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# Unearthing Some Causes of BPR Failure: An Actor-Network Theory Perspective

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## Abstract

In this paper, we use concepts from the Actor-Network theory (ANT) to interpret the sequence of events that led to BPR failure at TELECO, a large telecommunications company in the US. Through our intensive examination of the BPR initiative at TELECO, we find that a number of factors suggested by the ANT perspective such as errors in problematization, parallel translation, betrayal, and irreversible inscription of interests (that later became irrelevant) contributed significantly to the failure. The larger implication of our study is that, for sociotechnical phenomena with significant political component (such as most BPR initiatives), ANT can provide a complementary set of concepts that allow for a richer understanding of complexities involved, and thereby help management make better diagnosis and interventions.

## Introduction

Business Process Reengineering (BPR) has gained significant popularity among practitioners since the early 1990s; however, the promises of BPR have not always been realized, and about 50% BPR initiatives are believed to have failed (Hammer, 1995). Political processes have been viewed as one of the potentially critical causes for many of these failures; yet, the BPR literature, and subsequently ERP literature (in which BPR concepts have been appropriated), has remained largely "atheoretical" (Guha et al., 1997) with no serious theoretical approach being applied to understand why and how political processes contribute to failure, and how to manage these processes. This paper presents a preliminary interpretation of a real case study of BPR failure using the concepts of Actor-Network theory (ANT), a perspective, which provides a useful analytical framework for studying political processes within a sociotechnical context. The paper has two objectives: first, it presents a new theoretical perspective, and illustrates some of the concepts associated with the perspective using data from an actual case study; and second, it suggests some implications/insights that are not readily apparent through atheoretical common-sense interpretation that characterizes much of the BPR literature.

The paper is structured as follows. In the first section, a brief overview of ANT concepts used in this analysis is provided. A summary of the methodology and the case

narrative is presented in the second section. The third section offers a re-interpretation of the case study from the ANT perspective, with the implications presented in the final section.

## Actor-Network Theory: An Overview of Some Important Concepts

Actor network theory (ANT), first proposed by Michel Callon and Bruno Latour in the early 1980s (Callon and Latour, 1981; Callon, 1986), and later extended and enriched by the original authors and other researchers, provides a novel sociotechnical approach for understanding the creation of networks of aligned interests. In one of the earliest works on actor-network theory, Callon and Latour (1981) outline how micro-actors (individuals) form alliances and enroll other actors, and use artifacts to strengthen such alliances and to secure their interests, thus creating networks made of humans and artifacts. Interestingly, these networks have been found to themselves act as if they were independent autonomous actors; hence these networks are referred to as "actor-networks." In the field of Information Systems, ANT has been recognized as having immense potential for understanding the complex social interactions associated with IT (Walsham, 1997), and has specifically been used to interpret the political process of systems implementation (e.g., Walsham and Sahay, 1999).

While ANT is based on a large number of concepts, we will introduce only a subset of these concepts in this paper that we find most pertinent to the analysis of the case study. We summarize our discussion of the concepts in Table 1.

*Actor*, which may be human or non-human, is one of the central constructs of the actor-network theory. Callon and Latour describe it as "any element which bends space around itself, makes other elements dependent upon itself and translate their will into the language of its own" (Callon and Latour, 1981, p.286). Common examples of actors include humans, collectivities of humans, texts, graphical representations, and technical artifacts. Actors, all of which have interests, try to convince other actors so as to create an alignment of the other actors' interests with their own interests. This process of convincing, when effective, results in the creation of an actor-network -- a heterogeneous network of aligned interests.

The creation of an actor-network, also referred to as *translation*, is described by Callon (1986). This process consists of three major stages: *problematization*, *interessement*, and *enrolment*. The process of translation is meaningful when viewed from the perspective of a chosen actor. In other words, if we assume that there are a number of actors in an organization, each of the different actors may be involved in different processes of translation, which are likely to have different characteristics and outcomes. It is necessary, for the purpose of clarity, to pick a *focal actor*, from whose vantage point we wish to see the process of translation.

*Problematization* is the first moment of translation during which a focal actor defines identities and interests of other actors that are consistent with its own interests, and establishes itself as an obligatory passage point (OPP), thus “rendering itself indispensable”(Callon, 1986, p.204). Broadly, OPP refers to a situation or process that has to occur in order for all the actors to satisfy their interests that have been attributed to them by the focal actor. It is useful to note that while OPP lies in the direct path of the focal actor, other actors have to overcome some obstacles in order to pass through the OPP.

