



Research article

# Strategic systems implementation: diffusion through drift

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## Abstract

The adoption of Enterprise Resource Planning (ERP) systems follows various paths in organisations and achieves diverse results. The traditional models of diffusion of innovation applied in information systems are not sufficient to explain such variations in adoption. This study examines the process of drift in an ERP project to answer the questions of how and why drift tends to occur in such projects. It applies Actor Network Theory to interpret the data. This analytical lens reveals that a software implementation project's fate depends on each move it takes and each party involved in handling that move. Every handling of the project by different parties could present either a positive modality (that strengthens it and pushes it forward on its track) or a negative modality (that weakens its initial form and drags it onto a different direction). The study provides an alternative view of diffusion, and an explanation of drift in the ERP case that could be extended to other technological projects. It invites practitioners to monitor the various movements of their projects and to allow strategic drift in order to achieve a successful implementation.

*Journal of Information Technology* (2008) **23**, 89–96. doi:10.1057/palgrave.jit.2000130

**Keywords:** Technology drift; ERP; diffusion of innovation; packaged software; Actor Network Theory (ANT)

## Introduction

The implementation of Enterprise Resource Planning (ERP) has a reputation for being notoriously problematic for organisations, as the large size and scale of the system and its organisational coverage make implementing it a challenging task. These implementation difficulties have been described as resembling 'the prisoner escaping from an island prison' (Ross and Vitale, 2000). The failure of many ERP system implementations has even led some organisations to bankruptcy and litigation proceedings, for example the Fox-Meyer case (James, 1997; Montoya, 1998).

Away from dramatic failures, research has revealed that organisations follow different implementation paths and achieve various results from their ERP systems. Studies show evidence that organisations implementing the same ERP package find significant difficulties in assimilating them during companies' merger as each system achieves different results (Alshawi *et al.*, 2004). Research also reveals that organisations adopt different implementation approaches such as customising the system according to local needs (Markus *et al.*, 2000; Alshawi *et al.*, 2004); blocking

some of the system functions (Elbanna, 2006); or achieving a mix of legacy practices and new ERP-based practices (Wagner and Newell, 2005).

The occurrence of such significant variations in the implementation of such a standard off-the-shelf package is puzzling as far as the diffusion of innovation model is concerned. The traditional model, typified by that proposed by Rogers (1995), conceptualises innovations as being fixed and unchangeable in their diffuse from producers to adopters (Allen, 2000). Therefore, the explanation of the occurrence of these variations in ERP adoption falls beyond the scope of such model.

The drift model (Ciborra, 2000) could provide an alternative view, highlighting the evolving nature of technology projects, which do not always follow a pre-planned course. It gives more weight to organisational actors and allows them the capacity and possibility of shifting the project from its initial trajectory. In its extreme form, the drift model finds technology projects rather uncontrollable and liable to run away (Hanseth *et al.*, 2001). In its modest form, it argues that technology projects are

surrounded by surprises and emerging events that deviate it from the pre-planned course, leading to unintended consequences (Orlikowski, 1992; Ciborra, 1999, 2000; Nandhakumar *et al.*, 2003).

The underlying structure of technology drift continues to occupy many researchers who try to reveal how and why drift happens. This study investigates the phenomenon of drift, focusing on how and why drift tends to occur. To this end, it studies an ERP implementation in an international organisation and applies Actor Network Theory (ANT) notions of 'moving the token' and modality to analyse the findings. The paper consists of five sections after this Introduction. The next section discusses the underlying assumptions of the translation model and contrasts it with the assumptions of the diffusion model in order to establish the theoretical background against which the data was analysed. The subsequent section presents the research methodology, followed by a section that describes and highlights some key findings of a case study using this methodology. The penultimate section analyses these findings using ANT concepts. The final section provides a discussion and conclusion of the study.

