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TOWARD SOCIAL CONSTRUCTIVIST UNDERSTANDINGS OF IS SUCCESS AND FAILURE: INTRODUCING A NEW COMPUTERIZED RESERVATION SYSTEM

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Abstract

This article is based on an intensive case study, the implementation of a computerized reservation system (CRS) in a transport organization, and adopts a non-essentialist stance to analyze its failure aspects. Providing a rich description of micro-level, organizational,and macro-level events and techno-economic networks enabled us to depart from managerialist and technologist accounts of the failure. The analysis draws on constructivism and the sociology of technology, more specifically actor-network theory and the notions of symmetry and translation. An effort is made to combine elements of both the global and the local in identifying a series of translations occurring in the case study. To complement actor-network theory, a critical analysis is also necessary to examine how power relationships are creating disadvantage and can further explain failure.

Keywords: Airline reservation systems, case study, critical perspective, cultural differences, IS project failures, power in organizations, pricing, strategic IS, transportation industry

1. INTRODUCTION

This article is not directed toward finding solutions to the problems associated with IS failures, but instead attempts to provide a better understanding of what IS innovation represents and how it is constructed. IS failures raise interesting questions: How should one analyze IS implementation case studies? Are there inherent differences between successful and unsuccessful ones? Are there methodological points that should apply when investigating and describing such cases? The notion of failure itself is found to be problematic in that it betrays a belief that human, organizational, and cultural factors **can** be managed (e.g., Willcocks and Griffiths 1994). This basic premise corresponds to instrumental and managerialist assumptions that are socially constructed: they take on a natural appearance but in fact are complex and contingent historical constructions. What social constructivism is concerned with is unraveling how these phenomena are constructed.

It is also argued that only an in-depth, rich description and detailed examination of the various actors at macro, organizational, and micro levels (Knorr-Cetina 1981) can do justice to the complexity of case study material; can help analyze how IS relate to people, organizations, and markets; and can help understand how the technical and the social keep being negotiated and constituted.

A first research objective is, therefore, to move beyond commonsense explanations of failure and success and find more complex and richer ways of understanding the use of IS in organizations through the inclusion of broader social, economic, political, cultural, and historical factors. A second research objective is to investigate how the technical and the social are combined and constructed, and it is argued that failures expose these constructions more readily. To achieve this, an anti-essentialist sociological analysis can be used to describe the translations and negotiations leading to a socio-technical actor-network, which is an IS in an organization. Theoretical research questions include what insights such an approach can provide compared to essentialist managerialist and technologist accounts and how it can accommodate critical concerns of power and interest issues.

Theoretical frameworks are first briefly presented and the nature and relevance of social constructivist approaches outlined. An example of such an analysis is provided using the case study of a problematic introduction of an American airline computerized reservation system in a French rail company. For reasons of space limitations, the case study descriptive material itself is only presented very succinctly and has been developed elsewhere (Mitev 1996, 1997, 1999, 2000). The emphasis of this article is on the theoretical analysis that first highlights the relationships between technology, the organizational level, the micro level (individuals and groups) and the macro level (culture, politics, economics, market). Translations take place as the project is taken and adapted by actors, as interests and solutions are developed and evolve. All too often, future users cannot be persuaded to follow the initial goals; the issues become sidetracked and unintended effects occur. An example of power relationships is illustrated with yield management. Finally implications and potential contributions of this type of analysis are discussed.

2. THEORETICAL BACKGROUND

2.1 Relevant Theories

The usual positivist notion of IS success and failure (e.g., Flowers 1994; Fortune and Peters 1995) is seen here as unhelpful as it belongs to managerial and technologist discourses in which technology is seen as unproblematic and neutral. These discourses have a truncated understanding of organizations characterized by a belief in rational management; a denial of the existence of power relations and conflicts; a tendency to see organizations as individual closed entities; and a limited focus on the business environment. A more useful exercise is to unearth the accounts various groups make of success and failure within specific contexts. The conventional dichotomy between the social and the technical is also problematic as technical and social choices are constantly negotiated and socially constructed (Bloomfield and Vurdubakis 1994; Silva 1997), and their construction follows the same logic in successes and failures.

