

Risky but Effective Improvisations in Managing Information Systems

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ABSTRACT

The purpose of this paper is to suggest a set of guidelines for the outsourcing of information systems services in health organizations. The paper shows that the outsourcing of the development of information systems is an option for hospitals in developing countries. It is emphasized that managers and information systems professionals working for these public organizations should bear in mind that what is important is to define the content, extent and length of the outsourced services. This paper offers a new angle, since it is often the case that hospital information systems in developing countries are either bought overseas or developed in house.

The guidelines presented in this paper are derived from a case study conducted in the Ministry of Health of Guatemala. The guidelines originated from discussions among national authorities and national experts on how to manage the introduction of information technology and information systems to support the management of the hospitals. The paper concerns how the authorities and managers of the two major hospitals in the country decided to outsource key components of the information infrastructure and information systems of their hospitals. The paper also highlights the role of international agencies in funding the initiatives.

The guidelines suggest that in outsourcing information services in a context similar to that of the case study, it is crucial to keep a balance between what type of expertise and knowledge the hospitals are willing to outsource and which areas of expertise should be kept in house. The challenge here is to match the ideal with what is feasible; this is the case particularly when the information technology comes from loans provided by international agencies. This means that when the period of the loan finishes, hospitals will need to take financial responsibility over the information systems. Hence the relevance for the hospitals to incorporate, along with outsourcing initiatives, sound financial and human resources strategies. The paper discusses how the hospitals under study tackled this issue. Other findings point out the need of including users and authorities of the hospitals in the design and identification of information requirements. The design of the new systems should not entail a radical change in the way people perform their jobs. Our analysis of the case study hints that the closer the design of the information system is to the current work practices the higher the likelihood that the users will accept the system. Changes in work practices may be gradually introduced after the system has been implemented.

1. INTRODUCTION

This research concentrates on the difficulties experienced by the Ministry of Health of Guatemala in solving administrative problems in the two main hospitals of the country. Among the strategies to solve those administrative deficiencies was the implementation of computerized information systems. Given the context of the country, the Ministry of Health wanted to establish an appropriate management information systems strategy. For the implementation of the information systems, the authorities of the Ministry had to decide among different options: developing on-site solutions,

buying off the shelf packages or outsourcing the systems. Each one of these options implied other types of decisions, modalities and lines of action. For example, if the decision were to buy off the shelf solutions, then questions about the requirements and adaptations to the packages have to be answered as well as particular ways of implementing the system. This research shows how the decision to outsource the services was the result of improvising an appropriate answer to an uncertain context; the decision to outsource was, we argue, an act of improvisation.

2. RESEARCH APPROACH

The research reported in this paper began in 1998 and, as it was suggested above, it was conducted in the Ministry of Health of Guatemala. The research approach was a qualitative case study as it provides a close examination of the relations among discourse, actors' intentions and actions (Denzin and Lincoln 1994; Denzin 1994). The examination of the relations among those factors was a necessary condition for achieving the main purpose of this paper: the analysis of the process and the context that lead the organization under study to opt for the outsourcing of its information systems. To understand both process and context it was necessary to register and to interpret the explanations that the different stakeholders gave to their actions. Hence our decision to adopt a qualitative research method such as the case study (Yin 1993, 1994).

Naturally, the research techniques adopted for conducting this research were qualitative namely interviews, observations and document examinations. The author registered more than eighty-two interviews throughout the timeline of the research project. The interviews were unstructured and had an average duration of one hour and thirty minutes. The interviews were not taped as the themes and contents were sensitive for the subjects. Instead, notes were taken and immediately after the interview these were registered in transcripts. This procedure has the disadvantage of not being completely faithful to the exact words used by the interviewees. However, it gave us the chance to make them feel more comfortable when giving accounts and interpretations of their actions. Among the interviewees were the Vice Minister in charge of the hospitals, the directors of the hospitals, as well as personnel in charge of operations.

