Risk Management In Public And Private Partnership IT Projects: An International Study

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Abstract

Managing public and private partnerships (PPPs) projects represents a major challenge. Fifteen case studies have been conducted in the United States, Europe and Canada to identify the most typical risks incurred in PPP projects supported by advanced IT. Results show the presence of two sources of risks: external risks linked to the environment and internal risks associated either with the project, with the participating organizations and with the collaboration process. At the external level, political risks appear most predominant whereas at the internal level, risks linked to the relational dynamic are mentioned the most. The study also reveals that, unlike the private sector, the public sector does not cope with risk using an economic logic.

*"When a promising project doesn't deliver, chances are the problem wasn't the idea but how it was carried out." (*Matta and Ashkevas, 2003)

Introduction

Risk management has first been associated with the probability of financial loss. Therefore, one of the first domains of application has been the insurance field (Koenig, 1987). However, during the last 20 years or so, risk management has been applied to other disciplines such as project management, the environment or engineering. The Project Management Institute (PMI), the largest professional association in the field of project management, has recently included risk management as one of the eight core competencies needed by project managers in the PMBOK, the Project Management Body of Knowledge.

But even though risk management is now considered important in carrying out a project, in practice, project managers seldom rely on formal risk management (Raz, Shenhar and Dvir, 2002). Furthermore, the pragmatism that characterizes project management does not contribute to the development of a body of knowledge, particularly on the identification of a project's typical risks, projects differing according to their domains, objectives. scope and complexity.

Public and private partnerships for the delivery of public services involve partners from two very different sectors of activity: the public and private sectors. These projects aim at the delivery of public services to citizens themselves or to corporate citizens or enterprises. The universal character of most services such as electronic points of service for entrepreneurs, transactional internet websites for taxes, electronic toll motorways, computerized medical files, automobile insurance management and others confer on these projects, social and economic importance. In brief, these projects are very complex, their scope is wide and the identification of typical risks can only facilitate and improve their management.

This research aims at verifying , using a typology of risk factors in PPPs specially developed for this study, the pertinence of the proposed typology and at refining it using fifteen case studies. Responses to recurrent risks met by the initiating party have also been summarily analyzed. The first section of this paper proposes a definition of risk and introduces a few existing typologies. The second section defines the particularities of PPP projects and the specific risks they represent. A typology of these risks is proposed. Follows a brief overview of the research

methodology. Subsequently, the results are presented and discussed and recommendations for project managers are offered.

Concept and Typology of Risks and of Associated Responses

In the literature, the concept of risk relates to the negative incidences of the occurrence of a unique, identifiable and uncertain event (Rowe, 1977 cited by Courtot, 1998). Project risk therefore refers at the uncertainty of reaching the project's goals and, consequently, a satisfactory level of performance (Chapman and Ward, 1997). Giard (1991), on his part, associates project risk with the possibility that a project is not carried out in conformity with the planned schedule, costs and specifications, any deviation between expectations and achievements being considered unacceptable. Other authors such as Leung, Chuah and Rao Tummala (1998) put more emphasis on the source of risk, on the undesirable event that lessens the chance of reaching the project's objectives. The source is external if it comes from the environment and internal if it is arises in the organization where the project takes place.

Managing risk first requires that risk factors or sources be identified and evaluated and that, next, appropriated actions be undertaken in response to these risks—responses that may themselves generate secondary risks (Chapman 2001). Finally, risk can be analyzed qualitatively, that is to say it can be identified from its source, and quantitatively, which signifies a quantification of the impacts in terms of probability and costs.

Therefore, one must recognize that there exist many analytical frameworks that lead to different typologies of risk: system analysis, analysis by phases, by origin and by cause, and also analysis of a project's characteristics. For instance, using a system approach, Dubois (1996) defines the 12 components of a system and, for each, associates inherent risks. In this way, the nature of the system, human factors, processes or resources, to name a few, are all categories or sources of risk.

One typology that is frequently used is the one based on project phases, which enables managers to differentiate design risks from building or operation risks. According to Giard (1991), at the design phase, the absence of a precise definition of the work to be done is the most prevailing risk. As for external risks, the author identifies the commercial obsolescence of the good or service and regulation as most risky. At the operation stage, he finds that risks are mainly caused by late detection of problems and erroneous diagnosis.

