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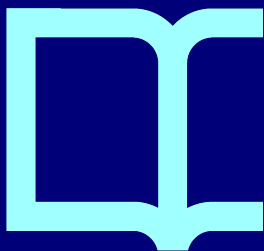
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# IT Outsourcing in the Public Sector: A Descriptive Framework from a Literature Review

## Abstract

Despite its economic scale, IT outsourcing (ITO) in the public sector (PS) has not yet been deeply analysed by academic literature when compared with ITO focused on the private sector. In fact, the question has often been raised as to whether ITO in the PS should be regarded as completely different to ITO in the private sector. In order to contribute to this discussion our first goal in this paper is, after a review of the academic literature, to summarize the covered topics in a descriptive framework that facilitates the understanding both for researchers and practitioners of the ITO phenomena in the Public Sector. This framework is organized in four main categories that explain the context (the features of the PS) and the rationale of the ITO process (*Why, What and How*) in the PS. Then, we use this framework to face our second goal: highlight to which extent differences in ITO process between the public and private sectors are clear and can impact upon the implementation of the ITO. Although the conclusions indicate that there are quite a number of points of coincidence, partly because both sectors have organizations with a certain *degree of publicness*, they also reflect some aspects that are intrinsic to the PS (as the prioritization of non-economistic values, the application of industrial policies, or the search of collaborative sourcing, among others) and which need to be borne in mind in any work tackling ITO in this context.

**Keywords:** IT Outsourcing, Public Sector, Public-private Sector Differences, Descriptive Framework, Literature Review.

## 1. Introduction

Given its complexity, information technology outsourcing (ITO) entails different risks and opportunities to other more common types of outsourcing, particularly if they are of low added value or of low intensity in terms of information and specialist knowledge. In the private sector, these risks and opportunities have been gathered, analysed and explained on the basis of some success stories, such as that of Kodak in 1989 (regarded as a paradigmatic precursor (Loh & Venkatraman, 1992)) and, subsequently, on that of some failures.

For its part, the public sector (PS) has also seen some significant ITO experiences. Furthermore, as of today, this sector is one of the main consumers of IT in many countries, in terms of both the aggregate volume of the organisations making it up and the increased need for IT in recent years due, amongst other reasons, to the generalisation of e-government. Indeed, recent reports from *Gartner* (Gartner, 2015) ranked the PS, worldwide, as the third-largest IT consumer in 2014, and as the fourth-largest in 2015.

Despite this, the literature on ITO in the PS still remains quite dispersed, as can be regarded in tables 5 to 7 of section 3, scattered in journals and conferences of three main research fields: *Management*, *Information Systems* and *Public Sector*. Thus, while the big amount of existing literature about the private sector has been summarized in some relevant state-of-the-art papers, the research about ITO in the PS has had few attempts to face its dispersion and summarize its findings.

Furthermore, some of the publications on general ITO have argued that, or at the very least asked whether, the context of the PS is sufficiently different to that of the private sector for it to be worth the while tackling ITO in a, in some regards, differentiated manner (Dibbern, Goles, Hirschheim, & Jayatilaka, 2004; Lacity, Khan, & Willcocks, 2009). For example, Rocheleau & Wu, (2002) highlighted that private enterprises that usually depend on large

contracts with the PS develop an organisational culture similar to that in the PS (with very bureaucratized procedures and with a wide range of conflicting stakeholders in a usually complex context). On the other hand, in order to avoid this binary public/private debate Carte (Zmud, Carte, & Te'eni, 2004) suggested using the concept of *degree of publicness*.

So it is, then, due to a) the economic importance of the ITO in the PS; b) the diversity and dispersion of the existing scientific literature; and c) the still open debate about the need to differentiate public and private ITO processes, that we believe there is justification for the interest in research in ITO in the PS. According to these issues, our two goals in this article are a) after a review of the literature on the issue, summarise the findings in the form of a descriptive framework that facilitates the understanding and usefulness both to researchers and practitioners of the ITO phenomena in the PS; and b) based on this descriptive framework, to analyse the extent to which the contextual and idiosyncratic differences between the public and private sectors are clear and can impact upon the ITO implementation.

We have arranged our work as follows. The next section is a brief summary of general research into ITO, which, as noted above, focuses mainly upon the private sector: we look at the concept, present the broad strokes of the current situation in this regard and summarise the results in the form a listings of motivations, risks and success factors. The third section focuses on how the research on ITO in the PS has been considered in general ITO research literature, and outlines the process we have followed to find and select contributions dealing explicitly with this sector, listing them and totalling them quantitatively. The fourth section covers our main goal: a proposed descriptive framework summarising the issues tackled by literature. We have organized this framework in four categories: one category that describes the relevant intrinsic features that are present in the PS (where being intrinsic does not mean being exclusive); and three other categories that explain the rationale of the ITO process in

the PS, respectively: *Why*: motives or drivers that trigger the ITO process; *What*: scope and object of ITO; and *How*: basics that support the entire ITO process. Finally, in the fifth section, we discuss, on the basis of our proposed framework, which points most clearly mark the difference between ITO in the public and private sectors.

## **2. A brief synthesis of research on IT outsourcing**

According to (Quinn & Hilmer, 1994) *Outsourcing*, in the general sense of the word, can be understood as an organisational strategy consisting in sourcing some business functions or processes from an external organisation. If this strategy is taken to an extreme, within the organisation itself, only core functions or those of key importance to its missions or for the services or products it provides need be carried out. This allows it to concentrate exclusively on the latter and not waste effort or structural resources on functions that are often of little value to the organisation and which may not be carried out as efficiently as when obtained externally. If the outsourced function has until now been performed internally, *outsourcing* also entails *a reduction* both professional and material, which is normally transferred to the new provider of the function.

Like any other business function, the information technology function has been subject to outsourcing strategies, today a widespread practice throughout organisations of all kinds and one extensively analysed in countless books, such as Applegate, Austin, & McFarlan, 2007; Bannister, 2004; Cullen, Lacity, & Willcocks, 2014; Klepper & Jones, 1998, to name just a few. The case of Kodak in 1989, which completely outsourced its IT function, transferring its professional and technical structure to what would become its IT supplier, is accepted as a benchmark that marked the point at which this IT management strategy began to expand, due to both the innovative nature of the case and to its significant dissemination and influence (Loh & Venkatraman, 1992). Afterwards, as with other business functions, the initial promises of costs savings and access to cutting-edge technology and expert, up-to-date

professionals (McFarlan & Nolan, 1995) have given way to many clearly problematic or unsatisfactory experiences and failures (Barthelemy, 2003).