### Technology diffusion and drift

The diffusion studies in information systems (IS) are 'predicated almost entirely by some degree of acceptance of a theory of diffusion best known through the work of Rogers' (McMaster, 2002). The traditional diffusion model, in its simplistic linear form, assumes a technology-push where users are invited to adopt the technology based on its technical merits (Rothwell, 1992). From this perspective, the user's role is seen to be either to adopt or reject the artefact. Even when 'need-pull' is incorporated in the model, this adoption view has still been based on the same passive role of users as either accepting a technology if it suits their needs or rejecting it if it does not (Rogers, 1995). This assumes compliant and cooperative actors who are likely to adopt the technology over time, leading to the creation of an adopter's classification scheme based on the speed of adoption as follows: 'eager minority', 'early majority', 'late majority', or 'awkward laggards' (Rogers, 1995; Baskerville and Pries-Heje, 2001). The underlying assumptions of this model are based on the notion that the innovation exists independently of the adopters and hence the innovation is simply there waiting for them either to accept or reject it. This ontological separation of society and technology is inherent in the diffusion model resulting in a framing of people who refuse to acknowledge the assumed 'facts' as resistors (McMaster *et al.*, 1997). The model also assumes that the innovation process is essentially a one-way relationship from 'progressive' centres to passive recipients and considers any feedback or counter diffusion to be a negative phenomenon. Previous studies suggest that this model holds an implicit colonial belief of the superiority of the source of innovation and the inferiority of the adopter, who is claimed to be only capable of imitation (McMaster, 2001; McMaster and Wastell, 2005). In conclusion, and from different analytical basis, the linear model of diffusion of innovation holds an assumption that the innovation has an inbuilt inertia that would hold it effortlessly intact and push it forward in a straight line

where the different parties involved can only accept or reject it, without interfering in its content or direction.

ERP implementation seems to reveal a story of diffusion that stresses disparity and drift that is different than the proposition of the traditional diffusion of innovation model. Here, ANT is deployed to make sense of drift in this context and to understand its mechanism. It has been argued that ANT application in diffusion studies provides an alternative, deeper insight into the technology adoption process that goes beyond the linear version of the diffusion model (Buscher and Mogensen, 1997; Knights and Noble, 1997; McMaster *et al.*, 1997).

ANT has been developed to understand the construction of facts in science and technology. It has evolved incrementally over the years through the cooperative efforts of many scholars, including Latour, Callon, and Law, among many others (Law and Hassard, 1999). ANT has been increasingly adopted in IS research to understand the emerging process of systems implementation. Researchers employing this approach have applied different concepts from the theory to reveal the complex character of IS implementation (Vidgen and McMaster, 1996; Bloomfield *et al.*, 1997; Lilley, 1998; Klischewski, 2000).

The translation model at the heart of ANT is concerned with investigating the circulation of a 'token': a claim, order, project, idea, gadget, life style, product, or other artefact. The theory claims that network builders achieve their goals and those of their projects only through associations and alliances of faithful human and non-human actors. This model regards the spread in time and space of any token as being in the hands of people, each of which may act in many different ways, for instance by dropping, modifying, deflecting, betraying, adding to, or appropriating the token (Latour, 1991). It maintains that faithful transmission of a token is a 'rarity' (Latour, 1986). In this regard, ANT explicitly assumes that there is no intrinsic inertia in the token or the network builder project. Hence, everyone in the chain that handles the project token gives it energy.

If the token is to move on, the project therefore needs to find fresh sources of energy all the time as 'you can never rest on what you did before' (Latour, 1986). For this reason, ANT denies the diffusion model's view of an actor as a medium that either resists or transmits the token. Instead, everyone is seen as doing 'something essential' for the existence and maintenance of the token (*ibid.*). As Latour (1986) elaborates: 'the token changes as it moves from hand to hand and the faithful transmission of a statement becomes a single and unusual case among many, more likely, others'. Thus, the translation model considers that 'there are active members shaping and changing the token as it is moved', which means this model is not about the transmission of the same token but 'the continuous transformation' of the token. It regards the stability of the token as an unusual circumstance.

According to ANT, translation is the mechanism by which the network builder recruits actors and ensures their faithful alliance. Callon (1986) suggested four interrelated 'moments of translation' that actors may go through during the translation process: problematisation, intersement, enrolment, mobilisation. He also noted that these moments do not represent stages and might not occur – or be

detected – in this order, and that all (or only some) moments may be gone through. Problematisation refers to the network builder's effort to divert the actors' attention from their initial goal towards the network builder's aims, and to convince them that they cannot achieve their displaced goal without helping the network builder to pursue his or hers. It sets the network builder as an indispensable or 'obligatory passage point' to the actors if they want to achieve their displaced goal. Interestement is the action of interest building. Enrolment specifies the role the actors are required to play in the network and convinces them to accept it. Mobilisation is to move the new actors to be part of the network.