The researcher was allowed to participate in a total of twenty-seven meetings. The majority of the meetings were about defining the information systems requirements and presentations of preliminary results of the analysts' teams to the authorities of the Ministry. During these meetings, he took notes about the conduct and language of the participants as well as the characteristics of the location. These notes were fundamental not only for the task of reconstructing the context in the interpretive stage of the research, but also provided the researcher with an opportunity to understand the "form of life" (Wittgenstein 1968) of the organization under study, in this case the Ministry of Health of Guatemala. Immediately after the meeting the researcher typed the transcripts of the meetings.

The researcher was authorized to access documents and internal communications. The examination of documents was critical to identify and clarify the official positions of the different parties involved with the information systems. The content of the documents was then contrasted with our interpretations of what people said during the interviews and during the meetings. The contrast provided by three different sources of data was indispensable in the interpretation process of the research. The researcher had the chance to examine fifty-three documents. Those were mainly internal communications such as memos and letters. In addition he was allowed to study the communications exchanged between authorities of the Ministry and the company hired to develop

the information systems. Besides, the researcher had the opportunity to examine plans and proposals regarding the early stages of the systems. Those were valuable in reconstructing the history and antecedents of the information systems.

3. THE NATIONAL AND ORGANISATIONAL CONTEXT

With a population of ten million inhabitants, Guatemala is the most populated country of Central America. Guatemala has been a democratic republic since its independence from Spain in 1821, however in the 20th century there have been only five free elections, two in the mid century and the latest three since 1986. During the cold war Guatemala was ruled by a military dictatorship sponsored mainly by the USA (Gleijeses, 1991). Resistance to this regime was organized by a group of rebels supported by the Soviet block that fought a guerrilla war against the government. The conflict lasted for thirty-six years from 1962 to 1996. Throughout the civil war the Ministry of Defence took the largest amount of money of the national budget, relegating the ministries of health education to a secondary role (Aguilera and Sojo, 1991).

The end of the cold war facilitated the end of the civil war. The Guatemalan peace accords were signed the 28th of December 1996. As the result of these peace accords, the Guatemalan government, elected democratically in 1996, agreed to reduce the Military budget and to allocate the funds to health and education. Likewise, international agencies of cooperation, mainly European and North American, also agreed to provide financial support not only for the reconstruction of the country's infrastructure but also to strengthen the democratic institutions in Guatemala that were severely weakened and damaged during the civil war. One of these initiatives is known as the reform of the health sector that is being promoted and financed mainly by the Inter American Development Bank with the agreement and authorization of the Guatemalan Health authorities.

3.1 The Reform of the Health Sector and the Ministry of Health

The objectives of the reform of the health sector in Guatemala were broad and include the extension of the coverage of the services and to establish mechanisms to make the services universal for Guatemalans but at the same time to find ways to make the provision of health services more efficient in financial terms. The Ministry of Health of Guatemala played a vital role in the reform of the health sector. In the new legislature the role of the Ministry of Health is to be the leader of the reform in the health sector. By the time of the research, the Inter-American Development Bank was funding a project called '*Programa para la modernización de los servicios de salud*' (Program for the modernization of health services, henceforth 'PMSS'). The PMSS was funded by the bank and executed by the Ministry of Health. It had three major components: the modernization of the Ministry of Health, the extension of health services coverage and the modernization of the national hospitals. It was within the PMSS initiative that the Ministry of Health of Guatemala undertook the outsourcing of the information systems of its hospitals. In the following section we present the organizational background of the Ministry of Health with emphasis on the information systems function.

3.1.1 Organization of the Ministry

According to the recent legislation on health the Ministry should be organized in a hierarchical manner (Congreso de Guatemala, 1997). There are two vice ministers; one takes care of hospitals while the other looks after primary health care. There are four functions at staff level, public

relations, human resources, legal office, and information systems. There are three main departments finance, epidemiology, and health care services. The latter department comprises two sections that are fundamental in the provision of health care, hospitals and primary health care. For the purposes of this paper we will focus on the organization of the hospitals department and on the function of information systems.