It should also be borne in mind that, these days, from the very outset, many newly-created organisations do not incorporate any professional or asset structure for the IT function, such that outsourcing does not in such cases entail the transfer of said structure but rather the external provision of said service. Given this trend, “outsourcing” is now employed as an *umbrella* term to describe different ways to obtain services externally (Heywood, 2001, p. 27). Similarly, in Dibbern et al. (2004), complementary definitions and variants of these outsourcing models can be found.

The dissemination of real-life experiences of ITO, as well as all the associated theorisation, has given rise to a great amount of academic literature. This literature has evolved in terms of its focus in line with trends in real-life practice: from the motivations for outsourcing, initially total and then selective, to the type of relationship that should be established between the parties, and including discussion of outsourceable items or assessment of performance or success (Lee, Huynh, Kwok, & Pi, 2003). Whatever the case, the need to organise the contributions made by the large number of academic publications on ITO has resulted in the presentations of a number of reviews of the literature, the most important being those of Dibbern et al. (2004), González et al. (2006) and Lacity et al., (2009).

In order to classify their analytical results, Dibbern et al.’s pioneering and thorough work used Simon's well-known four-stage model of decision making (Simon, 1977) to posit an adaptation that better fits with ITO’s specificities. Using it, they provided a framework that, like Simon’s decision-making process, involves 2 phases (decision and implementation) and five stages they believed occurred in organizations’ evaluation and implementation of outsourcing (Dibbern et al., 2004, p. 15): *why* (the advantages and disadvantages of ITO), *what* (alternative outsourcing arrangements), *which* (actually taking the decision), *how*

(contracting the provider and organizing the management of the outsourcing relationship), and *outcomes* (the consequences of outsourcing).

Despite the foundation for Dibbern *et al.*'s proposal, González *et al.* (2006, p. 5) justify the use of another form of categorisation, as they want the model to emerge from the analysis of literature itself. For their part, Lacity *et al.*, (2009) also use their own categorisation due, they state, to the fact that their work is focused on real-life practice.<sup>1</sup>

Whatever the case, these three publications bring to light a large number of wide-ranging matters of interest to ITO research. The details of these matters and their conclusions fall beyond the scope of our work. However, Lacity *et al.*, (2009) work summarises the motivations for and risks of ITO. These summaries are directly reproduced in Tables 2 and 3, respectively. Additionally, the three works suggest critical success factors in tackling the ITO process. These factors have been summarised in Table 4. These three tables clearly provide a summary of the most important concepts of the different viewpoints on the matter, and we shall therefore use them later to specify the differences with ITO in the PS.

### **3. Reviewing the research on IT outsourcing in the public sector**

None of the reviews of literature listed in the previous section regard the sector to which the client belongs (public, private or non-profit) as a dimension or perspective from which to observe the ITO process. Nevertheless, Dibbern *et al.*, (2004, p. 87) do not rule out in their “implications for research” Currie's (1996) idea that there are differences between the private and public sector affecting the ITO process (in much the same way as it is affected by the object of outsourcing or the culture of the country in question). Additionally, Lacity *et al.*, (2009, p. 132) also indicate that some “industry attributes engage organizations on IT

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<sup>1</sup> Obviously, this lack of any agreed categorisation does not mean that there is no a common ground between the matters analysed. To help make a comparison, Table 1 in Appendix 1 suggests the correlations between the categorisation of these three works.

outsourcing”, but admit that “it is difficult to identify a clear pattern because of the variety of ways researchers operationalize [the idea of] industry”.

The main argument used by others to question this differentiation is the fact that many aspects that appear peculiar to public administrations also appear in private undertakings of a certain size and organisational culture. One example of this discussion was provided by a *panel* at the 2004 *International Conference on Information Systems (ICIS)* entitled *Information Systems in Nonprofits and Governments: Do We Need Different Theories?* (Zmud et al., 2004). In this panel session, Zmud argued that the general theoretical frameworks applicable to large companies and organisations with bureaucratic behaviour are also applicable to the PS. On the other hand, Carte suggested avoiding the public/private dichotomy and using the concept of *degree of publicness*.

This *degree of publicness* (Antonsen & Jørgensen, 1997; Bozeman & Bretschneider, 1994) refers to the fact that any organisation, be it public or private, may have, to a greater or lesser extent, cultural or functional aspects typically found in the PS<sup>2</sup>. As an example of private enterprises that can develop an organisational culture similar to that of the PS, Rocheleau & Wu, (2002) mention those that depend on large contracts with the sector. They may also include large companies in strategic sectors (finance, energy, industry, etc.) that possess clearly formalised and bureaucratised procedures (including those on external procurement) and that carry on their activities in a highly complex context featuring a wide range of players with conflicting interests. On the other hand, there are public institutions, such as autonomous bodies or public enterprises, which have a lower-than-usual *degree of publicness*: in other words, they have some traits more common to or inherent in the private sector.

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<sup>2</sup> The idea of *Degree of Publicness* was presented by Antonsen & Jorgensen in 1997, based on the work of Bozeman & Brestchneider of 1994. Antonsen & Jorgensen highlight that Bozeman and Brestchneider presented “two approaches to distinguishing between the public and private sectors: the core and dimensional approaches”. In the second approach, it is said “that some government organizations are more public than others’. This idea of *level* or *degree* is that which Antonsen & Jorgensen detailed three years later with the following explanation “The dimensional approach assumes the difference between public and private is a matter of degree; publicness is both a behavioural category, not a legal one, and multi-dimensional.”



It is within the context of this still-open debate that we are presenting our review of the literature on the existing contributions concerning ITO in the PS. For doing it we have followed the process set out below:

1. To begin with, we analysed the aforementioned works given their wide coverage (time- and scope-wise), as well as their complementary nature:

- Dibbern et al. (2004) focus on academic journals and the two main conferences in the field of *information systems* from 1988 to 2000 and analyse a total of 84 articles.
- González et al. (2006) examine journals from 1988 to 2005 and study 131 articles.
- Lacity et al. (2009) examine journals from 1990 to 2008 and look at up to 191 articles.

The result of this first analysis is that only 7 articles cited in these three works had an explicit connection with the subject of ITO in the PS.

2. We followed up on the references and sources (journals and conferences) used in these seven papers, as well as other publications by the same authors. As a result, we only obtained 6 further references.

3. In order to find additional references, we eliminated any original constraint (thus considering any peer-reviewed journal or conference) and we broadened the scope of the research to other two fields: *management* and *public sector*. This analysis resulted in a total of 26 relevant articles, spread over the three fields of research (*information systems*, *management* and *public sector*) and almost equally spread between journals and conferences. With the results obtained up to this point, in 2008 and 2009 we presented our first works on literature on ITO in PS [*blinded references*].

