and GPs feel that the (powerful) hospital will force them to use the hospital system, which would be a disadvantage to them.

Perceptions of how the EPF would affect power

Inevitably a more integrated chain of health care providers will require some orchestration and leadership. It is clear from Table 5 that the hospital's management and its IT department

favour a hospital-led proposal, while GPs and pharmacies see this in very negative terms. Hospital managers believe they are best able to fill that role: they are the biggest player and the one most able to put resources into the system. Other parties suspect the hospital of using this to dominate the whole chain.

More broadly, there are also hints in these comments of broader concerns from the GPs, such as that insurers or government agencies could use the system as a means of control. It would enable others to evaluate the effectiveness of treatments, and the cost-effectiveness of providers more easily. This could lead to tighter control and less professional autonomy.

Table 5 Attitudes of stakeholders to the effects on relative power

Hospital Management	
Positive	Negative
M1 <i>'We will influence and dominate the chain a little bit more'</i> M2 <i>'There are so many parties but someone has to take the lead. It is only logical that we take that responsibility'</i>	
Hospital doctors	
Positive	Negative
D2 <i>'Such a system can force others to enter data we need to treat patients'</i>	D1 <i>'There is a danger that we have to work with a system that is not focused enough for our medical specialism'</i> D1 <i>'We cannot decide on our own which system will support our work'</i>
Hospital IT department	
Positive	Negative
ITM1 <i>'Because we have most expertise, we must control this process'</i> ITM2 <i>'We will become the IT dept of the health care chain, not only of this hospital'</i> ITM2 <i>'Our services will become more significant and at the centre of health care provision'</i>	
General Practitioners	
Positive	Negative
	GP3 <i>'The hospital will dominate this development. The system can be used by insurers and others to control our practices'</i> GP2 <i>'GPs are not well represented. This means that we have hardly any say in this development'</i> EXP1 <i>'GPs cannot work any longer in an isolated way. Their medical practices are opened up'</i>
Pharmacies	
Positive	Negative
	PH1&2 <i>'We think that we will become a branch of the hospital if we use the system they propose'</i> PH1&2 <i>'The hospital IT department will give priority to the needs of users at the hospital. We may become peripheral'</i> PH1&2 <i>'We are favouring integrated provision of health care. However, we are not in favour of the domination of one powerful party'</i>

Perceptions of how the EPF would affect culture

Few respondents commented on this aspect, but their views contrast sharply. Table 6 shows that the GPs fear a move from a fragmented to a more integrated culture, while hospital management sees many potential benefits in the cultural change which they expect the EPF will enable.

Table 6 Attitudes of stakeholders to the effects on culture

Hospital Management	
Positive	Negative
<p>M2 <i>'The system will facilitate the provision of integrated health care. Providers will not longer be isolated actors. They will have to cooperate'</i></p> <p>EXP3 <i>'The concept of professional autonomy will be eroded further by this system. However, I think that this is in the best interest of patients'</i></p>	<p>EXP1 <i>'one system for all parties will lead to more communication among parties, but also to conflicts about treatments, drug prescriptions and so on. Openness will sometimes lead to conflicts and some parties will not like that'</i></p>
General Practitioners	
Positive	Negative
	<p>GP1 <i>'It shows my way of treating patients to other providers of care. Until now, this was something between me and my patients. I do not really like that development''</i></p> <p>GP3 <i>'With an EPF, every provider of health care has a full view of all therapies and drug prescriptions, as well as those used by other providers. That will also show the different approaches that different providers follow'</i></p>

Perceptions of how the EPF would affect finance

Table 7 shows sharply contrasting views on the financial implications of implementing an EPF system.

Table 7 Attitudes of stakeholders to the effects on finance

Hospital Management	
Positive	Negative
M2 <i>'The costs are high, but in the long run the benefits will outweigh the costs'</i> M1 <i>'Benefits are divided among all parties'</i>	
General Practitioners	
Positive	Negative
GP2 <i>'until now, I have to deal with all kinds of IT problems. I would like it if there will arise one IT solution for all providers of health care. That would help me to focus on my patients, rather than thinking about IT.'</i>	GP5 <i>'We have invested in our current systems. Part of those investments will become wasted money'</i> GP4 <i>'Costs to use the joint system will be quite high'</i> GP3 <i>'And what are the costs of the new system? Many GPs believe that they will have to pay a lot without a clear view on the benefits.'</i> GP1 <i>'This may lead to all kinds of discussions and even to problems with regard to liability'</i>
Pharmacies	
Positive	Negative
PH1 <i>'In principle, sharing IT costs and moving to one EPF for the main providers of health care is the best and most cost-effective solution...but, we already have such as system, so why don't we decide to use that one?'</i>	PH1&2 <i>'We believe that the hospital will use this system to cover their costs. We don't want to pay IT costs of the hospital'</i> PH1&2 <i>'We have already invested large amounts of money in state of the art IT. If this plan becomes reality, we have to replace that'</i>