The evolution of understanding of failure can be summarized along three dimensions, as shown in Figure 1: the epistemologies (functionalism, interpretivism, constructivism, and critical theories); their originating disciplines (engineering, information systems, organization theories, and sociology of technology); and the focus of the failure models/understandings (technology, individuals, systems, organizations, stakeholders, structure, culture, context, networks, institutions, power, and politics).

The engineering disciplines and their functionalist epistemologies have only provided limited explanations of failures in the past by concentrating on the technology or individuals (Jones 1995; Neumann 1995). IS research has nevertheless evolved from trying to allocate blame onto individuals to perceiving failure situations as systems (Perrow 1984); identifying causes as coming from organizational factors (Ewusi-Mensah and Przasnyski 1994; Peltu et al. 1996); considering stakeholders (Lyytinen and Hirschheim 1987; Pinto 1994); organizational structure (Sauer et al. 1997); culture (Gallivan 1997); contingency (Poulymenakou and Holmes 1996); and context (Beynon-Davies 199;5 Davis et al. 1992; Sauer 1993). In doing so, they have drawn upon other disciplines, in particular management and organization theory (e.g., Augustine 1995; Starbuck and Milliken 1988; Weick 1988).

Disciplines

Sociology of technology

Management and organization theory

Information Systems

Organizations

Engineering

Individuals

Culture

Technology

Functionalism

Systems

Context

Interpretivism

Structure

Power

Constructivisim

Critical theories

Stakeholders

Epistemologies
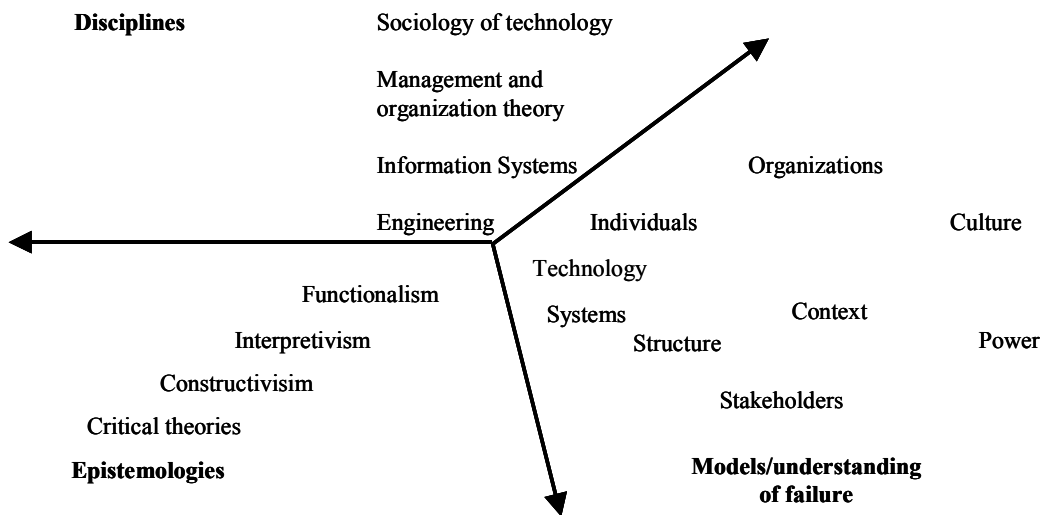
Models/understanding of failure

Figure 1. Evolution of Understandings of Failure

The most relevant and more recent IS tradition is the interpretive one (Lee et al. 1997; Myers 1994; Orlikowski et al. 1996; Walsham 1993, 1995). In contrast to positivist rational-economic interpretations of organizational processes, interpretive approaches aim at producing an understanding of the IS context and the process by which actors draw on and interpret elements of context. Ethnographic methods (Harvey and Myers 1995; Myers et al. 2000) are often used to understand how the social world is produced and reinforced by humans through their action and interaction.