4. After ours, in 2011, Gantman published her own analysis of ITO literature focused on the PS (Gantman, 2011). There are clear points in common between the two works, such as the finding on the dispersion and scarcity of references, the multidisciplinary nature of the matter and the hypothesis of the impact of peculiarities of the public context on ITO processes. There is also clear agreement in identifying the motivations for and some

factors that may affect the success or entail risks in ITO. Looking at the references, the works are 75% complementary: of the 29 Gantman's ones and of 26 ours, 11 are in common and 44 are different. In any case, Gantman's work is very interesting for its conclusions about some of features, motives and practices of the ITO in PS.

5. Finally, we have once again reviewed, for the 2011-2015 period, new contributions made in this field following, but not limited to, authors and sources (journals and conferences) already detected in prior stages. This review found 20 new references, including that of Moe (2014), which is a review of literature on the *process* of IS procurement in the PS, and which contributes eight exclusive references with this focus. However, unlike that of Gantman, Moe's review focuses solely on software products and services and on the *process* of carrying out their procurement. His findings nevertheless coincide with both those of Gantman and our first work with regard to, for example, the dispersion of references, the complexity of the context or the impact of bureaucratized procedures or industrial policy.

In all the phases of this process, the words (and their derivatives) used to search both the titles and the body of articles are equivalent to those used by Dibbern et al. (2004), González et al. (2006) and Lacity et al. (2009), and have been: a) the general term *outsourcing*; b) derivative and associated words (such as *sourcing*, *insourcing*, *co-sourcing*, *offshoring*, *nearshoring* and *externalization*); and c) other words specifically associated with the concept of *procurement*, such as *acquisition*, *supply*, *supplier*, *provision*, *provider*, *provisioning*, *vendor*, *contract*. Of course, we combined them with the terms *public sector*, *public administration*, *information technology* or *information systems*. In total we have analysed 96 sources (88 journals and 8 conferences).

After eliminating equivalent references published in different environments the final listing of relevant references totals 65, which are summarised in Tables 5, 6 and 7. According to these tables, we would note the following:

- 65 references dealing with ITO in PS are a significant number, in both absolute and relative terms: the painstaking work of Dibbern et al. (2004) on general ITO analysed 84 references.
- With regard to the origin of the authors or of the studied cases (more than 78% of the references use real-life case studies as the key component of their contributions), we note that Australia, the United Kingdom and the United States are the countries that made most (with 14 each), well ahead of any other: one would have to add all the contributions from continental Europe together to reach the figure of 16 contributions. This also means that 97% of references can be considered belonging and related to the western tradition.
- With five contributions, Willcocks is the UK's most prolific author. Mon and Swar lead four contributions in Korean context and Moe leads too four contributions in Norway. In contrast, it is noteworthy that, of the USA's fourteen contributions, Chen alone appears twice as a lead author; this is also the case with the fourteen contributions made by Australia, where Pervan alone is the only repeated author.
- The dispersion of the references is clear: with four contributions, the most frequently-appearing source is an American conference. It is followed by an European journal and two conferences (one European and the other American), with three each. Nine sources have two contributions each, whilst the remaining 30 contributions all come from different sources.
- In a similar sense, publications are distributed amongst the three fields of research considered: *information systems* and *public sector* in the lead and, some way behind, *management*.

Whatever the case, in this article we integrate all the contributions to provide a global overview free from the particular perspectives of each individual research field, source or origin.

#### **4. The proposed descriptive framework**

We have arranged the subject matters appearing in the literature reviewed within the descriptive framework shown in Figure 1 (which is an enriched version of that first presented in [blinded reference]). This framework features four main categories. We chose three of them from Dibbern et al. (2004)'s proposal (that we referred to in section 2), itself based on Simon's well-known four-stage model of decision making (Simon, 1977): *Why* (motives or drivers that trigger the ITO process); *What* (scope and object of ITO); and *How* (basics that support the entire ITO process).

The fourth category, *Defining features of the PS*, covers the context-related and organisational characteristics that are present in (if not exclusive to) the PS. These features are not an easy fit in any of Dibbern et al. (2004) 's categories, in that they affect the entire ITO process, from the decision to the implementation phase (and not only affect one unique category). This is why we have depicted them as surrounding the entire ITO process and why we shall analyse them before the other three.

##### ***4.1 Defining features of the public sector***

The articles reviewed clearly point to the existence of some factors in the PS that affect all its activities and, also, its ITO processes. We would like to stress that although they are aspects inherent in the PS, they are not exclusive to it and can also be detected in some specific

private sector scenarios, basically those that have a certain *degree of publicness* or which can in some way be regarded as *public sector-like*.

These characteristics can be summarised as follows:

- **Prioritization of non-economistic values.** The public sector's values prioritise, amongst others, transparency, impartiality and the common good. Such values are clearly different to those generally prioritised in the private sector, that is economic return and economic efficiency or sustainability (Cordella & Willcocks, 2010; Mulgan, 2005; Scholl, 2006); and also justify the PS providing services that the logic of economic return would reject (Graham & Scarborough, 1997; Lawry & Waddell, 2008). This obviously does not mean that the two sectors do not share others, such as responsibility, honesty or sensitivity towards their surrounding environments. But it is well-known that those in the PS responsible for IT are more highly regarded for their respect for rules and procedures than, for example, for their compliance with agreed parameters in the development of a project (Peled, 2001).
- **Criteria and political volatility.** In the PS, some procurement decisions can be politically rather than technically or economically motivated. In other words, they are due to the logic of the relevant government, that would not be considered in a different context. In addition, it is also true that political offices are, in democratic countries, under the scrutiny of public opinion: at least at the end of a political cycle they may be substituted (Beyah & Gallivan, 2001; Lacity & Willcocks, 1997; Omari & Barnes, 2014).

This can end up meaning that an ITO strategy cannot be guaranteed in the long term (Burnes & Anastasiadis, 2003; Omari & Barnes, 2014; Willcocks & Currie, 1997) and that the politicians responsible may change some of their actions and decisions to compensate for a negative trend in the public's perception of them. Furthermore, a change in the political stripe of the government can mean the direct revocation of many decisions

taken previously. Indeed, these changes in direction can also occur even if the new government has not involved a change in the main governing party or parties (Beyah & Gallivan, 2001; Lacity & Willcocks, 1997; Peled, 2001; Willcocks & Kern, 1998). What is more, all this *volatility* creates uncertainty amongst suppliers. Added to this uncertainty are a) the initial investment in time and money to be made by the supplier; and b) the fact that the public sector's planning and budgets are often only annual in scope, that is to say, difficult to guarantee beyond this period (Currie, 1996; Gordon & Walsh, 1997; Willcocks & Currie, 1997).