Advocates of the system believe that the benefits will outweigh the costs and that the benefits will be shared in a fair way. Critics are not sure how costs and benefits will be divided. Some believe that their IT costs will rise without bringing any clear financial benefits.

Implications for managing stakeholders

However, Figure 1 only reflects the relationship at a point in time (Pouloudi and Whitley, 1997). Changes in context may lead to further changes, which will be reflected in the set of stakeholders as well as in their attitudes. If, for example, certain parties start to cooperate and make use of the IOS, laggards will be isolated and the public, insurers or government may be able to force them to join. Stakeholders cannot be studied in isolation, as they are part of a

network of interactions, interests and power. They also base their actions on the actions of other stakeholders.

Such an analysis is likely to show that a system threatens established arrangements, and that those who benefit from these resist the change. Those advocating a new system need to ensure that enough influential stakeholders support the project. Many observers believe that innovation depends not only on rational arguments or participative methods, but on the advocates of a new system developing political will and expertise to overcome resistance (Boddy, 2002). For this reason many observers now see IS projects from a political perspective (such as Markus, 1983; Pfeffer, 1992; Knights and Murray, 1994) on the assumption that they inevitably affect people differentially, and system advocates need to be able to manage these interests as they pursue local as well as organizational goals.

While presenting well-prepared arguments in favour of a change may be an essential first step alongside appropriate mechanisms for participation, they will not be sufficient where there are deep differences of interest between the parties. When change requires the support of several autonomous parties, each needs to be convinced that it is congruent with their strategic direction and interests.

Promoters of the IOS proposal could follow a strategy of strengthening the position of the hospital (arrow 1 in Figure 2) and increasing the stakeholders' interest in the IOS (arrow 2 in Figure 2). By following such strategies, misalignment of costs and benefits among different powerful groups in the health care system can be reduced.

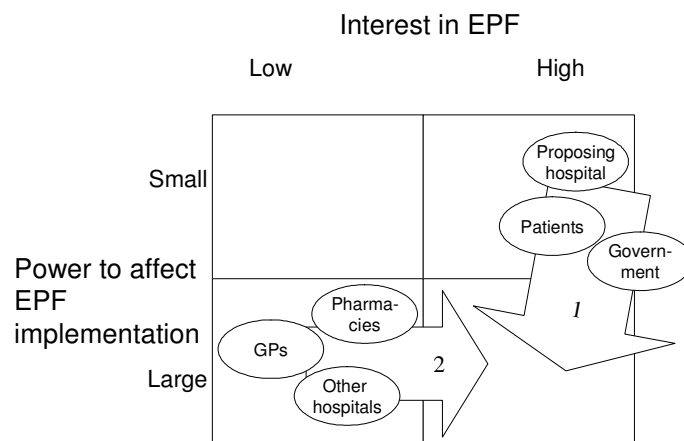


Figure 2 Alternative strategies for managing stakeholders

Strategy 1 (arrow 1) could be pursued by mobilizing other parties, such as patients, insurers and governments who have an interest in a joint EPF. They can actively enter the playing field and stimulate other stakeholders to join. Strategy 2 (arrow 2) could be realized by actively dealing with the threats which concern these parties by, for example, compensating them financially or giving them more room for participation in design to ensure the system fits current working practices.

Conclusions

This paper has shown how a hospital which proposed an EPF system to share information with GPs and pharmacies failed to secure their support, even though all agreed that such a system would improve care and administrative efficiency. We used a power-interest grid to compare stakeholder attitudes, showing that while the hospital had a high interest in the EPF, it had no power to oblige the others to take part. Conversely, the GPs and pharmacies had little interest in the proposed system, but had the power not to take part. The promoter of an inter-organizational system cannot assume the support of other players, even though it promises both private and public benefits.