A technology failure analysis such as Vaughan's (1996) uses an interpretive and ethnographic approach to appreciate the actors' views in order to build a rich understanding of the *Challenger*'s disaster, and Drummond (1996) uses a quasi-critical perspective to question the notion of managerial rationality in the decision-making escalation which led to the *Taurus* fiasco at the London Stock Exchange. As exemplified in these two studies of technology failures, sociological frameworks enable us to move beyond functionalist explanations of failure.

2.2 General Theoretical Framework

Critical theorists contend that the interpretive research philosophy does not specifically focus on the inherent conflict and contradiction in social relations (Knights and Murray 1994; Markus 1983). Disagreements over technical changes are an inevitable feature of organizational life and not a consequence of poor management or user resistance. Change is a political process requiring the capacity to mobilize power resources.

Another problem with contextual approaches to IS failure is that they construe social factors as exogenous from the technology and imply the pre-existence of a technological "natural" trajectory (MacKenzie 1988), for instance, when Newman and Robey (1992) express the hope that IS practitioners can use models to diagnose and predict problems in order to move projects in the "right" direction.

Social constructivist approaches to science and technology studies prevent treating technology as a neutral "black box." Social shaping of technology (e.g., Bijker and Law 1992) suggests that the black box of technology should be opened to allow the socio-economic patterns embedded in the content of technologies and the processes of innovation be exposed and analyzed. Consequently failures are of particular interest since the controversy surrounding them tends to reveal processes that are more easily hidden in the case of "successful" projects and more complex relationships between technical choices and social environments can be unraveled.

The notion of symmetry in actor-network theory helps dismantle beliefs and assumptions of "obviousness" and suggests that successes and failures should be regarded in the same way, symmetrically. This is illustrated in Latour's (1996) study of a new automated subway transportation system. Another important concept in actor-network theory, the sociology of translation, helps us to understand how an innovation is translated or carried, interpreted or transposed, from one position to another, and how translation operates between actors, leading to the formation of techno-economic networks. Networks are constructed according to translations' logic; controversies, or failures, are "translation as betrayal" (Callon 1991).

Walsham (1997) suggests combining the methodological approach and conceptual ideas of actor-network theory with insights and analyses drawn from other social theories. Elements of social theories have been used by IS researchers, for instance politics and power/knowledge (Knights and Murray 1997), institutionalization (Silva and Backhouse 1997), and structuration theory (Orlikowski 1992; Walsham 1993). This article will first apply the notion of translation to the case material and then complement the analysis by examining power relationships.

3. RESEARCH METHODS

Some IS researchers have found that "only a rich, integrative view of IS implementation does justice to the complex realities of social life in organization" (Myers 1994, p. 198). Harvey and Myers (1995, p. 23) argue that "generalizable knowledge is often neither relevant nor meaningful, in which case we are better off understanding specific contexts," even though story-telling approaches may be misinterpreted as non-rigorous (Ely et al. 1997). Sauer (1993, p. 3) recommends studying whole cases so as not to reject any part of them as irrelevant in order to come closer to a realistic understanding of IS failure. This implies that macro-social factors must be investigated, as well as the multi-causal relationships more immediately involved in failure (Lyytinen and Hirschheim 1987).

Many significant contributions in the social sciences have resulted from single-case studies published in book form. Darke et al. (1998) believe that case study research enables the capture and understanding of context. Dyer *et al* (1991) argue that publishing

in research journals prevents in-depth examination because of space restrictions. In the interpretive tradition, the most appropriate method for conducting empirical research is the in-depth case study, which allows for a comprehensive approach to the historical and longitudinal analysis of complex phenomena (Montealegre 1995). The interpretive researcher attempts to derive his or her constructs from the field using ethnographic methods, and the categories and themes that emerge out of this approach are intended to closely couple those relevant to the study's participants (Orlikowski and Baroudi 1991, p. 14). Because of the commitment to a processual view of phenomena, critical studies also tend to be longitudinal. The research methods of choice in critical studies are long-term historical studies and ethnographic studies of organizational processes and structures (Orlikowski and Baroudi 1991, p. 20). Social constructivism relies on theoretically informed empiricism and a sensitive methodology. This is particularly important, as there may be a code of silence or political tensions, which prohibit discussions about failures (Nulden 1996, p. 69).