By 1998 there was no formal structure or statement to regulate the information systems function. Instead there were ad-hoc groups formed around the different components of the Ministry. There was a group that looked after the information provided by the primary health care centres in the country. It was this group's responsibility to give an account of the planning and coverage of primary health care. The head of this group was an economist. He provided vital information to the vice Minister responsible for primary health care and eventually the economist was the source of information of the Ministry. This unit orientation was not to support those health posts that provide services as its orientation was to gather information, centralize it and then canalize it to the authorities. One of the heads in the health posts said:

The primary health information system is too centralized and has a total top down approach. For example, we have to fill in more than forty forms each month. In some cases our personnel has to close the clinics to be able to fill in the forms. Moreover, the IS unit never come back to us with information.

This unit did not support other areas of the Ministry either. Consequently, the authorities in charge of the hospitals hired their own personnel and devised their own strategy to support the development of information systems in the Guatemalan hospitals. This was a source of conflict with the IS unit of primary health care that perceived the hiring of new personnel as a threat to its hegemonic control over the Ministry's information.

By 1997, the primary health IS unit was attempting to implement a system in the hospitals. This system was called SIG: *Sistema de Información Gerencial para Hospitales* (Management Information System for Hospitals). This system was developed by an international agency and apparently had the necessary components for supporting the information needs of the Guatemalan hospitals. However, the former head of the hospital information systems unit thought differently:

SIG was a poor system. It was developed with technology of the 80s, specifically Fox Pro for DOS. We did not have the source code. Without the source code it would have been suicidal to implement it in the hospitals. Besides, the system main function was to calculate and register managerial information. However, the hospitals did not have transaction information systems that would feed the system. Thus, without transaction systems, users had to gather information by hand to feed the system. The IS primary health unit did not like it but I decided to dismiss SIG.

Disappointed by the lack of support, the head of the hospital IS unit resigned. It was this event that motivated the integration of the hospital team in 1998. This team was lead by the Vice Minister in charge of the hospitals and integrated by two senior managers and an information systems analyst. As its first step the hospital team decided to proceed with a strategy that would firstly create IT infrastructure, then they would install basic office automation systems accompanied by basic training for the users in the hospitals. That was what they accomplished in 1998. The second stage of the project was to develop the transaction information systems. The following sub section describes the situations faced by the hospital team in deciding about the information systems.

3.2 The Hospital Team and its Intervention

Guatemala would undergo elections in late 1999. This constrained the hospital team scope of actions since they knew that the continuity of the project could not be guaranteed beyond 1999, since the official party may lose the elections and in that case it was very likely that new authorities would come and with them different ideas could be implemented. Thus, the team had to come with a solution that could be implemented quickly before 1999 ended.

Likewise, the team had to decide whether to opt for insourcing or outsourcing the systems development. The idea of insourcing was exactly what the primary health care IS unit did. However, this was not a successful story, in terms of providing information to the health posts. Furthermore, hiring personnel for developing the system resulted to be a very difficult task. The bureaucracy of the Ministry would process personnel contracts in no less than three months. In addition the contracts were made for a short period of time that was unattractive for many candidates who declined the job offers while others stayed only in the mean time until they could get a safer job. Prior to this situation, the hospital team decided to outsource the development of the transaction information systems of the hospitals.

The hospital team faced resistance from the primary health care IS unit that argued that there was no need to outsource the hospital systems as SIG was available. However, senior authorities in the Ministry supported the hospital team proposal and decided to go ahead with the outsourcing project. This was facilitated by the fact that the hospital's department had its own budget and also had the authorization of the bank to proceed with the project.