Building on Greimas (1990), Latour (1987) illustrates that the network building project is like a sentence that could be made more of a fact or a fiction depending on how it is inserted into other sentences. By itself, a given sentence is neither a fact nor a fiction. It is made into one of these in later stages by others who intervene to add their own positive or negative modalities. Such modalities are 'the sentences that modify (or qualify) another one' (Latour, 1987: 22) and, depending on the kind of modalities, 'people will *be made to go* along completely different paths' (emphasis as in original) (*ibid.*: 25). Positive modalities are those sentences that lead a statement away from its condition of production downstream, making it solid enough to open up some other possible consequences (*ibid.*). In contrast, negative modalities are those sentences that lead a statement upstream in the opposite direction, towards its conditions of production; it does this to investigate and review the details of its production, instead of using it to render some other consequences necessary. The notion of modalities illustrates that the status of a statement depends on later statements.

Latour uses the words positive and negative to describe modality. However, it should be noted that the positive and negative expression of modality do not hold a judgemental connotation of what is good or bad. It is rather a description of what strengthens or weakens a claim. A positive modality means subscribing to a statement, to give it energy, and hence strengthen it and move it forward. The negative modality means disputing the statement and taking it backwards to investigate its source and point of production, which reduces its initial energy, and slows it down.

Latour contrasted this version of the translation model to the diffusion model. He explained that the diffusion model views the displacement of a token through time and space as the usual expected action (Latour, 1987).<sup>1</sup> It assumes the transmission of the same token through others, and interferes only to explain the slowing down or acceleration of the token movement that results from other people's reactions. In this regard, the diffusion model views the token as having an initial force that is fully maintained and regards the network through which it passes as playing the role of the medium through which the token circulates (*ibid.*). The slowing down or distortion of a token is then explained in terms of societal friction and resistance, such as poor communication, ill will, the opposition of interest groups, or indifference. The diffusion model therefore explains everything through either the initial force or the resisting medium (*ibid.*).

## Research methodology

This study follows the interpretive tradition in IS research. It aims to answer questions about how and why ERP projects tend to drift and to provide explanations of the phenomena based on participants' experiences in real-world situations. This is done by examining a case study of ERP implementation. Such case study research does not seek generalisations in a statistical sense, but aims to provide analytical insight and theoretical generalisation.

In order to understand ERP implementation, data of an ERP project in a large reputable company in the food and beverages sector (named here as 'Drinko') were collected between August 2000 and March 2001. Drinko owns many production, packaging, and sales sites in several countries, each of which represents a company or group of companies that operates in that local area. This study focuses on Drinko's business units (BUs) in only three countries, referred to here as EUK, EUB, and America, which include over 25 BUs.

The data collection methods applied comprised: interviews with various parties involved in the project; document reviews; and other communications with the project participants. Interviews lasted between 1 and 3 h and followed general guidelines. Interviewees were encouraged to talk about the project, with questions asked only as triggers when needed (Bryman, 1989). Interviewees were encouraged to ruminate during the interview and to talk more about whatever they felt was most interesting or important. Following the initial interview, interviewees were contacted again as necessary via e-mail, telephone or for short interviews lasting up to 1 h to follow up the progress of issues and resolution of disputes. Thirteen members of the ERP project teams were interviewed, in addition to two other members of the staff who were met several times before the formal collection of data. These included the project director, project manager, module managers, change managers, and project members from all the implemented modules, as well as members from the external consultancy teams. Tape recording was not permitted, in line with the access agreement with the organisation. To address this limitation, full notes were taken during each interview and extended directly afterwards by the researcher, who added further observations and comments. Document reviews included project newsletters, corporate bulletins, internal reports, external consultants' documents and reports, and internal e-mails.

Data were analysed following ANT's analytical conventions. A chart of actors was produced, followed by a few translation charts that connect different actors and show their diverse interests. The progress of each issue was followed and its settlement recorded. The negative modalities were traced backwards to examine how the translation took place, and forwards to understand how the project proceeded.