- **Silo mentality.** According to De Looff (1996), there is often a lack of cooperation and communication between different public administration (PA) bodies, and even between bodies belonging to the same PA that are closely interlinked and have very similar IT needs. On the other hand, Rocheleau & Wu (2002) argue that the opposite is the case when there is a lack of resources, a situation that encourages cooperation between public bodies (be this voluntary or, once again, politically led or enforced) to join together to obtain services.
- **Bureaucratic procedures.** The very strict and clearly bureaucratised legal procedures in the PS (Burnes & Anastasiadis, 2003; Khalfan & Gough, 2003; Moe, 2014) also reflect another characteristic regarded as inherent: risk aversion (Gantman, 2011). In the case of ITO, these procedures may critically extend a project's formalisation period and reduce flexibility in procurement (Beyah & Gallivan, 2001; Polyviou & Pouloudi, 2015). They also give rise to conflicts between these regulations and justifiable preferences or objective needs for working with a specific provider and doing so with some room for manoeuvre (Moe, 2014). What is more, the complexity of the procedures may discourage the involvement of innovative SMEs "due to their lack of legal expertise and administrative resources" (Karjalainen & Kemppainen, 2008). On the other hand, some

authors believe that bureaucracy can be regarded as a kind of guarantee of the differentiating values of the PS (Cordella & Willcocks, 2010).

- **Difficulties in hiring and retaining qualified professionals.** Staff recruitment processes in the PS tend to be lengthy, complex and inflexible, given that they are frequently linked with the professional structure of the civil service and competitive selection processes. For bidders, tender processes are not easy to win and, although they provide clear employment stability, they do not always offer a level of remuneration equivalent to that of the private sector. If, furthermore, there is a situation of strong demand from the private sector, it becomes difficult not only to recruit staff, but also to retain them (Currie, 1996; De Looft, 1996; Khalfan & Gough, 2003; Lacity & Willcocks, 1997; Peled, 2001).
- **Complexity of the external and internal environment.** The PAs interact with a wide range of interest groups (suppliers, internal clients, end users and legal departments, amongst others (Moe & Sein, 2014). These groups have different levels of political, economic and organisational power and influence, and, often, conflicting goals (Allen, Kern, & Mattison, 2002; Khalfan & Gough, 2003; Moe, 2014). Furthermore, such conflicting goals -and hence associated tensions- may also be present within each of these groups (Heiskanen, Newman, & Simila, 2000; Moe & Sein, 2014). Additionally, the power relationships between the politicians responsible, and their need to retain different kinds of loyalties, add further layers of complexity to the decision-making process. What is more, political decisions are often taken by those who do not belong to the executive-level group that has to put them into practice (Gantman, 2011), which may result in decisions that are some way far from the usual standards of technical viability.
- **Complexity and specificity of IT.** PAs frequently have very specific needs (De Looft, 1996; Guah & Currie, 2007; Moe, 2014), partly because of the legal requirements to be met in each field (Khalfan & Gough, 2003). They are also often difficult to define (Johansson & Lahtinen, 2012), yet, despite this, those responsible for the technical side of

the projects tend to delineate them in great detail to ensure the transparency required of them when announcing these projects, details that suppliers then find excessive (Moe & Päivärinta, 2013). Additionally, many of the services supplied cannot be reused by other clients, thus reducing the number of specialist suppliers (or those interested in supplying such services). This problem can be exacerbated in the case of administrations providing services in areas that are remote, underdeveloped or unattractive to suppliers (Dertz et al. 2003).

- **Lack of experience in IT project management.** Some authors argue that, in the PS, there usually exists a lack of skills in IT project management, both at the initial project definition, supplier market analysis stage and tender awarding, and during oversight of implementation and project evaluation (Alexander, 2002; Guah & Currie, 2007; Lacity & Willcocks, 1997; Peled, 2001). Indeed, the lack of sufficient monitoring and evaluation of projects is one of the most-frequently cited reasons for failure in different countries' case studies (Lin, Pervan, & McDermid, 2007).

#### ***4.2 Why - Motivations for IT outsourcing in the public sector***

The motivations driving the PS towards ITO can be broken down into three categories which we would label as economic, organisational and political. The economic and the majority of organisational motivations are also commonplace in the private sector. Political motivations are more clearly linked to the public sphere, although they are not exclusive to it.

##### ***4.2.1 Economic***

- **Cost reductions:** As in the private sector, this is the main rationale behind ITO in the PS (Alexander, 2002; Beyah & Gallivan, 2001; Chen, 2002; Gordon & Walsh, 1997; Graham & Scarborough, 1997; Ni & Bretschneider, 2007; Ruzzier, Sohal, Katna, & Zyngier, 2008; Willcocks & Currie, 1997; Willcocks & Kern, 1998) and one of the



main goals in any IT procurement process, irrespective of the technological trend or IT management system to be adopted at any given time. For example, Rossi, Russo, and Succi, (2012) identify it in the case of open source adoption; Polyviou and Pouloudi (2015) in a cloud computing scenario, and Omari & Barnes (2014) in the case of a transition to a formal government IT system. This becomes even clearer in circumstances of financial restrictions or developing economies, where cost control and reduction are regarded as an obvious critical success factor (Nfuka & Rusu, 2013). Indeed, Gantman (2011) notes this is often the sole reason reported by PAs. And this is the case despite there is an experience-based increasing consensus that it is untrue that outsourcing, on its own, results in cost reductions.

#### *4.2.2 Organisational*

- **Accessing the newest technology and the most experienced professionals:** Following the rational of core competencies and in the face of ceaseless technological developments, ITO provides access to companies and professionals with a higher technological specialization than those that can be retained by the PS. Similarly, this would be the way to access the best-suited or most modern technology at any given time, thus benefiting the final quality of the service (Beyah & Gallivan, 2001; Burnes & Anastasiadis, 2003; Chen, 2002; Cordella & Willcocks, 2010; Graham & Scarborough, 1997; Khalfan & Gough, 2003; Polyviou & Pouloudi, 2015; Ruzzier et al., 2008; Willcocks & Currie, 1997).
- **Overcoming hiring rigidities:** As noted in 3.1, PAs are subject to rigid procedures for hiring staff. However, with ITO, as the relationship is with a private company, public recruitment and salary procedures and restrictions can be circumvented, providing access to professionals no longer forming part of the public employee

structure (Allen et al., 2002; Chen, 2002; De Looff, 1996; Khalfan & Gough, 2003; Slaughter & Ang, 1996; Willcocks & Currie, 1997).