Fieldwork at SNCF (Société Nationale des Chemins de Fer Français) to investigate this case study began in 1994, six months after the problematic introduction of *Socrate*, and lasted 18 months. Research access was relatively easy and the timing was judicious: access immediately after the events (summer 1993) would certainly have been refused as SNCF was greatly exposed to media scrutiny for several months and a climate of blame prevailed. I was also not seen as threatening, a French academic living in the UK, and most interviewees were very willing to talk at length to someone they perceived to be an outsider. In fact, they appeared to welcome an opportunity to re-examine events six months later, and many interviews lasted three to four hours. I was also given liberal access to internal files and documentation covering the initiation and development of the *Socrate* project, starting from 1989. Primary methods resulted in approximately 25 hours of audio-taped in-depth individual and group interviews. Several of the original members of the *Socrate* executive team were interviewed, as well as SNCF senior managers, yield management experts, marketing, human relations and training managers, SNCF sales staff, railway union representatives, passengers' associations, CRS experts, and travel agents. Tapes were transcribed and analyzed qualitatively. Secondary sources included press reports, internal SNCF memos and documents, government and audit reports, technical documentation (pricing, ticketing, training manuals, software), and unions' and consultants' reports. The next section can only describe the events surrounding the introduction of the new system extremely succinctly.

4. THE CASE STUDY

SNCF introduced *Socrate* (Système Offrant à la Clientèle des Réservations d'Affaires et de Tourisme en Europe), a computerized reservation system in April 1993. SNCF bought *Sabre* from American Airlines in 1989 in order to build *Socrate*. One of its aims was to transform its commercial activities through the instigation of a new philosophy of selling, based on a technological investment importing techniques used in the airline industry. When introduced, *Socrate* provoked nation-wide strikes and attracted massive negative media coverage. The number and type of problems encountered were rather spectacular: problems in its analysis and design, development and implementation, consultation, ergonomics, training, linked to a highly controversial commercial strategy and to communication blunders (Naulleau 1993).

The aim of SNCF was to reposition the enterprise in a new European competitive environment and gain strategic advantage (Bentegeat 1991). The initiators of the project emphasized the importance of a policy for maximizing revenue and yield management was seen as the ideal solution (Bromberger 1993). *Sabre* was a classic example of an information system claimed to have provided competitive advantage to a major air company (Hopper 1990).

When first implemented, however, SNCF staff and customers rejected this new technical tool and its underlying ticketing, pricing, and selling policies. These implementation problems were widely reported and examined by SNCF itself (SNCF 1993a, 1993b); by French trade unions (CGT et al. 1994; FO 1994); business consultants (APST 1991; Causa Rerum 1993), by passengers' associations (FNAUT 1993), by the French government, which commissioned a public inquiry into its implementation failure (Cuq and Bussereau 1994; Moissonnier 1993), and by the media (Faujas 1993b; Henno 1993; Pénicault and Riche 1993). Technical malfunctions, political pressure, poor management, unions, and user resistance led to an inadequate and to some extent chaotic implementation (Eglizeau et al. 1996; Mitev 1996). Staff training was inadequate and did not prepare salespeople to face tariff inconsistencies and ticketing problems. The user interface was designed using the airline's logic and was not user-friendly. The new ticket proved unacceptable to customers. Public relations failed to prepare the public for such a dramatic change. The inadequate database information on timetable and routes of trains, inaccurate fare information, and unavailability of ticket exchange capabilities caused major problems for the SNCF sales force and customers alike. Impossible reservations on some trains, inappropriate prices and wrong train connections led to large queues of irate customers in all major stations. Booked tickets were for non-existent trains while other trains ran empty, railway unions went on strike (Devillechabrolle 1993), and passengers' associations sued SNCF (D'Aufresnes 1993; Faujas 1993a).