Since there were no information systems running in the hospitals, the other relevant decision regarding the outsourcing was whether to outsource the administrative procedures of the hospital or those operations regarding the management of the patients. The administration procedures were those related to the purchasing, inventory and dispatch of medicines and other supplies. It also involved the function of human resources management, accounting and finance. The administration of the hospitals was critical for the authorities of the Ministry, as it was known that corruption in the administration was undermining the budget of the hospitals and could eventually undermine also the reputation of the government. A former director of the biggest hospital in Guatemala City expressed his views of what he found in his organization.

You should have seen this hospital before. It was practically run by the suppliers of medicines. They decided the amount of orders and the type of medicines. The way they operated was by bribing people inside the hospital. Since I arrived we have reduced that and the budget of medicines has been reduced by 50% and still we have not asked for more money.

There was still more to be done in the administrative area. In the area of human resources, for example, the director of the hospitals could not know at a given moment who were on vacation, the number of specialist in one area, and whether the physicians were complying with their responsibilities and assigned schedules. Thus, senior managers in the Ministry along with the authorities of the major hospitals agreed that a computerized information system would help to reduce corruption and it would make the administration of the hospitals more efficient, and eventually have an impact on the patient's perception of the services provided.

The personnel of the hospitals perceived the creation of the hospital team as positive. Particularly, after the team proposed to the hospitals the creation of focal groups so these

organisations could participate in the decisions regarding their information systems, specifically in the analysis and design of their systems. Representatives of the different departments involved in the administration of the hospitals, including the deputy director were the main members of the focal groups. The focal groups were directed by an information systems professional appointed by the hospital team. The groups used to meet weekly to analyse and discuss their working areas and how the group thought a computerized information system would help them in their work.

The strategy for the outsourcing then was formulated. What it would be outsourced was the development of the administrative information systems, involving purchasing, dispatch, accounting, finance and human resources. However, the requirements and system analysis would be done by the hospitals themselves. According to a senior manager in the Ministry of Health this was a conscious decision.

We know that in an outsourcing deal there is always the risk of losing expertise. We are not an IT organization; therefore we did not care about programming skills in the Ministry. We are a health organization and what we need is not programmers but IT professionals, experts in analysing health information systems. That is why we decided to do the analysis and requirements elicitation ourselves.

This way the Ministry of Health of Guatemala carried out the analysis of their administrative procedures and the elicitation of their information requirements. These analysis and elicitations were done by the focal groups. These documents constituted the basis for the tendering process generated by the Ministry of Health and funded by the Bank. These processes also were not free from constraints, especially in terms of funding and time.

One of the difficulties the hospital team found was the strict timeline. As mentioned above there would be elections at the end of December 1999 and after a lengthy bureaucratic procedure to approve the funds and to launch the tendering process, the hospital team found itself in a situation in which the information systems had to be delivered in less than two months. This made some of the possible bidders to step out of the tendering process as they regarded the timeline of the project to increase significantly the risk of the project. Only on the day that the offers were read did the tendering committee realise that only one firm had presented a bid. The bid offered to accomplish the project within the established budget and time frame. This was a relief for the hospital team that practically gambled with the time and budget constraints.

The issue of dependency and sustainability of the project were factors taken into account in the outsourcing strategy. The hospital team were concerned with what would happen in case their political party lost the elections of 1999 and what would happen if the Bank were to withdraw its financial support as a result of the change in government. The proposal made by the hospital team had to do with strengthening the human resources of the hospitals and also had to do with the way the development of the systems would be undertaken. They hired a systems professional for each hospital. The responsibilities of these professionals would be to give support to the infrastructure and to be the leaders of the focal groups during the analysis stage. Later during the development and implementation stage they were part of the programmers team lead by the company that was hired to develop the systems.

Currently the systems, procurement and human resources, are being implemented in the two major hospitals in Guatemala City. Although, is still early to assess the organizational impact, authorities of the Ministry, personnel in the hospitals and international agencies regard the efforts as

successful and remarkable, because of the cost of the systems and the relative short period of time in which the systems were finished.