- **Promoting organizational changes:** When raising the need for organizational change in a PA to promote new forms of internal behaviour (for example, boosting certain types of efficiency or productivity) or to overcome old ones (such as unproductive processes justified by custom or the bureaucratic culture), it is often complicated to introduce them, given the labour rigidity inherent in the PS (usually designed to guarantee certain rights on the part of public employees). ITO could be suggested as a tool that would allow these changes to be introduced (Allen et al., 2002; Chen, 2002). But it could simply be used as a tool for reducing working structures (Alexander, 2002; Graham & Scarborough, 1997) or to recentralise and (externally) reorganise the IT function (Markus, Bui, Jacobson, Mentzer, & Lisein, 2013). However, in all these cases, the usual resistance of PS workers to being transferred to the private sector or the loss of acquired rights may prove a significant obstacle to the process (Graham & Scarborough, 1997; Ruzzier et al., 2008).

#### 4.2.3 Political

- **Policy requirements:** In the first experiences of ITO in the PS, the predominance of political viewpoints holding that private sector was always more effective and economical than the PS culminated in compulsory ITO processes in different PAs. This was the case of the United Kingdom (in the middle of the 1990s within the context of *Compulsory Competitive Tendering*, developed by the Conservative government under Margaret Thatcher (Currie, 1996; Hancox & Hackney, 2000), and also in the United States (during the same time and within the context of the *National Performance Review* promoted under the Democrat administration of Bill Clinton (Beyah & Gallivan, 2001; Lacity & Willcocks, 1997) and Australia (at the end of the

1990s under John Howard's Liberal government (Ruzzier et al., 2008), based on other experiences such as those of the UK and the US (Seddon, 2001). This was also the case, at regional level, with the Government of Catalonia, in Spain (in 1998, under a centre-right government, as we noted in [*blinded reference*]). Complementarily, the need to control public budgets at times of economic difficulties means that IT investments or expenses are one of the budget headings first looked at by politicians to cut costs (Pang, 2014).

It should also be borne in mind that, as Gantman (2011) notes, those at the top of the political hierarchy taking the decisions are mentally distanced from those who have to implement them (PS employees at a technical or middle management level). This can sometimes mean that the political decision is not properly thought through or analysed.

- **Fashionable trends:** Establishment of a trend has two effects, irrespective of the political orientation of the government: one of pressure and the other of mimicry. Pressures, originating in bodies or countries that have already carried out ITO, push others to follow the same route (De Looff, 1996). Mimicry, which affects administrations wishing to opt for ITO, is often an attitude based on these prior experiences, often with little thought or criticism (Seddon, 2001; Willcocks & Currie, 1997). Obviously, these trends can change over time, as happened in the middle of the 1990s, when some significant cases of failure first became known (Gantman, 2011).
- **Industrial policy:** In certain geographical and social contexts and in different spheres of public procurement, PAs take decisions on the basis of industrial policy. In other words, they may feel pressured to procure outsourced services from local, regional or national suppliers to stimulate business and job creation in these geographic areas (Graham & Scarborough, 1997; Moe, 2014; Ni & Bretschneider, 2007; Seddon, 2001; Timbrell, Hirschheim, Gable, & Underwood, 1998), prioritising this factor above

others that may be more objective from an economic or technical standpoint. As noted by Moe & Päiväranta (2013) and Moe (2014), this is also the case in other areas of public procurement and may entail “conflict between stimulating the business community in one region and ensuring equal opportunities for all businesses irrespective of where they are located”. Furthermore, any agreement on the outsourcing of a public IT department entails the risk that redundancies occur when awarded to the private sector. In this situation politicians may accompany it with other compensatory measures, even if partial, to create new jobs and relocate the affected workers in their local area or their area of influence (Gordon & Walsh, 1997).

#### ***4.3 What - Scope and object of IT outsourcing***

With regard to the scope of ITO, the first published cases referring to the PS make clear the trend of emulate the experience of the private sector (Willcocks & Currie, 1997) choosing the option of *total outsourcing* (that is, when ITO affects more than 80% of the IT function (Dibbern et al., 2004; Heywood, 2001). These cases were due not to organisational but rather political reasons (Beyah & Gallivan, 2001; Currie, 1996; Hancox & Hackney, 2000; Lacity & Willcocks, 1997; [blinded reference]).

In the PS, *selective outsourcing* (that is, when ITO affects some parts of the IT function) (Dibbern et al., 2004; Heywood, 2001) became more popular after the appearance and dissemination of significant failures in cases of total outsourcing (Beyah & Gallivan, 2001; Willcocks & Kern, 1998). Selective outsourcing allows a public organisation to make a gradual transition, gaining experience in the process and diversifying its sources of supply. Additionally, it helps retain that part of the IT function making up the core of its most specific and strategic activities (Cordella & Willcocks, 2010; Moon, Swar, Choe, Chung, & Jung, 2010; Seddon, 2001).

Amongst the variants of selective outsourcing, Willcocks & Currie (1997) and De Looft (1996) look at the opportunities provided by *insourcing*. According to Dibbern et al. (2004) and Heywood (2001), insourcing is not, strictly speaking, outsourcing, but is approached as such: procurement is made from a team internal to the organisation that acts as supplier and treats said organisation as a client. In the PS, insourcing does not arise so much for economic reasons, but for the inside knowledge provided by the PS professionals (Cordella & Willcocks, 2010; Moon et al., 2010).

Lastly, another variant of selective outsourcing mentioned in literature is *co-sourcing* or *multi-sourcing*. According to Dibbern et al. (2004) and Heywood (2001), this variant involves a number of small clients of a specific function coming together to become, with their now larger size, more attractive to a supplier or group of suppliers that would otherwise not be interested in them. Authors such as Alexander (2002) and Edguer & Pervan (2007) regard co-sourcing as a strategy that should be borne in mind by smaller PAs.

Alongside the issue of the optimum scope of outsourcing there is a degree of consensus in literature which regards *IT commodities* (such as the acquisition and management of technological and network infrastructure, base software, workplaces and security services) as a good starting point when tackling ITO (Davies, 1993; Dertz et al., 2003; H.Lindskog, 2005; Rapcsak, Sági, Tóth, & Kétszeri, 2000; Willcocks, 1994; Willcocks & Currie, 1997), given that they are easily definable services whose quality and final cost are more easy to assess. On the other hand, IT services that are more complex (due to their size, internal heterogeneity, the difficulty in defining requirements and their trends, their uniqueness and specificity or to their involving a large amount of software development, for example) are also more difficult to outsource (Globerman & Vining, 1996; Moe, 2014; Pawlowska, 2004). Unlike *commodities*, these *specialties* are also difficult to monitor and assess.