The second moment of translation is referred to as *interessement*, and this involves convincing other actors that the interests defined by the focal actor are in fact their (the other actors’) interests, and creating incentives for actors such that they are willing to overcome obstacles in the way of passing through the OPP. If *interessement* is successful, the *enrollment* occurs. Enrollment involves a definition of roles of each of the actors in the newly created actor-network.

While the process of translation often involves negotiations among the actors, actors do not always participate in such negotiations themselves. In many cases they send *speakers* or *representatives*, or else speakers/representatives choose to speak on behalf of actors. For example, a computer engineer can speak on behalf of computers, and a user representative on a steering committee can speak on behalf of all the users. It does not mean, however, that actors will always abide by the agreements (translations) achieved by their representatives. In many cases, actors betray their representatives: a computer does not work according to what the engineer predicted, and users do not accept technology which was deemed acceptable by their representative. This phenomenon is referred to as *betrayal*.

The process of *inscription* is critical to building networks, because once an agreement between actors is achieved, it needs to be committed to the shared memory of the social system (i.e., "stabilized"). Strategies for

inscription (in the context of computing) include creation of texts (e.g. software manual), or technical artifacts (e.g. password protection on the e-mail account). Most artifacts within a social system are inscriptions of some interests, and they prescribe a program of action for other actors, which the latter may or may not follow. The process of inscription and associated processes of prescription, subscription, description, etc., are described in great detail in the ANT literature (e.g., Latour, 1992).

*Irreversibility* is an important concept, which concerns the stability of translations, that is the possibility that translations can change over time. Irreversibility refers to the degree to which it is subsequently impossible to go back to a point where alternative possibilities exist. Irreversibility is often achieved by inscribing interests into technological artifacts, and by enrolling a large number of actors into a network. The concepts discussed are summarized in Table 1 below.

Table 1. Definitions of some central concepts of ANT

Concepts	Definition
Actor	“Any element which bends space around itself, makes other element dependent upon itself and translates their will into the language of its own” (Callon and Latour, 1981).
Actor-network	“Heterogeneous network of aligned interests” (Callon and Latour, 1981).
Problematization	The first moment of translation during which a focal actor defines identities and interests of other actors that are consistent with its own interests, and establishes itself as an obligatory passage point (OPP), thus rendering itself indispensable (Callon, 1986).
Obligatory Passage Point	A situation that has to occur for all of the actors to be able to achieve their interests, as defined by the focal actor (Callon, 1986).
Interessement	A process of convincing actors to accept definition of the focal actor (Callon, 1986).
Enrollment	A situation when actors accept interests defined for them by the focal actor (Callon, 1986).
Inscription	A process of creation of technical artifacts that would ensure the protection of certain interests (Latour, 1992).
Speaker/Representative	An actor that speaks on behalf of other actors (Callon, 1986).
Betrayal	A situation when actors do not abide by the agreements (translations) achieved by their representatives (Callon, 1986).
Irreversibility	Degree to which it is subsequently impossible to return to a point where alternative possibilities exist (Walsham, 1997)

## The Case Study

### Methodology

We used the interpretive case study methodology (Walsham, 1995) to guide the collection and analysis of data. Adopting a social constructivist perspective, we

<sup>1</sup> Noting that an actor may be human or non-human, we use "it" rather than "it/him/her" for the sake of convenience.

used the concepts for ANT for developing the theoretical sensitivity that would allow us to view the large volumes of data in a certain manner, and make sense of it. Data collection included obtaining documentary evidence such as letters, memos, reports, and e-mail, and conducting multiple structured as well as unstructured interviews with 6 organizational members at different levels and departments who had participated in (or had been affected by) the BPR initiative to different extents. The interviews were conducted in great depth, and typically lasted between one and two hours. All interviews were fully taped and transcribed.

### ***A brief narrative of the case***

TELECO is an independent telecommunications company based in a prominent city in the Midwest region of the US, employing approximately 3500 employees. In early 1993, in response to the growing concerns regarding inevitable changes in the organization's external environment wherein TELECO would be forced to compete with utilities, cable companies and long-distance carriers for a large portion of its business, the President of the company, along with the VPs, initiated a reengineering initiative by hiring a reputed consulting firm, and then assembling a reengineering team consisting of 25 members from different parts of TELECO.

The reengineering team studied the organization for several months and came up with an elaborate redesign. The redesign, developed using computerized tools such as Visio and Microsoft Project, consisted of process maps (before and after) along with detailed descriptions, human resource specifications, technology specifications, and detailed schedules for employee layoffs and IT implementation.