These events (e.g., Christie 1993; Dutertre 1993; Langley 1993; Maleysson 1993), showed that such a project contributed to the upheaval of the French railways scene, which had been relatively unchanged, particularly regarding the services on offer and the

passengers' practices. The new ticketing and pricing policies introduced through *Socrate* radically changed railway users' and rail workers' practices, which were grounded in important cultural dimensions of French society. *Socrate* began to indicate a new phase of forced global innovation in an enterprise facing strategic imperatives. The competitive environment became that of European integration, which opened the area of transport to deregulatory moves and to the growth of competition across transport modes (rail, air, and road).

5. ANALYSIS

5.1 Technology, Organizations, and Social Structures

An interpretive, emergent, and process perspective and a mixing of levels of analysis (Markus and Robey 1988) made it possible to investigate relationships between technology, the organizational level, the micro level (individuals and groups), and the macro level (culture, politics, economics, market) as follows:

- Between **technology and market**: the *Socrate* technical problems were found to relate to the more complex nature of rail market operations when compared to air transport markets.

- Between **organization and economics:** the economics of U.S. and European air and rail transport differ in terms of intermodal and intra modal as well as national and pan-European competition, and liberalization measures vary among European states.

- Between **organization, politics, and individuals:** politics was an important element in the passengers' opposition to pricing policies, interpreted as forcing them onto the more expensive high-speed trains to the detriment of regional lines, and leading to the desertion of peripheral zones. Other related political issues are pollution, fair competition, infrastructure, social costs, and equality of access to transport.

- Between **culture and technology:** cultural aspects were apparent in the view that the national rail network would be weakened if split and that deregulation ignores the cultural and public service differences between countries. Cultural issues also became evident when comparing the *Socrate* project with a previous technological innovation, the high-speed trains. Both technological innovations relate to notions of national identity, modernism, and progress.

- Between **technology and organization:** organizational changes in power relations and in the relative importance of certain professional groups in the organization (shift from engineers to marketing and computing staff), deskilling and work intensification were seen to be related to *Socrate*.

One major finding was that in transferring a technical solution (CRS and yield management) from one context to another, SNCF was drastically underestimating the difficulties. Technical solutions are not neutral, they carry with them assumptions about the context, and they interact with contexts. The next section details how translations between groups of actors were attempted and failed.

5.2 Translations

The concept of translation from one set of interpretations and enrolments to the next is used to build a series of translations, the first being a **strategic** one. One of the reasons SNCF management gave for the purchase of *Sabre* was first a technical need to increase capacity. This assumed passenger traffic would increase but this was eventually criticized as an unfounded justification for the project. *Sabre* was the only technology available at the time that could cope with the predicted numbers of reservations. The perception of this system as providing strategic advantage greatly influenced SNCF top management's thinking. In 1991, with 85,000 terminals in travel agencies in 47 countries providing access to fares and schedules for 665 airlines, *Sabre* accounted for about 85% of American Airlines' earnings (Copeland 1991). One crucial element of this advantage is electronic control over global distribution channels (Schulz 1992). With transport deregulation looming in Europe, emulating American Airlines' competitive positioning through the ownership of a sophisticated CRS was very attractive.

This relates to macro issues and the second, **political**, translation links socio-economic conditions to organizational analysis and individual and group action. The *Socrate* project team was able to convince SNCF that this type of strategic advantage could increase revenues on profitable lines. An important macro-perspective that was used as a justification was how the French rail

industry was evolving from a public monopoly situation to one of increased intermodal competition and deregulation of European transport. However, the necessary modifications to turn *Sabre* into a French rail CRS and the controversial use of yield management and optimization techniques exposed the difficulties in translating strategic concerns from air to rail. Differences between U.S. air and European rail transport deregulation highlight the social and economic conflicts between competition, co-operation and complementarity in intermodal and intra modal transport (Mitev 1997). The transferability of the deregulation model from the U.S. to Europe, and from air to rail became controversial. The role CRS are claimed to have played in the restructuring and deregulation of the U.S. airline market was a threat in the French rail context. The translation from air to rail CRS, therefore, reflects a certain political reading of environmental changes and construes the technology as an independent agent capable of intervening in this environment.