Nevertheless, with external supply becoming the norm for procuring any IT service, these complex projects have also been carried out externally in the PS (Beyah & Gallivan, 2001; Moon et al., 2010). This requires a flexible attitude, an appreciation of the differences in managing these services compared with others and flexibility with regard to formal requirements (Mulgan, 2005; Ni & Bretschneider, 2007; Ruzzier et al., 2008). Indeed, when the retaining of an internal IT team by means of *insourcing* was regarded as a valid option, it was done to tackle complex projects of which there was good internal knowledge (De Looff, 1996).

#### ***4.4 How - Basics for the IT outsourcing process***

The basics taken from literature to deal with ITO in the PS can be broken down into four main categories which have also been used for the private sector. The next four subsections detail each category. Additionally, figures 2, 3, 4 and 5 respectively present a conceptual model for each one. Those models graphically highlight the relationships among the main ideas of each subsection.

##### ***4.4.1 Senior management involvement: strategy versus costs.***

ITO is a strategic move. It is therefore vital that public organisations' senior management, both political and technical, understand its importance and become involved in the strategic management of this decision (Chen & Perry, 2003; Guah & Currie, 2007; Moon, Choe, Chung, Jung, & Swar, 2014; Moon et al., 2010; Peled, 2001). This senior management responsibility cannot be avoided or diverted to other levels, such as the technical level or operational management within the organisation, or to the supplier (Chen, 2002; Davies, 1993). Indeed, some authors (Alexander, 2002; De Looff, 1996; Guah & Currie, 2007; Lacity & Willcocks, 1997; Peled, 2001; Sullivan & Ngwenyama, 2005) argue that senior managers

have little experience in these processes and that they tend to excessively delegate their responsibilities. Cordella & Willcocks (2010) go still further and speak of a lack of interest and motivation, making it extremely difficult to create the proper climate for a successful ITO. Accordingly, the two cases studied by Rossi et al. (2012) on the adoption of free/libre/open-source (FLOSS) solutions in two different PAs confirm the importance of the involvement of senior management teams in both the adoption and the initiation stages.

To appreciate the strategic importance of this issue, there is also a need to overcome the assumption that ITO can be dealt with like the outsourcing of other services of little added value or which are clearly standardised, as if it were just another administrative procurement process (Chen & Perry, 2003; Moon et al., 2010). It is also necessary that senior managers understand that not all IT services are the same, and that the process for outsourcing or acquiring them may vary depending upon their type (Ni & Bretschneider, 2007). There is also a need for a thoughtful and critical approach to the market's usual broken or unproven promises: costs reduction, access to advanced technology and expertise, and improved efficiency in processes (Cordella & Willcocks, 2010, 2012; Willcocks, 1994; Willcocks & Currie, 1997).

In this regard, savings in production costs (due to not having to retain in-house resources, both human and material) must be set against costs arising from operations, particularly those of managing the resulting relationship (De Looff, 1997; Globerman & Vining, 1996; Hancox & Hackney, 2000). Indeed, Seddon (2001) also argue that grouping together the IT requirements of different departments of a single PA and outsourcing them under one big contract does not work. He considers that it leads to such a great increase in coordination costs (even more so if the IT services are dissimilar) that any potential economies of scale arising from grouping them together are neutralised. What is more, senior management needs to accept the fact that it is often very difficult to calculate the real costs of the chosen option

and that, when it is advisable to do so, even approximately, they are often very different to those forecast (Alexander, 2002; Gordon & Walsh, 1997; Ruzzier et al., 2008; Seddon, 2001). Indeed, Ruzzier et al. (2008) argue that price, i.e. forecast costs and savings, should not be the key factor in the choice of provider.

All this justifies the existence of the Chief Information Officer (CIO) role, adapting it to the context and idiosyncrasies of the PS and to ensure it promotes the strategic importance of IT, where such a culture is not so deeply-rooted. This is the idea raised by Lawry & Waddell (2008), who study the perception of this office held by those holding it, but also the expectations they perceive that they generate in their context; and by Hooper & Bunker (2013), who analyse it from the standpoint of the competences these CIOs should have in comparison with those in the private sector. Confirming the importance of this role, Pang (2014) shows how the existence of the CIO, legally formalised and empowered by the politicians responsible, clearly contributes to the efficient use of IT resources and investments in the PS.

#### *4.4.2 Supplier search and selection*

The stage dedicated to careful search into and selection of supplier (already considered a critical factor in the private sector as noted by Seddon (2001) and Lacity et al. (2009) amongst others) should also be key and unavoidable in PAs. Indeed, in many cases, the majority of ITO efforts are focused on this stage, which must also undertake contractual formalisation that tends to be extremely strict, due to the legal, formal and procedural restrictions aimed at ensuring transparency and fair competition principles (Moe, 2014).

Furthermore, Seddon (2001) and Chen & Perry (2003) consider that the most important characteristic of a supplier is associated not with its capabilities and technical skills, but with its stability and strength and also with financial, leadership and market continuity-related



aspects. In short, there needs to be confidence in the supplier's permanence as a going concern, to remove the risk of service disruption that may occur if the supplier turns out to be unreliable. For their part, Chen & Perry (2003) also regard as highly valuable characteristics the alignment of the supplier's and the client's interests, security-related skills (both technical and project management) and its capacity to integrate services and technologies, more than its specialisation in particular solutions. Similarly, Currie (1996) notes some generic selection criteria used in real-life case studies and Lewis (1999) regards as vital the assessment of the risks associated with the offers received and the client's capacity to deal with said risks. Additionally, the perceived prestige of the supplier obtained from a market analysis performed by third parties also influences the supplier selection process (Pollock & Williams, 2007). As a result all these expectations are added to the bureaucratic requirements and have a negative impact on an innovative SME's chances of winning public procurement processes (Karjalainen & Kemppainen, 2008).

Assessment of technical abilities is the second characteristic to be borne in mind in the supplier selection process. Rapcsak et al. (2000) provide a detailed list of the specific requirements used in a case of the pre-qualification of technological infrastructure project suppliers. In this case, the pre-qualification (defined as a preliminary test or phase to whittle down the number of potential tender candidates) demanded of suppliers a set of legal, financial and technical capacity requirements arranged into a decision tree with differently-weighted branches: prior references, service and product capacities, and employees. Our work [*blinded reference*] also collates a set of parameters required of software service providers, the majority of them technological, but also with regard to their characteristics and organisational idiosyncrasy. For their part, the cases studied by Moe, Risvand, & Sein, (2006) make clear the importance of the supplier's professional capacities compared with the search for the best offer.