The implementation was a disaster with employees being laid off even before the information systems that were to substitute the employees were actually implemented. In addition the attractive "retirement package" negotiated by the union and management to gain the support of employees for BPR, prompted many employees to take voluntary retirement, and join a competing company. During this time, the customer service suffered, and TELECO almost went out of business. For further details regarding the TELECO BPR initiative, please see Sarker and Lee (1999).

### **An Interpretation of TELECO's BPR Initiative Using the ANT Perspective**

#### ***Creation of the network***

In this section, we describe the BPR initiative at TELECO as a process of creation, maintenance, and gradual expansion of actor-networks. The need for BPR was initially proposed by TELECO's top management; therefore, we will start our analysis with identification of the top management as the focal actor. We will assume

that improvement of the competitive position of the company to ensure its financial viability is the major interest pursued by the focal actor. Here it is important to differentiate the interest of the top management (comprised of senior executives) as a collective actor (referred to as "top management") from the interests of individual senior executives (referred to as "senior executives"), and we will refer to this difference later in this section. We now trace the stages of actor-network creation (Callon, 1986) in the context of BPR at TELECO.

*Problematization-- Identification of Actors:* From the point of view of the top management (the focal actor), the following actors' interests had to be aligned to their (i.e. top management's) interests: consulting team, employees, re-engineering team, information technology, BPR tools, IT team, and the union. Interests, as defined by the top management for some key actors, are presented in Table 2. Interestingly, the top management did not recognize senior executives as a separate actor; it assumed that interests of senior executives were already aligned with those of top management. While such alignment of interests existed before BPR initiation, it was disturbed due to dynamically changing interests once BPR started at TELECO.

Another interesting aspect of this situation is that one of the actors, the re-engineering team, was in fact created in order to enable BPR, and to reinforce the network. This is the process similar to the inscription process described by Latour (1992), only the interests were inscribed not in a technical artifact, but into a social body. Thus, by the nature of its creation, the interests of the re-engineering team were aligned with the interests of the top management. However, once other actors, such as employees and the top management accepted the role of the re-engineering team (similar to the dissemination of technology), the re-engineering team gained properties of irreversibility and became an actor able and willing to define and change environment around it.

*Problematization -- Determination of the OPP:* BPR was defined as the OPP for this network. If employees wanted to retain their long-term financial well-being, if the consultants wanted to receive monetary reward and maintain their reputation, if the re-engineering team wanted to be able to gain valuable experience and to receive recognition, if the IT team wanted to improve its effectiveness in managing technology, if the BPR tools wanted to maintain their reputation of being useful, and if process-enabling technology wanted to be employed at TELECO in the future, they all had to cooperate in the BPR process. To cooperate, each actor had to deviate from its direct path in order to overcome "obstacles." For example, employees had to subject themselves to the uncertainties of BPR, and the reengineering team had to put in many extra hours to learn unknown methodologies and tools. Also, re-engineering team members had to

alienate many former friends and colleagues whose jobs they had to eliminate as a part of BPR.

*Interessement.* After determination of the OPP, the top management faced the task of convincing such actors as employees, consultants, re-engineering team, IT team, BPR tools, and current IT to agree to the interests defined for them by the top management, to deviate from their direct path and to pass through the OPP, defined as BPR. Table 2 summarizes obstacles that needed to be overcome by some of the actors and interessement mechanisms used by the top management in order to convince each of the actors to go through the OPP. It is necessary to note that senior executives were not recognized as an actor by the top management, and were thus excluded at the interessement stage.

*Inscription and creation of new actors.* In the process of creation of the actor-network, a number of texts and graphical representations were created that had the interests of the top management inscribed in them. Once approved by the top management and circulated among employees, these texts and technical artifacts gained properties of irreversibility. One example of such text is the lay-off schedule that was created at the stage of BPR planning, and that was not revised even after it was obvious that the assumptions made during the creation of the plans/schedule were no longer valid.

*Enrollment.* Did the top management achieve enrollment of the actors? In order to answer this question, we note that the main interest behind the BPR network was the improvement of the TELECO's effectiveness and competitive position through the implementation of streamlined business processes and by enabling cross-functional coordination in the organization. BPR failed to achieve these results. Thus, the top management was unsuccessful in creation of a network to achieve its primary interest.

### ***Failure of BPR: Implications of the analysis using the ANT perspective.***

In this section, we consider some of the factors that prevented the top management from achievement of successful enrollment. These factors fall into four broad categories: errors at the problematization stage, existence of parallel translation processes, betrayal of representatives by the actors they represent, and irreversible inscription of interests that had become irrelevant.