## Case study

The ERP project studied for this case passed through many changes during the course of its implementation. The following sub-sections highlight some of these.

### Changes to the initial objectives

The project started with three objectives. Quoting from the programme plan and the company news letter, they were: 'To enable Drinko to meet increased worldwide demand profitably; to give people access to accurate information quickly so they can make good decisions fast; and finally to simplify core processes and systems across what have been traditionally regarded as separate regional operations'. During the progress of the implementation, there was some confusion and a disparity of views regarding the project's purposes. When each party started to work against its perceived objectives, the deliverables of the first stage of implementation varied significantly across ERP project teams as well as departments.

Senior management decided to hire an external consultancy to analyse the situation and provide an explanation for the varied nature of the deliverables. The consultants advised that different parties had made their own assumptions regarding the project's objectives and hence worked to achieve certain deliverables that were not necessarily in harmony with those of other groups – or with the corporate overall vision of the system. In following up on this insight, and as a result of successive brainstorming sessions, the organisation's senior management simplified the project objectives to a single one: 'to unify the business'. This was complemented with a two-colours logo to reinforce the new objective.

### Change of system's scope and reach

The initial scope of Drinko's ERP system encompassed all the organisational business units in many different locations. This included three main commercial arms within the organisation, located in EUB, America, and EUK. However, America BU refused to join the project, arguing that this would complicate their ongoing plan to merge with a distribution company operating in the same market. ERP project management became engaged in intense negotiations with America BU to try to convince them to cooperate by joining the project. This would contribute to the realisation of the project's plan and the corporate executive management's aim of having a single system across the whole organisation. The ERP project management failed to convince the American BU and had to exclude it from the project's scope, despite the major importance and large size of its market (Drinko's third largest). This meant the initially planned corporate-wide system ended up excluding nearly a third of the organisation, leaving it to focus on only two of its companies: EUB and EUK. These had historically been isolated from each other, with EUB having an organisational reputation of lagging behind and being less competent than EUK (Elbanna, 2007).

### Change of system's vision

The initial plan was to have a single ERP system encompassing all organisational operations, replacing 225 systems around Drinko. Yet, departments either refused to replace all their current systems or insisted on buying different packaged software to complement the ERP. This meant that the project team had to work to interface its ERP system with several other software packages, such as Manugistics for production planning; a decision support

system; and a number of business statistics and graphics packages. The initial plan also recommended that a single-shared service should be created to conduct routine accounting across the whole organisation. The idea was that 'one group of staff would be responsible for most finance transactions, based in one location', which would lead to these tasks no longer being carried out independently in each company. EUK and EUB fought so fiercely over the location of the proposed service centre that the continuation of the project was threatened by their dispute (Elbanna, 2007). Drinko's senior management therefore changed their position and allowed the project to have two shared services, one in each company.

### Change of project orientation

The project started with many teams, including internal teams comprised of the organisation's managers and employees together with two external teams from two consulting firms. One external team (here called 'Business Consulting') was responsible of the business side of the project and the other for the technical side ('Technical Consulting'). The technical consultants kept a low profile within the organisation as they focused on preparing the relevant technical capabilities of the system and the organisation. In contrast, Business Consulting were more conspicuous as they pursued their methodology that aimed to bring a more business-oriented view to the ERP implementation.

Business Consulting competed with the internal change managers for the attention of corporate executives. For example, in their frequent contact with Drinko's corporate executives, Business Consulting often conveyed the internal change managers' ideas as if they were their own and without giving credit to the change managers (according to change managers and the project manager). This initiated a corporate struggle between the two parties that ended in the termination of Business Consulting's contract and a dependence solely on Technical Consulting for external implementation support. This change of the team structure led to a shift in the project's orientation from being a business project, as it was initially perceived, to becoming a primarily technical project.

### Change of configuration assumptions

During the ERP implementation, an organisation-wide transformation programme was initiated to review the strategic structure of the organisation. In its initial phase, the transformation programme indicated to the ERP project that it was considering the separation of the supply and demand organisations, which would be something the ERP project should take into consideration in its system configuration processes. As the transformation programme did not yet have any detailed view of how the supply and demand organisation would be split, the ERP project had to configure the system according to its own working assumptions.