The analysis of risk by origin proposed by Wideman (1986) is based on six sources of risk: project definition, external unexpected events, whether controllable or not, technical and non-technical problems and the legal or juridical situation. The author also stresses two aspects of risks: their controllable character and the capacity to evaluate them.

As for Courtot (1998), the cause of risk is either organizational or human or due to project management. Risks linked to management are associated with the project's phases whereas organizational and human risks concern the project structure, decisions, hierarchy, roles and responsibilities, communication, knowledge-sharing, and the actors. Baccarini and Archer (2001) for their part, insist on a project's characteristics such as its nature, financing, environment, planning, customers, industry, and stakeholders. They evaluate each characteristic on a Likert scale of one to five and can thus determine the relative importance of each risk factor.

The ultimate reason for identifying project risk is to plan a proper response. Once a risk and its level of uncertainty and negative consequences are identified, a manager tries to respond to the situation and to manage it. Responses are usually classified into five categories (Pyra and Trask, 2002; Chapman and Wark, 1997): (i) avoidance by bringing in some changes; (ii) mitigation by adopting measures to lessen the impact; (iii) externalization by either transferring or sharing risk with a third party; (iv) acceptance, thus assuming the consequences and putting in place the proper resources; and (v) refusal by simply abandoning the project or restructuring it in a different way.

Specificity of Public and Private Partnership Projects

We define a public and private partnership as: "A reciprocal and voluntary agreement between two or more public and private or non-profit entities to deliver government services" (Dawes and Préfontaine, 2003). In general,

these relationships involve a formal agreement about roles and responsibilities. The participating organizations share a common objective aimed at the delivery of a public service. They also share tangible and intangible risks, benefits, and resources

The participating organizations are usually engaged in large-scale projects that address very visible problems, making significant use of new processes and technologies. PPPs involve partners from different organizations pursuing different, sometimes conflicting objectives, which adds complexity. Furthermore, certain contextual factors and the relationship itself must be considered as potential sources of risk. For one, Patry (2000) identifies two types of risk directly inherent in partnerships, the environmental or performance risk that comes from internal or external factors and the relational or contractual risk. Obviously, opportunistic behavior may undermine cooperation between partners.

May and Do (1997), after analyzing several American government programs based on collaboration between the public and private sectors, identified eight categories of obstacles that hinder success: political questions; disputes and litigation, sharing of risk, team formation, general planning; mistrust between partners; internal problems specific to each partner; and the time horizon of the program or project. Finally, Ireland, Hitt and Vaiduyanath (2002) put the emphasis on problems derived from differences between partners, namely, cultural, power and objectives differences that are sources of conflict or that give rise to inertia on the part of one or the other partner.

Proposed Typology for the Study of Risk in PPP Projects

Inspired by the work of authors from the MIS, public management, project management, strategy and marketing fields but also by the specificity of projects carried out in collaboration, we propose the following typology of risks associated with the delivery of public services by multiple partners (see Table 1). We propose a categorization based on the source of risk, either external or internal. External risks are derived mainly from the socio-economic, political and technological environments. Internal risks are due to the nature of the project itself, the partners and the relationship. Table 1 also includes a few examples of each type of risk proposed. The typology serves as a conceptual basis for the study of risk in public and private partnership projects. The analysis of fifteen case studies will serve to validate the typology and determine risks that are typical in PPPs.

Research Methodology

In order to validate the theoretical typology, an exploratory qualitative study was conducted in Belgium, Germany, Canada and the United States by a team of international researchers. Cases were selected using three criteria: the degree of advancement of the project; an important use of new information and communication technologies; and the innovative degree of the project. Using such criteria provided the researchers with projects sharing a certain degree of homogeneity and minimized differences between sectors of activity. Overall, fifteen projects were analyzed using a consistent method of data collection and analysis. Ten to twelve managers involved in each project were interviewed, representing various partners and customers availing themselves of their services. Transcripts of the interviews were coded according to the theoretical framework, and the data was analyzed with Atlas TI, a qualitative data analysis software. In the case of this particular study on risk, only interviews from the initiating party were retained for analysis. Public organizations that use PPPs to deliver public services remain responsible for the service and are, in fact, the only ones accountable to the public they serve.