We examined five theoretically- and empirically-grounded dimensions of the system and its context, and found that stakeholders agreed on some dimensions, and disagreed on others. There was general agreement on the value of an EPF system, but marked differences on the dimensions of working practices, power, culture and finance. On each of these, the GPs and pharmacies believed that the system would damage their interests, and that this loss was greater than the benefits. They therefore used the power of their autonomous position to decline to cooperate, preventing progress on the project. Their opposition was grounded in factors which previous IS research has shown to influence attitudes towards an IS project.

We also showed that the hospital promoting the project had two strategic options for moving the project forward, again based on the power-interest matrix. They could have sought to increase their power to enforce compliance, by seeking support from other less directly involved stakeholders – such as government, insurers or representatives of patients. They could also have used their resource and expertise power to make the proposal more attractive – for example by offering to meet more of the GPs financial costs, or sharing their technical expertise with the GPs and pharmacies. Alternatively they could have redesigned the proposal to meet some of the problems identified by pharmacies and GPs, and so increase their interest in the system. By identifying the sources of their attitudes, the research shows the dimensions

of the project which the hospital could try to change, though some obstacles will be more deeply rooted than others.

Implications for theory

This paper confirms the value of taking account of stakeholder expectations and interest in designing an information system (Lyytinen and Hirschheim, 1987), especially in an inter-organisational system where the promoter cannot coerce players to join. It also shows the value of the power-interest grid (Eden and Ackermann, 1998) to compare the position of stakeholders, and to explain why an apparently beneficial system is not implemented.

Previous IS research has shown that attitudes to an IS do not relate just to the system itself but to how players interpret its effects on other aspects of the context, such as working practices (Marakas and Horninck, 1996; Mellin, 2002), power (Markus, 1983), culture (Boonstra et al. 2004) and finance. This research confirms that these factors affected the attitudes of players to the system, and that if those who oppose the system also have the power not to join, the system will not progress.

The research also showed that those promoting an IOS can choose to manage stakeholders either by focussing on using their power to bring about acceptance, or by trying to understand the reasons behind stakeholders' reluctance to cooperate. Boddy (2002) identified four perspectives on managing change – project management, emergent, participative and political. This research indicates that the promoters in this case concentrated primarily on the first, in the sense that they designed the system, expecting that other players would wish to join. The evidence is that more attention to the other ways of seeing change – recognising the emergent nature of the project, encouraging stakeholder participation as a way of identifying their interests, and making fuller use of available sources of power – may have produced a more favourable outcome. It implies that a theory of IS implementation that takes a one dimensional, linear approach to system implementation will be less successful than one which takes account of the interests of several stakeholders.

Still, further work is required to study stakeholders' roles in IOS implementation to understand attitudes and roles and their evolution, to interpret use of power and to learn from interventions. The authors of this paper intend to continue to study the evolution of a possible shared electronic patient file within the area described in this case study. By studying stagnation, evolution and change of a proposed IOS, we can develop further insight into conditions and behaviours that explain effectiveness of such systems.

Implications for practitioners

A lesson for practitioners from this study is that of attending to potential stakeholders from the very outset of the project. They can use a power interest grid to identify the most significant stakeholders, and then consider how they are likely to view the proposal (Fowler et al., 2003; Ambrosini et al. 1998). This analysis could start with the five dimensions used here, though others may be added if they are likely to be influential. With a deeper understanding of stakeholder interests, promoters can consciously decide their strategy for managing them. They can try to make the IOS more attractive to players with much power and little interest, or look for ways of gaining advantages by attracting relevant parties. This also involves being more aware of alternative perspectives on implementation, such as recognising the emergent nature of the project, encouraging stakeholder participation as a way of identifying their interests, and making fuller use of available sources of power.

The failure of the project may also have been partly due to the promoters very limited view of the nature of such a project. They treated it largely as a traditional project management situation, in which the project team dealt largely with technical issues to the exclusion of other perspectives. They could have improved their performance by paying more attention, for example, to encouraging participation by potential users, and more actively considering the power sources available to them.

They can also consider creating appropriate mechanisms and structures for managing the project. Ensuring that stakeholders' views and interest are understood depends on the existence of a suitable forum within which to work – to raise issues of mutual concern, to debate them, and to seek common ground.

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