As the transformation programme progressed and established a detailed view of how the separation between the supply and demand organisations would be done, the ERP project management discovered that their working assumptions were different from what had been finally

decided by the transformation programme. This meant the ERP system was configured for an imaginary organisation that would never actually exist. Hence, it would need to be changed again to suit the final organisational design of the transformation programme.

### Interpretation of findings

The following sub-sections present an account of drift in the investigated case study, from an ANT perspective. In this analysis, it should be borne in mind that ANT regards the term 'actor' as either an individual actor, or a network comprised of more actors and networks.

#### The drift of system objectives

The ERP project studied deviated from its originally planned objectives as it moved from the project office to involve the rest of the organisation, when its goals were translated differently in many of the networks it passed through. For example, EUK sought to align the project to its interest in understanding EUB's operations, which shifted the project's objectives for this business unit to making transparent the hidden processes and data in EUB. On the other hand, EUB's little experience of large business and systems projects led it to view the ERP project as a major challenge. EUB also viewed the project as a good opportunity to prove their efficiency and equal business capacity to the rest of the organisation. In these ways, the ERP project's objectives drifted in EUB to become focused on installing an ERP and keeping up with the project's tough schedule.

For the operational planning department, this was seen to be a good opportunity to implement what they had always advocated but had previously been resisted by business units: a sales plan for the whole organisation. As a result, this team pulled the project's objective towards their prime aim of having one sales plan, drawing on the ERP system's capability and the corporate executives backing of the project in this regard. The sales department problematised the project as an opportunity to solve their problems with warehouses and transportation as well as offering a way to bring together, streamline, and 'see through' end-to-end processes. This meant the sales team focused more on integration issues and emphasised the detailed design of warehouses.

In effect, each team translated the project objectives to suit their local interests. This led to considerable drift from the project's initial goals of: meeting market demand profitably; improving the quality of information and speed of its flows; and simplifying processes and systems across the organisation. Instead, the deliverables of each team varied according to its translation of the project that put more weight and emphasise on their translated and displaced objectives.

As the teams' deliverables for the second phase varied considerably, Drinko's top management hired a third party to investigate the situation. This consultancy's report pointed to the dispersed understanding of the objectives between different teams and recommended the need to establish a solid objective for the project. This new objective problematised the project as an integration exercise aimed solely 'to unify the business'. This focused

objective made the project's goals immutable and put an end to the multiple translations and different modalities that occurred during the project's moves between networks.

#### The drift in project scope

As already indicated, the ERP project's scope as initially planned and documented in the business case was to cover all BUs in the company. Yet when the time came to move the project token towards the BUs, the American BU opened the project's 'black box' and returned it to its original objectives because they disputed and challenged these objectives. Through a series of translations they displaced the project team's interest in covering all BUs and shifted the objectives towards reducing operational costs and increasing efficiency. They then presented their local interest of merging with another distribution company as an answer to the project's displaced objective. In doing so, America BU successfully translated the project's management as they shifted the latter objectives and problematised it to focus on cost and efficiency (and not ERP) and convinced them that this business unit's proposed merger was more aligned to these corporate objectives than implementing the ERP system. This negative modality succeeded in shifting the project scope to exclude America BU from the corporate ERP implementation project. This effectively drifted the whole notion behind the implementation of ERP in the organisation from being an organisation-wide implementation to a system implementation covering only a few of Drinko's parts.

#### The drift in system's vision

A further area of change from the initial ERP plan was the use of other systems, which required interfacing them with ERP software. The project team's initially envisaged implementation of a single integrated ERP had to be modified when it started the detailed design phase and the consultation with end users in configuration sessions. As the ERP implementation moved from the project office towards the end users, the users return it to the point of initiation to discuss the technical reasons behind the decision to introduce the system.

Different users strongly advocated different reasons in favour of other systems that they were either using at that time or would like to acquire instead of the ERP. They disputed many ERP system functions, such as the operation planning processes, statistics and graphics, and the capacity for storing and analysing information. Negotiations between the users and the project team ended up favouring the use of other systems to carry out such functions. Thus, the users' negative modality meant that the project team had to incorporate the implementation of other new systems, or the continuation of existing systems and building of interfaces between them and the ERP system. This drifted the ERP project away from its initial plan.