The third, **commercial**, translation attempts to change passengers into customers. New commercial techniques to manage passenger travel and differentiated pricing were made possible by yield management software. These systems were associated with a new marketing culture, which implied an unwelcome change in buying and traveling patterns (the basic unit of francs per kilometer was replaced by complex and obscure pricing). This is a failed translation for passengers, who interpreted the technology as facilitating demand control and price discrimination and associated *Socrate* to making more money out of high-speed trains. Passengers had to become "clients" and "customers" who are expected to behave rationally and adapt their choice of route, time of travel, and type of train to what the system offers. They also had to alter their buying behavior by booking as early as possible. This in effect shifts the burden and the responsibility of the commercial transaction onto the customers, mediated and driven through the use of technology.

CRS and yield management techniques can also become a management tool for maximizing profitability through market segmentation. This erodes cross subsidizing between profitable and unprofitable lines. The CRS became associated with a contentious effort to change the company ethos so as to make it more accountable, business-like, and marketing-driven. The fourth translation is, therefore, **organizational** and concerns management, technical and sales staff. *Socrate* came to symbolize the maximization of profits, the implementation of productivity gains, the reduction of over-capacity, and the streamlining of unprofitable lines. The technology was seen as representing a change in the organizational culture, away from a public service ethos, leading to tensions and clashes. Sales jobs became heavily standardized and monitored through a complex computer interface; it encapsulates a new, intricate pricing knowledge, making it inaccessible to sales staff, who are merely transmitting to the customer what the machine has decided. Many resisted their new selling and marketing roles.

Finally, the fifth translation is about **market restructuring**. CRS are intertwined with organizational, industrial, and market changes in terms of infrastructures, operations and transport planning. The marketability of specific route segments is supported by the information systems in place; different organizational forms are emerging within SNCF and in the European rail transport industry. Infrastructure costs and train operations are accounted for separately. It is thus possible to link profit and cost information much more precisely and accurately for each route segment and for each individual train, through the accumulation of customer and market data. However, even when supported by the technology, the transformation and restructuring of this market sector is not a smooth exercise and is still heavily disputed (Ross 1998; Van de Velde 1999).

5.3 Power Relationships

Yield management techniques combine differentiated pricing, profit maximization, and quota management. They work out the ideal point at which a customer who does not get a discounted fare either transfers to a higher fare or to another train. They raise many questions and encapsulate power relationships. Market segmentation and price differentiation are technically and politically difficult to implement in railways. The traveling public is large and complex and these techniques can misfire and lead to a mixing of segments and a failure to distribute demand more evenly. More demand-based discounting, differentiated pricing, and restricted discounts are closely related to a belief in the elimination of regulations; the latter are seen as restraining otherwise "freely" competing businesses and political considerations are seen as a major obstacle to the neutral use of yield management.

Transport is being redefined as a service industry amenable to marketing and business "natural" principles. Consumer rights and customer protection legislation are perceived as obstacles to yield management applications (Boella 1997, p. 41). Customers are seen as resistant to over booking; they complain about the lack of transparency in pricing; they are unhappy about "bait and switch" tactics, whereby a company aggressively advertises very low prices but in fact has very little inventory available at that price; they object to "gouging," where the prices are so high that they are regarded as unfair (Arthur Andersen 1997, p. 24).

This reflects a fundamental conflict between sellers, who want the flexibility of pricing according to yield management principles, and buyers, who want stability and predictability of prices and delivery. There is a movement of countervailing forces as the buyers and sellers each seek to obtain market power in their relationships. Bell and Kaven (1997, p. 93) argue that:

> Yield management is not based upon market power equilibrium, but on an inequality between large sellers and small or independent buyers who can be induced to buy when business is soft or forced to buy a higher price when business is good. Yield management application is only really useful against the price powerless.