4. THE OUTSOURCING PROCESS

4.1 Outsourcing

The outsourcing was not an idea that emerged as the result either of calm reflection or as a consequence of following textbooks recipes. For the hospital team the outsourcing was the most feasible of the ideas. It was very clear that the other two options faced by the authorities of the Ministry would not work, those options were adopting a system donated by a health agency or developing the systems in site. The former system was technically inappropriate both in its technology and in its design while the latter was regarded as lengthy in its implementation.

4.1.1 Obtaining Allies

In this outsourcing process the following agents were crucial: the hospital authorities in the Ministry, the Minister, the Bank and the authorities of the Hospital. The hospital team managed to persuade the hospital authorities of the viability of the outsourcing before the contextual situation mentioned above. This was crucial since the hospital authorities ensured the Ministry that the decision to outsource was a sound one. Besides, the hospital team enrol the authorities of the hospitals, directors and middle managers into the outsourcing project. They were enrolled by making them to participate in the decisions about information technology and information systems. One of the directors told us that before the hospital team was integrated, authorities of the Ministry would buy IT or acquire systems without consulting them. That caused the hospital personnel to lose confidence on the central authorities. However, with the new hospital team things were different, members of the focal groups expressed that this time they were talking about their own system, their technology and how to solve their own problems. The bank enrolment occurred smoothly. When they learnt about the hospital team and the new strategy for developing the hospital information systems, they agreed to release the funds and to support the initiative.

4.1.2 The Decision to Outsource

The idea of outsourcing was then considered to be legitimate for the different agents involved, namely the Bank, the Minister of Health, the hospital authorities in the Ministry and senior and middle managers of the hospitals. The key was the invitation the hospital team made to the directors of the hospitals to participate in the discussions and more importantly the participation they had in the decisions. It also helped that the hospital team leader was charismatic and regarded as honest among the hospital personnel.

4.1.3 The System and Working Practices

One key decisions of the outsourcing team in defining the content of the outsourcing was to go first for the administration of the hospital. The idea was to design a transaction process system that would speed up the administration procedures. For example, some purchase orders would take

many weeks to reach the clinics in the hospital. It was thought that a computerized information system would have an impact in reducing those types of delays. In deciding how to approach the analysis of the systems, the hospital team faced two options. One was to undertake an analysis of the systems and then to formulate a proposal to transform the systems to make them more efficient. According to the head of the financial and accounting sections in the Ministry this should have been the approach “How can we design a system that is mapping inefficient procedures”, was the common expression among people in the financial section of the Ministry. For the other option, the hospital team had was to design a system that would map the hospital current administrative procedures. For the deputy director of the largest hospital in Guatemala, the current procedures were not inefficient but it was necessary to check for corruption.

Those people in the Ministry criticize us by saying that our procedures are inefficient because we have so many controls. However, they forget that I, as director of the hospital, am responsible of the purchase, if there is something illegal with the purchases I would be accountable for that. So, if for them our practices are irrational, for me they make a lot of sense.

Thus the decision of the hospital team to leave the work practices of the hospital as they were, resulted in obtaining the support from the hospital directors. The hospital team considered that there were no point in discussing over the current work practices as they were the result of the hospitals problems and their way to solve them.

4.2 Discussion: The Outsourcing Process as Improvisations

Think about a jazz performer, think about an orator in speaker’s corner answering unexpected questions, think of an office worker that when her computer breaks down begins using telephones, faxes and calculators. Those are acts of improvisation. According to Ciborra (1999) in an act of improvisation, action and thinking will emerge together. The reasons why someone acts in an improvised manner are tacit and concealed in people’s backgrounds, that is, the causal relationship in improvisation is blurred at the moment that is occurring.