Another deviation from the ERP implementation plan (and what the system was expected to support) was the configuration of the system to include two shared services. When the detailed design process reached the phase of approaching EUK and EUB, these BUs shifted the project aim of implementing a single-shared service for the

organisation to a discussion focused on the location of the proposed new ERP service centre. Each unit insisted on pulling the service centre towards being located in its premises and indicated they would seriously question the intentions of senior management if they decided not to locate it in their country.

The implementation project ground to a stand still while the project team waited for a resolution to the dispute about the service centre's location, as each party threatened to withdraw their commitment to the project if they did not win. Drinko's top management intervened to resolve the issue in a way that sought to satisfy both parties' explicit interests, in order to guarantee their commitment to push the project forward. This involved agreeing on a costly configuration based on having two service centres, one in each business unit. Although this decision was a deviation from what had been planned, it was a significant step forward towards materialising the project. By guaranteeing the continuation of the BUs' commitment, this new plan sustained the project's inertia by maintaining its sources of energy.

#### The drift of project orientation

A major incident of drift was the shift in orientation from a business project to one focused on a technical software implementation. This occurred as a result of a battle between the external Business Consulting team and the internal change managers. The change managers were a traditionally influential network within the organisation, accustomed to a close relationship with corporate executives. However, Business Consulting tried to highlight their role in the project to ensure future contracts within Drinko. It did this by approaching corporate executives directly, without consulting the change managers. Business Consulting also did not give credit to change managers when adopting their ideas during project meetings, and conveyed them to corporate executives as if they were the consultancy's own. This interference by Business Consulting in the corporate executive network threatened the power and prestige within the organisation of change managers, who would not tolerate this.

The change managers therefore problematised their interest in regaining their status to getting rid of Business Consulting. They displaced the project management's strong interest – at the time – in justifying the project's time and cost overruns, and shifted it towards disputing Business Consulting's role. Change managers and project management thus aligned to open the consultants' 'black box', returning it back to the point of the consultancy's appointment in order to question their competencies, methodology, and implementation approach. They criticised Business Consulting of taking 'an awful lot of time and producing little results'. In doing so, they returned the project back to the point of a choice of overall direction by advocating a new path based on the idea that 'we have a system here to build'. In this way, change managers eventually convinced corporate executives to chose an organisationally less complicated and more straightforward technical implementation guided by Technical Consultants.

#### The drift of system's configuration

Organisational requirements for the ERP system configuration passed through several changes during the course of its implementation. While the ERP configuration process was underway based on assumptions representing the current organisational structure, the transformation programme was proceeding on its study of the strategic direction of the organisation and the possible improvements to the organisational structure. This programme turned the ERP project back to discussing and reviewing its initial organisational assumptions. The transformation programme (despite having initially a vague notion of separating the supply and demand organisations) thus translated the ERP project's interest in achieving successful implementation of the ERP system to follow the transformation programme's rough ideas on the future design of the organisational structure.

In following this negative modality for a new structure (separating supply and demand organisations), the ERP project began to pursue a new, displaced goal. This led to a drift from its initial assumptions about organisation structure. By the time the transformation programme communicated its detailed final vision and plans for a new organisational structure, the ERP project found that the final version of the proposed separation between supply and demand was even further away from their displaced assumptions. Being already translated to follow the transformation programme's deliverables, in the hope of the continuation of management support, the ERP project drifted again to follow this further negative modality in order to accommodate the newly conveyed design for the organisational structure.

## Discussion and conclusion

### Discussion of key findings

The case study and its analysis described in this paper illustrate how this particular ERP project moved among many networks during its implementation. Actors that handled it contributed actively to its realisation through their modalities. Each actor represented an important source of energy for the project. When actors disputed the project, the project came to a stand still to wait for fresh energy to push it into a direction, either the same as previously planned or along a different route.

For instance, in the dispute regarding the location of the service centre, BUs succeeded in returning the project back to the point of discussing the rationale behind the service centre and what it represented organisationally. This negative modality led to a stand still that set the scene for a different direction for the project. Another example is Business Consulting's challenge to change managers, which backfired by initiating fierce opposition from them (i.e. the change managers), which opened up the black box of the consultancy's existence in the organisation. Change managers succeeded in associating themselves with the project management, which gained them more weight and strengthened their modality. The negative modality of change managers and project management drifted the ERP project towards terminating the consultancy's contract and



shifted the project from a business orientation to what was perceived as a 'straightforward' technical implementation.