Taking a non-essentialist stance, it can be said that the technical (yield management) is totally intertwined with the social (pricing); and from a critical perspective, we can also see here obvious power relations. Some essentialist IS writers, for instance Adam and Cahen (1997, p. 20) argued that: "*Socrate* is not questioned as a technological device, but on the strategic field....It is the commercial policy that *Socrate* was carrying out that was the heart of the problem [not *Socrate* itself]." This convenient split between the technical and the social isolates and exonerates the technology. By contrast, a representative of passengers' associations remarked in one of my interviews that: "*Once they [SNCF] had invested in this marvelous new thing, it had to be used. They say it simplifies matters, but as soon as you do things with such a tool, everything becomes more complicated....Some things could not be done before, it is not neutral.*"

The choice of *Socrate* as a strategy for SNCF was the expression, the translation, of a particular reading of the social, economic, technical, and political environment, and corresponded to the development of a new actor-network as a techno-commercial solution to the problems faced by SNCF. Top executives were convinced by the logic of this translation, and yield management came to represent the means of achieving that strategic vision. However, yield management is not just a technical tool and is associated with power relationships such as pricing. Subsequent translations and the extension of the actor-network to staff and passengers, therefore, became problematic.

6. IMPLICATIONS AND CONTRIBUTIONS

Using a non-essentialist perspective helps avoid social or technological deterministic explanations and prevents focusing only on either the micro or macro level. As a constructivist theory, actor-network theory is, as claimed by Monteiro and Hanseth (1996), effective for describing how technical design solutions are interwoven with organizational issues and as claimed by Walsham (1997), a good contribution to building an empirical base. It can also be complemented with some critical analysis of power and political relations. The theoretical framework chosen here envisages politics as an inescapable feature of local organizational life. It is important to conceive of local sites as part and parcel of global relations. Organizations both reflect and reproduce the major social inequalities in society (Knights et al. 1997).

The sociology of translation proved productive in this case study to analyze how translations failed (through contradictory interpretations). Similarly to Silva et al. (1997), it was found that in utilizing actor-network theory to analyze IS implementation in organizations, the role of "external factors" such as economic crisis, deregulation, and IT-supported managerial principles must not be underestimated. "The activity generated and reproduced through managers...is rooted in market relations" (Knights and Murray 1997, p. 41). Organizational uncertainties are reproduced through markets and this leads to tensions between individual and collective goals. In our case study, the changing nature and perception of transport markets, in particular the issue of co-operation versus competition, are good examples of this, as indicated in the strategic translation.

It is believed here that macro-structures do not control micro-events and that social processes exhibit chains of intended and unintended outcomes, which it is argued explain failures. Some human perspectives win over others in the construction of technologies and truths, some human actors go along with the will of other actors, and some humans resist being enrolled, in an unpredictable manner.

As Walsham (1997, p. 469) points out, "actor-network theory is both a theory and methodology combined." Walsham further observes (p. 476) that actor-network theory studies produce a veritable mass of detail which often lead to book-length outputs—for example Latour's (1996) monograph on *Aramis*, mentioned earlier, and also Vaughan's (1996) and Drummond's (1996) books, which are typical of in-depth sociological case studies. Walsham (1997) estimates that IS research is lacking in this type of research-based books and that studies based on actor-network theory could offer a contribution. However, they are extremely labor-intensive and time-consuming to produce.

In this case study, the analysis is complex since it involves many groups and many levels. It encompasses a cross-cultural (from the U.S. to Europe) and cross-sectorial (from air to rail transport) transfer of an information system, as well as an attempt to transform associated management discourses, commercial practices, economic models, strategic goals, political perspectives, sectorial markets, and structures. A series of complex "translations" takes place in the transfer of the deregulated model from the U.S. to Europe and from the air to the rail sector. The project goes through translations in order to proceed. It succeeds not because it is inherently better than the alternatives, nor because it is the "right" answer to the problem being faced, but rather because it is adopted by other actors to serve their purposes. Instead of understanding IS projects as proceeding "normally" unless they are actively stopped (and hence "fail"), projects are seen as not proceeding unless actors make them happen. Each actor "translates" the project and takes it in a specific direction according to his/her context, or fails to do so as the case may be.

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