*Errors at the problematization stage:* At the problematization stage, the top management failed to recognize the existence and significance of an important actor – senior executives, assuming that senior executives' interests coincided with those of top management. Because of this, senior executives were excluded from the interessement process, and no effort was made to align their interests with those of the top management. This led

to senior-executives defining not only their own interests, but also interests of other actors, including re-engineering team. For example, the redesigns presented by the reengineering team were not approved if any of the senior executives were likely to be displaced due to the implementation of the redesign.

Table 2. Sample Actors, their interests as defined by the top management, along with obstacles and interessement mechanisms used

Actor	Interests defined by the BPR Initiator	Obstacles on the way to the OPP	Interessement mechanisms used
Top management	To improve effectiveness of the company	None	
Consultants	To receive monetary reward and a good recommendation from a client.	To "fit" known methodologies to the client's situation	Monetary rewards and the assurance of full cooperation and top management backing during the BPR process.
Senior executives*	Not defined..	BPR threatens job security of senior executives by eliminating functions and processes.	None
Employees	To achieve professional success in the long-run.  To work for a successful company.  To improve their effectiveness.	BPR threatens job security due to the re-definition of roles. BPR requires employees to learn new skills and to adjust to new processes.	Creation of an early retirement plan.
Union	To represent employees' interests.	Short-term employees' interests are not taken into account in the BPR.	Negotiation with the Union and attempts to convince it that employee's interests are taken into consideration.
Re-engineering team	To design effective processes	Pressures from other actors that try to define identity of the re-engineering team.	Isolating re-engineering team from other actors, such as employees.

*Parallel Translation Processes.* As noted by Callon, translation can be considered only from a perspective of a particular actor, since multiple translation processes are going on simultaneously. A number of these translation attempts by different actors were incompatible with each other; as a result, the enrollments desired by different actors were not achieved. The fact that senior executives had interests that were different from those of the top management led the senior executives to initiate their own translation process. During this process senior executives used interestment mechanism of not approving redesigns proposed by reengineering team that were not compatible with their personal interests, although compatible with interests of the top management.

*Betrayal:* This occurs when actors do not act in accordance with the agreement achieved on their behalf by their representatives, and it may lead to a failure of a translation process (Callon, 1986). In order to analyze betrayal in the TELECO BPR case, we first need to identify who represents whom. Two instances of such representation are of interest to us: BPR tools with reengineering team members as their representatives, and employees with union as their representative. BPR tools were first enrolled to facilitate the BPR process, and the agreement of BPR tools to perform this role was expressed by the reengineering team. In the course of use of the BPR tools, it became clear that BPR tools had an interest that was different from the one of facilitating BPR process by supporting the reengineering team's effort. Unexpectedly, the tools' interests came to appear as imposing structure and requiring the creation of "professional documentation" such that the redesigners viewed themselves as being "slaves" of the tools.

Another instance of betrayal is associated with the representation of the employee's interests by the Union. When trying to enroll employees, top management negotiated conditions of such enrollment. According to the agreement achieved between the top management and employees, as represented by the union, employees were expected to support the BPR process if their financial security was guaranteed. However, employees betrayed their representative (the Union), and refused to support BPR initiative by opportunistically taking advantage of early retirement and leaving the company.

*Irreversible inscription of interests that later became irrelevant.* A significant problem in the BPR arose from the irreversibility of artifacts created by the reengineering team. As mentioned earlier, the layoff schedule for employees were developed with the assumption that the enabling technologies would be implemented by that time. Yet, when the layoff dates arrived, the Human Resources department was held accountable to follow the "retirement" schedule, even though it was obvious that without the new technology (which was not expected to be completed for several months), the depleted set of employees would not be able to run operations. Ironically,

the employees who were laid off in accordance with the inscriptions, either joined the competition after receiving an attractive retirement package, or they were hired back at twice their pre-retirement wages after being paid all the retirement benefits.

## Conclusion

Like any IT enabled organizational transformation initiative, a BPR project can be studied using a number of theoretical perspectives, including technological or organizational determinism, social construction of technology perspective, etc.. As argued by Lea et al. (1995), ATN provides a complementary view on IT-enabled organizational change treating it as a reflexive process, in which both technology and social groups mutually construct each other. Also, deep IT-enabled organizational changes (that are associated with most BPR initiatives) are best studied using political power models (Cooper and Zmud, 1990), and ANT is well suited for studying political processes due to its attention to conflicting interests. Therefore, while the analysis presented in this paper is preliminary, we do believe that it is helpful in establishing that the theory used (ANT) can sensitize us to understand the process of BPR in an alternate way. This theoretical sensitivity, we feel, can help help practitioners diagnose or avoid potential political pitfalls arising from the lack of alignment in the social networks.

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