For each type of risk encountered, frequencies were counted and responses to risk were noted. However, because of the difficulty of interpreting results, the relationship risk–response and their interrelations were not analyzed. Frequencies were computed by case rather than by respondent since the number of persons interviewed varied from one case to the other. A specific type of risk was therefore retained if one respondent mentioned it.

Table 1 Typology of Risks in PPPs for the Delivery of Public Services

TYPES OF RISKS	**EXAMPLES**
1. External risks	
Socio-economic risks	*Competition*: the service is offered elsewhere or a substitute service exists, for instance, one offered on a private basis. *Changes in demand*: a sudden event creates or changes the demand for the service, either increasing or decreasing it. *Changes in citizen expectations*: better informed citizens become more demanding about the quality and cost of government performance.
Technological risks	*Obsolescence*: rapid evolving technologies render the technology chosen for a project obsolete. *Innovation:* the technology to be used has never before been used in the way planned.
Political risks	*Competing goals:* different parts of the government seek different or conflicting objectives or support different or competing means of achieving them. *New or modified law or regulation:* the environment or the project itself is affected by new legal requirements or rules. *Election of a new leader or majority party or change in political priorities:* because these projects tend to unfold over a number of years, such changes in leadership and political focus are inevitable.
2. Internal risks	
Risks associated with the project itself	*Characteristics of clients/users of the service:* resistance to change, lack of involvement, inadequate education level, difficulties in communicating, unrealistic expectations. *Scope of the project:* universality or specificity of the service, number of partners involved, number of clients, size of budget. *Complexity of the project:* especially organizational and technological complexity. *Definition and structure of the project:* unclear objectives, ill-defined specifications and functional requirements, changes in the scope or the reach of the project, difficulties in integrating data or processes.
Organizational risks	*Lack of resources:* uncertainty of funding, inadequate resources, lack of expertise in complex resource management. *Project team competencies:* lack of experience, expertise, stability, and communication and technological skills. *Management strategy:* inadequate or inappropriate organizational support and control, absence of a champion, lack of leadership, and unavailability of tested management tools and processes. *Technological know-how:* absence of an adequate technological infrastructure and of in-house technological competencies.
Relationship risks	*Form of collaboration:* inadequate or inappropriate type of agreement, misunderstandings regarding the content of the agreement; and inappropriate selection of partners. *Collaborative process:* problems occurring with coordination, communications, culture differences, inertia, dependency, mistrust, and lack of consensus or involvement.

Typical Risks Encountered in PPPs

All fifteen projects we studied, whether American, Belgian, German or Canadian, encountered many forms of external and internal risks. Each type of risk proposed in our typology is illustrated hereafter with a brief presentation of the project followed by the coded verbatim used by one of the respondents to describe the situation. The response to each specific risk completes the brief case analysis.

External Risks

A majority of public and private partnership project faced two or more types of external risks while all faced at least one type.. Cross-analysis of the case studies shows that all projects were subject to political risks of some type. Technological risk ranked second, while socio-economic risk was encountered least often. Table 2 shows the frequencies for each type of external risks. Follow a few examples of external risks incurred by the projects under study.

Table 2 Observed Frequencies for External Risks

TYPES OF EXTERNAL RISKS	FREQUENCIES BY TYPE OF RISK
Socio-economic risks	7 cases out of 15—46.7%
Technological risks	8 cases out of 15—53.3%
Political risks	15 cases out of 15—100%

Bremen Online Services is a federally funded project which aims to develop electronic government and provide online transactions and payments in a secure way for citizens living in Germany's smallest Land (city), Bremen. One of the most salient problems encountered was linked to the authenticity, identification, privacy, integrity, and (non-)repudiation of electronic signatures. Managers turned to the government:

"In 1997, Germany regulated the issuance of electronic signatures and again in the year 2000, it adapted its older laws, following a directive of the Economic Union."

And since trustworthiness and reliance of electronic signatures is the key to their use, most local administrations also started reforming the formal requirements in their many laws, allowing for more and more uses of electronic signatures in interactions with government and private businesses. These crucial measures of mitigation opened the way for the development of a single-window delivery for both public and private services.

The project BonjourQuébec.com aimed at putting on line a transactional portal for tourism. The project encountered major resistance from the travel agencies, which saw BonjourQuébec as a major competitor. If consumers could shop for their holidays on the Internet, what was left for the agencies? One of the respondents described the situation in these terms:

"The minister decided to ask [the private partner] to canvass the industry in order to obtain a consensus before the project was brought before the legislation. It was at that time that the agencies, feeling threatened, manifested their opposition to the project, causing undue delays."