Although unexpected, an act of improvisation is also purposeful. Ciborra gives as an example a jazz music player who in a way improvises her music, playing without musical score, going beyond the script. However, improvisation does not mean randomness, since the result of the playing would make sense for the listeners. It is the same for improvisations in the workplace, employees running out of paper would write down figures or names on their back of their hands, or would re-arrange production procedures to deal with contingencies. Improvisation then would be emergent, intuitive but purposeful and in many respects effective.

4.2.1 The Outsourcing Responses were Acts of Improvisation

We argue that the hospital team responses of our case study were improvisations as they were unexpected, intuitive, purposeful and effective (see Table 1). The decision to outsource the software of the systems was an improvisation; since it was unexpected given the tradition in the Ministry of Health of either to adopt software developed by an agency or to develop in-site. The decision to take the current hospital administrative systems instead of applying Business Process Re-engineering was an act of improvisation since the discourse in the Ministry of Health was that of making process

efficient. In this sense mapping the current administrative systems was unexpected, though purposeful and effective. What is interesting is that those improvisations noticed in Table 1 can be adopted as a set of guidelines for dealing with outsourcing in similar contexts.

Table 1: Outsourcing as Improvisation

Context/situation	Constraining/enabling	Hospital team Responses
Hospitals and Ministry of Health	<ul style="list-style-type: none"> • Lack of trust towards the Ministry • Knowledge of their own problems and commitment to solve them 	Hospitals active in decision making about their IT
IT situation	<ul style="list-style-type: none"> • Lack of human resources • Lack of infrastructure • Support from senior managers 	Outsourcing
Systems design	<ul style="list-style-type: none"> • 'Inefficient processes' 	Mapping the administrative procedures according to the hospital's logic
International agencies	<ul style="list-style-type: none"> • International agencies sceptical about local capabilities and commitment 	The hospital team presented a project with clear goals, aligned with the Reform of the health sector and with expert personnel
Finance	<ul style="list-style-type: none"> • Reduced budget 	Hospital team assumes risk by reducing scope of the project
Time	<ul style="list-style-type: none"> • Elections • Possibility of not having a second term in power 	Hospital team assumes risk by reducing the time frame of the project to two months
Politics	<ul style="list-style-type: none"> • Resistance to the personnel and ideas both in the Ministry and in the hospitals • Support from Senior Managers near the Minister 	Constant dialogue with resistant personnel Awareness and monitoring of the politics surrounding the project

The decision to reduce the scope of the project to only two hospitals and to reduce the timeline of the two projects surprised the funding agencies who would have expected a large scale project, both in terms of time and funding. We could even argue that the whole definition of the outsourcing deal was improvised since it contradicted what the theory of outsourcing prescribes. This is particularly true in the sense that the decision of what functions of the IT services to outsource obeys a rational evaluation, mainly in calculating the cost benefit impact of outsourcing (Lacity and Hirschheim, 1993; Lacity and Willcocks, 1998; De Loof, 1997; Earl, 1996). In this case the outsourcing process was a reaction to limited resources, a hostile organizational climate, personnel turnover, and a politically laden organizational context.

5. CONCLUSION

This case brings about reflections on the nature and consequences of improvisations; specifically, how individual improvisations are related to institutions. Ciborra recognizes that improvisations require knowledge of particular techniques and acquaintance with the context. Jazz musicians require knowledge of music and particularly about their instrument. That knowledge is internalized through the contact individuals have with institutions. Moreover, the playing of jazz requires institutional settings. For example, a concert hall, audience, microphones, lighting, etc. In a way, to exercise their improvisations, jazz musicians require of the institutions of music, audiences and places for playing, such as concert halls or bars. Audiences in those places would be expecting jazz and nothing else, even though jazz's nature may be improvisation; in this case improvisation (jazz) is constrained by the institutional settings. If the musicians were to play baroque music, they would be undertaking a risk and they could be exposed to being booed or to other less pleasant audience reactions. Thus, managers in promoting improvisations need to take into account institutional settings.