Departments also contributed with negative modality that returned the ERP system back to the original decision of acquiring it, to dispute the value and functionality of the system itself. They argued for the introduction of alternative systems which they preferred to use instead of the ERP system, such as special software for graphics and statistics, for production planning, etc. As a result, the project drifted from being viewed as a single system for the entire organisation to an ERP system that interfaces with many other software systems. Furthermore, the system objectives were frequently changed during its adoption by different teams and departments. Different networks tended to translate the objectives and pull it towards their organisational interest. Each team contributed with a different modality that pulled the project objectives in many directions.

In conclusion, ERP's horizontal integration invites many parties to be involved in its implementation. As the project moved between different networks, it gained positive or negative energy from the different actors that contributed to it, either pushing the project forward positively along its initial plan or backward to the point of production to set a different new direction. Such negative modalities altering the initial plan represented the various sources of drift in this ERP implementation.

#### Contribution to research and practice

The paper contributes to ERP implementation studies by providing a novel framework to conceptualise the drift in such integrated horizontal systems that are supposed to span the whole organisation. It highlights the drifting course of ERP implementation and, more importantly, demonstrates that drift is inherent in such implementations. This helps to explain why companies implementing the same packaged ERP system achieve different results, despite the initial perception that introducing the same standard ERP system between organisations should follow a rather straightforward and predictable trajectory (Truex and Ngwenyama, 2000; Alshawi *et al.*, 2004).

This study extends research on drift. Its emphasis on the importance of drift for the evolution of technology projects illuminates some areas of significance for theory and practice. It demonstrates that technology project needs a continuing stream of fresh sources of energy to keep them alive and to guarantee their circulation between networks. It is likely to be rare for actors to comply fully with the project's stated objectives during this circulation, as in many cases they may wish to open its black box, dispute it, and return it to an earlier point in the decision-making process. This can translate the project differently and change its direction. As drift results from the occurrences of such negative modalities, it is necessary to accommodate them to guarantee actors' involvement and ongoing support, fuelled by the required energy for the project's survival.

In this regard, but with a different analysis, this study also supports the proposition of Holmstrom and Stalder (2001) that technology projects succeed in disseminating when they are allowed to drift to suit different actors' needs

(Holmstrom and Stalder, 2001). Such drift is required to give the project energy at points of disputes where actors successfully open its black box and discuss its production. Such disputes cannot be settled without a drift that allows the project to work for everybody. This stress on the continuous need for new sources of energy also provides an alternative view to the diffusion of innovation model. It underscores the risk of inertia in IS implementation projects as the possibility of drift always exists, unless a positive modality is guaranteed from the outset (which is an unusual occurrence).

Regarding the diffusion model, the findings reveal that the superiority of the origin of the innovation assumed by the model is not supported. The case rather revealed a more equitable relationship between the different parties involved as all actively contribute to the creation of the IS innovation. The assumption that the innovation has some sort of independent existence is also unsupported. Instead the IS innovation is created through the active construction of a lengthy network and the dynamic participation of different actors that define the project future direction. This point supports empirically McMaster's (2001) theoretical argument refuting the 'dispersal' claim in the diffusion model.

On the practical side, project managers should be aware of the vast number of negotiations that IS implementation projects go through, and the way actors' different modalities and positions can drag it in many different directions. With every move of a project, and with each new actor entering the network, an IS implementation tends to take a different path. Keeping it onto its initial path requires maintaining the same translation from beginning to end. This is not realistic because it is usual for many different actors to join during the course of an implementation. In principle, actors could translate and bend the project in their way, indicating that drift should be considered as an embedded characteristic of IS implementations. It might also not be feasible to follow the initial path at critical points when new energy is needed to proceed. This is when drift can be practically useful, to guarantee actors' continuing commitment and contributions. In every step of an implementation project, therefore, special care need to be taken to monitor the moves being made in order to try to keep actors aligned in achieving desired mutual goals.

#### Note

- 1 The contrast between the diffusion and translation models largely adopted in this paragraph is derived from Latour (1987).

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