The public and private partners, facing this socio-economic risk, underwent a large consultation campaign towards the tourist industry and negotiated agreements with all stakeholders, starting with the travel agencies but also including wholesalers, hotel owners and regional associations. It took a whole year for the mitigation measure to fully gain the participation of the major actors of the industry.

Ontario Business Connect (OBC) developed an added value one-stop service system for business entrepreneurs. Since many public and private sector partners were involved, choosing an infrastructure and the software was an important decision:

"We were happy because we are building things in components so if technology changes, you have the ability to use the most recent without throwing everything else that came out before. It's the concept of plug and play. So our model has changed and it's ok."

The OBC technical team managed the risk of technology obsolescence by using a mitigation measure: developing a modular infrastructure. It was more costly in the short run but it soon became clear that the solution adopted was the right one because it allowed for flexibility and wide participation.

In the **Service Canada Initiative (SCI)** for instance, an integrated government service delivery network was to be put in place, bringing together many independent ministries that were also seeking financing to further develop their own individual forms of service delivery. One director described the political risk in this way:

"Based on what we learned, the concept makes sense. Now we need to convince the deputies and ministers and we need funding for the next few years. If we don't get it, we will go down."

Reflecting on this problem, the project manager acknowledged that delivering the project on time took so much of its energy and resources that the "political marketing" of the project was neglected. The political risk could have been avoided, that is, it had been identified but it was given low priority because of the lack of slacked resources. After a few years, the project team had not been able to gather the political support needed to maintain funding. The initiative was abandoned and members of the team were assigned to other projects, while the service was desegregated and specific activities were transferred to other agencies.

Internal Risks

Whereas the foregoing external risks are important, the most common risks are derived from the internal environment. These stem not only from the characteristics of the project itself, but also from organizational factors that can hinder a project's progress and outcome. In the case of collaboration projects, relationship risks also exist because multiple partners must share work, costs, resources, and rewards. Table 3 below shows the frequencies for these three categories of internal risk.

Table 3 Observed Frequencies for Internal Risks

TYPES OF INTERNAL RISKS	FREQUENCIES BY TYPE OF RISKS
Risks associated with the project	13 cases out of 15—86.7%
Organizational risks	15 cases out of 15—100%
Relationship risks	15 cases out of 15—100%

The **Cadastre Quebec** (real property tax mapping) project encountered many problems in getting the project started, mainly because of project planning deficiencies; on the second try, a team of experienced project managers was brought in from other agencies. As the project manager put it:

"… you work out operating agreements and service level agreements. Then you know who needs to call who. So one of the things I can take credit for is that piece, setting it up so that we have things like project charters, project plans, weekly meetings."

On completion, the project was evaluated as a full success: budget, schedule and specifications had been met. Even though a competent project management team cannot resolve all problems, in this case, the main partner, the

Ministry of Natural Resources, had first refused the risk and given the project a second life. Bringing in new and competent managers on the second round had been a critical factor in the success of the project.

The Canadian project **Partners in Change** aimed at reorganizing the delivery of social support for unemployed persons. The reengineering focused on an electronic case management system that was to simplify the paperwork and enable workers to spend more of their time developing a significant and helpful relationship with clients. As expressed by a case manager:

"I think that naturally people are scared, they were worried about their future, in terms of their jobs and their classification, if they had education and the desired training to stay and to be competitive in the new organization. When you take a service delivery model and you change it, people are nervous."

The project managers first accepted the risk and then took specific measures to cope with this resistance to change. They invited union representatives to participate in an implementation committee so that all steps taken would be understood and approved by the union, and employees would be properly informed. In addition, the project team traveled around the province, meeting all employees in local agencies to convince the social workers of the utmost importance of adopting this new philosophy for helping unemployed people become self-sufficient. They emphasized how putting in place these innovative work processes would enhance their jobs and the quality of the service they offered.

The **New York GIS Coordination Project** first encountered a very slow rate of local government participation in its data-sharing cooperative because of local bureaucracies and legal authorities that needed to understand and approve the data-sharing agreements. Some were skeptical because no overt costs were involved. Consequently, they feared there were hidden costs.