#### 4.4.3 *Supplier relationship management*

After the choice of suppliers has been made, one of the most accepted risks of a ITO process is the dependence upon them that may arise (Lacity et al., 2009) and not only in total outsourcing processes leading to situations of quasi-monopoly (Willcocks & Currie, 1997). These dependencies may also occur in a diversified number of suppliers scenario (Cordella & Willcocks, 2012), as reflected in their opportunistic attitudes or positions of strength (Dawson, Watson, & Boudreau, 2010; Lin et al., 2007; Sullivan & Ngwenyama, 2005). These attitudes become more likely the higher the cost of changing supplier, the more specific, complex or critical the service supplied, the fewer the number of actually available suppliers and the greater the information asymmetry between client and supplier (Dawson et al., 2010; Globerman & Vining, 1996; Pawlowska, 2004; Sullivan & Ngwenyama, 2005). Despite the fact that there are cases in which the procuring client has an asymmetric advantage over the supplier, it is more common for such an advantage to lie with the suppliers (Dawson et al., 2010). All in all, this often results in a loss of control over IT management, a loss of internal IT know-how (Sullivan & Ngwenyama, 2005) and of strategic vision and management thereover (Cordella & Willcocks, 2010; Willcocks & Currie, 1997), or, even worse, a loss of the public value outcomes that IT should have contributed to the services the administration provides to the public (Cordella & Willcocks, 2012). It is therefore to be able to react to these risks of dependence and loss of control that managing and overseeing the relationship with the IT provider is so important.

A *contractual relationship* is a first approach because a strictly contractual standpoint fits with the public sector's needs for formalisation, regulation, transparency and oversight. A contract is of undeniable importance in defining a project's scope, commitments and details. In PS it may attach great importance to penalties for non-compliance and highly formalised

procedures that even go so far as to cover communications between the parties (Gantman, 2011). And this can lead to obvious inflexibilities, unlike what is more frequently the case in the private sector (Ruzzier et al., 2008). This potential problem of inflexibility can affect both aspects associated with the contract and aspects that are not specifically included but which implicitly, with a flexible interpretation, should be regarded as encompassed by it (Chen & Perry, 2003; Currie, 1996; Graham & Scarborough, 1997; Khalfan & Gough, 2003; Lacity & Willcocks, 1997). All this may give rise to situations of mistrust (Hancox & Hackney, 2000) or even conflicts that eventually result in termination of the contract and thus problems of project continuity. In private sector these problems could well have been simply resolved by more direct, informal communications (Burnes & Anastasiadis, 2003).

If this is accepted, the second way of undertaking the management of this relationship is to establish flexibility mechanisms that permit an associative one beyond the realm of contracts. In literature, this type of relationship is called a *partnering relationship* or *partnership*. This approach focuses on the importance of flexibility aimed at the securing of mutual benefits rather than strict enforcement of monitoring parameters (Dibbern et al., 2004). The idea is to fully encourage mutual understanding of goals and expectations, as well as co-responsibility. Its highest expression could be seen as *strategic* or *networked alliance* within a win-win philosophy (Chen & Perry, 2003; Davies, 1993; Moon et al., 2014, 2010; Willcocks, 1994; Willcocks & Kern, 1998). Nevertheless, establishing a trusting, collaborative relationship with suppliers can be difficult due to the differences in values, behaviour and culture between the public and private sectors (Guah & Currie, 2007; Hancox & Hackney, 2000; Mulgan, 2005), as well as the aforementioned difficulties with informal communications (Ruzzier et al., 2008). Nevertheless, Lawther & Martin (2005) suggest a mechanism of added complexity, public-private partnerships (PPP) as an instrument to be used in the public procurement of IT.

Whatever the type of relationship established (contractual, partnership or some combination of the two) as Gantman (2011) concludes, the quality of this client-supplier relationship is a critical factor in ITO. Similarly, Moon et al. (2014, 2010) state that ITO in the PS should be viewed more as an issue of long-term supplier relationship management than one of a contract dealing with IT as a commodity, given that the services in question are usually unique, complex and strategically structural. Following this line, subsequent works by the same authors (Swar, Moon, & Khan, 2012; Swar, Moon, Oh, & Rhee, 2012) identify, correlate and order a list of critical factors in this relationship in the PS: commitment, trust, communication, cooperation, information sharing, coordination, conflict resolution, flexibility, cultural compatibility and interdependence. Additionally, Hartnett, Daniel, & Holti (2012) develop a conceptual model for the relationship between client and consultant, a relationship that is dubbed "engagement" and which depends upon three conditions (environment, participants, expertise) and three behaviours (sharing, sense-making and adapting). In any case, all these factors and behaviours, particularly trust, become vital when, as in the Swedish case of Johansson & Lahtinen (2012), announcements leave in candidates' hands the declaration on the fit between required and provided functionalities, and their truthfulness is not checked. Lastly, Lin et al. (2007) count as one of the most frequently-mentioned reasons for failure of ITO in the PS (Graham & Scarborough, 1997; Perrin & Pervan, 2004; Sullivan & Ngwenyama, 2005) that of unattended monitoring and evaluation processes, specifically those of projects, as we shall see below.

#### *4.4.4 Internal staff for project management*

This vital monitoring and oversight of the relationship arising from ITO must be carried out by the client by means of a structure of professionals that must, as a whole, be specialised in managing the different stages of this process. Their areas of authority must allow them to delimit requirements, to define parameters and procedures for monitoring the expected

implementation and its expected quality and outcomes, to draw up the request for tenders, to examine suppliers and their bids, to manage the tender award process, to ready the contract, to monitor the implementation and to oversight the operations, among others (Chen, 2002; Chen & Perry, 2003; Davies, 1993; Domberger, Fernandez, & Fiebig, 2000; Guah & Currie, 2007; Lawry & Waddell, 2008; Ni & Bretschneider, 2007; Pawlowska, 2004; Peled, 2001; Willcocks, 1994; Willcocks & Currie, 1997). To give one example of the importance of managing the project and communications and oversight between the internal team representing the client and the supplier, Moon et al. (2014), for example, note the impact of the frequency of project oversight meetings on a project's level of success.

Given that, the technical competence of these teams and their retention are of vital importance in preventing loss of control over projects (Lin et al., 2007; Peled, 2001; Willcocks & Currie, 1997). These professionals are also the point of contact between the procuring organisation's IT needs and their provider, and should for this reason enjoy a certain degree of job security and continuity. This also means that it must be a team large enough to monitor all the outsourced IT projects and to able to maintain contact and bridges built with suppliers, above and beyond the scope of specific projects (Chen & Perry, 2003). The talk is of *technical teams*, but such teams require a degree of *structure* to organise them (Seddon, 2001). This becomes particularly important in an environment in which changes in interlocutors are, due to political or electoral reasons, more frequent than in the private sector (Gordon & Walsh, 1997).