The point we are making is that improvisations are carried out within a particular institutional setting and contradicting this institutional context brings about risk. The institutional setting consists of rules, norms, beliefs and knowledge (Meyer and Rowan 1991). The institutional setting provides agents with what is expected from their actions. In acts of improvisation, agents expose themselves to the risk of contradicting the institutional setting, particularly when they contradict the established norms and values. In the case, we presented acts of improvisation that had a risk dimension since what they were doing contradicted in a way the status quo. In this sense, the hospital team required to counteract resistance intended to stop their actions, by dialogue and consensus, on the one hand, and wielding authority, on the other.

All in all, the main contribution of this paper has been to provide a suggested set of guidelines for outsourcing information systems services in developing countries (see Table 1). More importantly, the paper provides the context of those guidelines, so the reader can judge the adequacy of those lines of action. Furthermore, the paper attempts to add to the ideas of Ciborra on improvisations in information systems. We have shown that effective improvisations are aligned with a specific institutional setting. In this case, the institutional background was provided by the Guatemalan political situation, the funding of the Bank and the availability of the knowledge, about outsourcing brought about by the hospital team. Likewise, the paper illustrates, that, because of its unexpected nature, improvisations bring about risk and even resistance. We practitioners of information systems can learn a great deal about how to be more effective by focusing on improvisations, their risks and their institutional settings.

6. REFERENCES

- Aguilera, G., Sojo, C. et al. (1991). *Centroamerica: de Reagan a Bush*, San Jose, Costa Rica: FLACSO.
- Baskerville, R. (1993) Semantic Database Prototypes, *Journal of Information Systems* **3**, 2, 119-144.
- Ciborra, C.U. (1999) Notes on Improvisation and Time in Organizations, *Accounting, Management and Information Technologies* **9**, 2, 77-94.
- De Loof, L.A. (1997) *Information Systems Outsourcing Decision Making: A Managerial Approach*, Hershey, PA, USA, Idea Group Pub.
- Denzin, N.K. (1994) *The Art and Politics of Interpretation*, in: Denzin, N.K. and Lincoln, Y.S. (Eds) *Handbook of Qualitative Research*, London: SAGE Publications.
- Denzin, N.K. and Lincoln, Y.S. (Eds) (1994) *Handbook of Qualitative Research*, London: SAGE Publications.
- Earl, M.J. (Ed) (1996) *Information Management: The Organizational Dimension*, Oxford, New York: Oxford University Press.
- Gleijeses, P. (1991) *Shattered Hope: The Guatemalan Revolution and the United States: 1944-1954*, Princeton, New Jersey: Princeton University Press.
- Guatemala, C.d.l.R.d. (1997) *Código de la Salud de Guatemala*, Guatemala: Congreso de la República de Guatemala.
- Lacity, M.C. and Hirschheim, R.A. (1993) *Information Systems Outsourcing: Myths, Metaphors and Realities*, New York: Wiley.
- Lacity, M.C. and Willcocks, L.P. (1998) An Empirical Investigation of Information Technology Sourcing Practices: Lessons from Experience, *MIS Quarterly*, **xx,xx** 363-408.
- Meyer, J. and Rowan, B. (1991) Institutionalized Organizations: Formal Structure as Myth and Ceremony, in: Powell, W.W. and DiMaggio, P.J. (Eds) *The New Institutionalism in Organizational Analysis*, London: Chicago University Press.
- Yin, R.K. (1993) Applications of Case Study Research, in: Bickman, L. and Rog, D.J. (Eds), *Applied Social Research Methods Series in 34 volumes*, Volume 34, London: SAGE Publications.
- Yin, R.K. (1994) Case Study Research: Design and Methods, in: Foster, D.S. (Ed), *Applied Social Research Methods Series in 34 volumes*, Volume 5, London: SAGE Publications.
- Wittgenstein, L. (1968) *Philosophical Investigations*, Translated by Anscombe, G.E.M., Oxford: Blackwell.