"There was a lot of skepticism at the beginning. Local governments were looking for the hook: What are you going to hook me with later, are you going to come and take my data? There was also a lack of understanding about the usefulness of the data beyond one's borders."

In order to overcome these organizational and relational barriers, a mitigation response was put in place: a standard agreement oriented toward user needs, with clearly written clauses, and easy termination for those wishing to withdraw. These features encouraged reluctant localities to try out the cooperative and all who did decided to stay.

When the **FirstGOV Project** was launched in order to put in place a portal for the U.S. federal government. Only 90 days were allotted to do so. The ambitious goal was to enable government-to-citizen (G2C), government-to-business (G2B) and government-to-government (G2G) information access and transactions. No single agency could deliver such a system and meet the challenge of the schedule put in place by President Bill Clinton. It took a broad partnership to meet that goal:

"FirstGov is a unique example of a public–private partnership among the U.S. General Services Administration, the Federal Chief Information Officers Council, Vice-President Gore's National Partnership for Reinventing Government, the Government Information Technology Services Board, private sector information industry companies, and the Fed-Search Foundation created by Dr. Eric Brewer, Chief Scientist at Inktomi."

Externalization made it possible to share among these partners the political risks associated with the project, as well as the organizational risks. This shared risk-taking was essential because no agency had the resources, the competencies and the technological know-how to undertake such an ambitious and complex project alone.

Access Indiana is an interactive portal for state and local government services. The State uses a self-funding approach to develop and operate its website by partnering with Indiana Interactive, a private sector company. Early on, cross organizational project teams started working together but experienced problems with communications. As a manager put it:

Employees were confused about roles, responsibilities, and decision-making authority. They soon became reluctant to share information and knowledge with each other."

To address the issue of relationship risk, the State and Indiana Interactive developed and implemented several mitigation measures: sharing responsibility for application design, using knowledge management tools to store and retrieve domain knowledge, adopting metadata standards, assigning project liaisons, and updating reporting standards. Underlying these formal mechanisms, informal practices further strengthened the working relations between partners.

Managing Risk in PPPs: Lessons Learned

These few examples from the 15 American, Canadian and European public and private partnerships for the delivery of public services illustrate in a convincing way the typical risks incurred as well as the responses of public managers of these projects. PPPs differ from other types of projects in many ways. First of all, one must recognize the capital importance of political risk. Elections and public or media pressure force governments to react rapidly to various events, bringing about changes in priorities and therefore in the portfolio of financed projects. Secondly, the presence of public and private partners who carry out different goals creates a cultural clash which results in important organizational risks. The balance between efficiency and interest of the citizen, between transparency and speed and between profit and service quality are only a few of the problems that confront managers of PPPs. Interviews also show the quasi- absence of formal risk management, except for those contract clauses regarding specifications, schedule, costs, and penalties. In the majority of cases, project managers reacted to risk at the time it occurred. At that time only did they take the proper means to lessen those risks.

The study also reveals a particular phenomena of risk management in PPPs. As a matter of fact, private enterprises manage risk according to financial logic: most risks necessitate adding more resources, thereby increasing costs and lowering profits. Businesses establish a limit to the price they are willing to pay: if costs or losses go beyond a certain point, they will simply close the project down. This is not the case for public managers who are more concerned about their mission. They will prioritize the need to protect citizens' general interest and the image of their government as a responsible and responsive service provider. Their evaluation of risk has more to do with failure in either of these goals than with a financial formula. In fact, the study shows that for the initiating party, that is, the public organization, abandonment is simply not an option. Whenever a problem is encountered, the public partner will generally restructure the project and will continue to add resources until the project is completed. Public and private partners must therefore accommodate themselves to the two opposing views of risk and risk management. How do they do it? In some cases, the contract serves as a regulation mechanism since its content includes both financial and quality level milestones. In other cases, the business case specifies each deliverable and the levels of service that are required. In still other projects, committees are put in place to resolve problems encountered by the public or the private partner. Overall, opened communication channels help in developing trust between partners, and where there is trust, very few problems remain unsolved.

Increasing responsiveness, maintaining transparency and public accountability are high priorities for public organizations. So is the ability to produce high-quality public services efficiently and at reasonable cost. Given these goals and the inevitable complexity of most service environments, risk management has become an essential process to be mastered by all public managers.

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