Lastly, with regard to the parameters these technical and professional teams should define to evaluate the project, we would note that we have made mention above of the difficulty in calculating costs. This aside, Willcocks & Currie (1997) recommend using the concept of *degree of success*. Similarly, Ruzzier et al. (2008) suggest using specific operational or functional goals, more than strict compliance with service level agreements, given that the

concepts of success and compliance versus failure or non-compliance are excessively binary. In much the same sense, Hoang, Deegan, & Rochford, (2013) suggest a framework for defining project success that leads to the idea of *degrees of success*. In short, whilst it is true that few projects are clear-cut and complete successes in every regard, and although they diverge from the classic expectations of functionality, duration and success, the majority become operational and perform acceptably (i.e. with a certain *degree of success* that the internal team for ITO project management must justify and explain).

Before addressing in the next section the differences between ITO in PS versus ITO in private sector, we briefly summarize to which extent relevant differences *among* different public sectors have been detected during our analysis.

As we have stated at the end of section 3, we can consider that 97% of the references come from western countries. (USA, UK and Australia -14 each one-, 3 from Canada, 18 from continental Europe and Israel and 1 from New Zealand). The sharing of this political and cultural proximity probably could explain why we have not found relevant differential approaches in public sector management. Values such as transparency, impartiality and the common good are core principles followed implicitly or explicitly in all the studied cases. And they are among the common features of PS that we pointed in section 4.1.

Where differences are clearly appeared among PS management strategies is in the government political orientation of each moment. Thus, for example, as we stated in Subsection 4.2.3. (Policy Requirements), right-wing or liberal orientations in governments of UK, USA and Australia became a main driver for ITO in their Public Sectors. During this periods there was a strong tendency towards the reduction of the PS presence or size, but not towards the rejection of the principles stated before. Those are periods with a more private-like or private-friendly orientation and similarities.

Another factor that was observed to be significant in PS management differences is the geographical context. This appears in the references that explain developing countries scenarios (Khalfan & Goug, 2002; Nfuka & Rusu, 2013) or remote or underpopulated zones (Dertz et al, 2003). And finally the last factor that appeared as relevant is the public administration size or level: needs and strategies of municipalities (Alexander, 2002; Edguer & Pervan, 2004) explain differential approaches (for example in co-sourcing) in contrast to other public sectors of bigger geographical size (as regional or national).

## **5. Discussion: ITO in the public sector vs. ITO in the private sector**

The descriptive framework introduced in the preceding section and the associated state of the art point to a set of concepts, many of which can also occur in the private sector and which can therefore be found in Tables 2, 3 and 4 (motivations, risks and key success factors, respectively). So, when tackling our last goal (ascertaining whether the differences between public and private sector ITO are important), we will highlight only those ideas from our descriptive framework that do not appear in said tables, as well as some differentiating aspects or specific details that we have noted in presenting the state of the art in the preceding section.

This comparison of differences is summarised in Table 8 where third column indicates the degree of equivalence, on an increasing scale: “No equivalence” indicates that the idea is practically exclusive to the PS; “Partial” means that some component of the idea also occurs in the private sector; and “Total” indicates that the idea is common to public and private sectors alike. Quantitatively, a simplified summarization of this analysis is that we have identified 8 concepts that are clearly different, 3 concepts that are partially equivalents, 4 concepts that are equivalent but with some particularities, and, finally, 8 concepts that are

clearly equivalent. Nonetheless, it must be noted that the idea of *degree of publicness* must allow us to view this classification better as a starting point than as a strict classification tool.

With regard to the **determining characteristics of the PS**, the *prioritization of non-economistic values* is the most obvious distinctive trait. Transparency, impartiality and the common good are not demanded of the private sector, but are, in principle, of the PS. The fact that the politicians responsible are highly regarded when acting on these bases means that the logic behind decisions or processes does not prioritise above everything else economic, time-related or procedural efficiency. Similarly, *bureaucratic procedures* impact upon the logic and performance of ITO processes in the PS, and although they may also exist in the private sector, in those particular situations that call for them, they can always be simplified or ignored. (Table 3 mentions the Cultural differences between client and supplier: only if we regard these differences in values as a cultural trait can we regard this issue as being dealt with in literature in ITO in general.)

*Volatility in criteria and politicians responsible* can be regarded as partly associated with the reasons in Table 2 (*Political reasons or personal agendas*). However, it is clear that electoral cycles are exclusive to the PS and are always a presence in their functioning: it is frequently the case that each electoral cycle brings with it changes of greater or lesser significance. This has an impact upon strategic approaches (which are often reduced to the length of said electoral cycle) and can explain the changes in criteria of the politicians responsible, who see in said changes the opportunity to improve their electoral standing. In the private sector, volatility in management and criteria can and does arise, but is unlikely to do so in response to such a clear temporal cycle so affected by public or social perception or requirements (even though we accept that there are situations in which the negative social impact of an organisation's activities or behaviour may compel it to change).



The *difficulties in hiring professionals*, due to the demands of complex recruitment and competitive examination processes, are also clearer in the PS. Although they may also occur in the private sector, it is also true that they can, when so justified and as we have noted above, be simplified, made more flexible or ignored, something which is, if not impossible, neither simple nor easy in the PS. On the other hand, retaining professionals for salary-related reasons is, we believe, an issue in both sectors. Nevertheless, it arises on an inverse basis depending upon the point of the economic cycle: in times of crisis, the PS is an interesting employer to qualified workers due to the job security usually implied by the length of the contract, whilst in times of economic boom, the private sector tends to be more attractive, as it provides significant better salaries.

The *complexity of the external and internal environment* is important in the PS with regard to its power or political influence. Whilst in the private sector and in situations of similar complexity, strong leadership can make it easier to manage this complexity and align conflicting goals, in the PS this strong leadership is not so common, as it is scattered across different positions or in positions that are clearly affected by the actions of other stakeholders.

As far as **ITO drivers** are concerned, and in line with what we have noted with regard to the difficulties in hiring professionals, the driver *overcoming hiring rigidities* is fairly unique to the PS. Similarly, *industrial policy* is the other driver most peculiar to the PS: although some private enterprises can act in response to pressure or a belief in protecting their industrial sector (as reflected in Table 3 under *perceived as unpatriotic* with regard to the offshore option), such attitudes are under no circumstances required in the private sphere. However, in the PS, once again in response to specific political criteria and not always coinciding with economic or business logic, the protectionist approach can be regarded as intrinsically inherent. The other two drivers we have labelled as political (policy requirements and

fashionable trends) are present in Table 2 (motivations) under "Political reasons or personal agenda", although it is not regarded as a leading driver in the private sector.

With regard to **scope and object** the process is parallel to that of the private sector. The only singularity that appears to be present in the public rather than the private sector is the option of *co-sourcing* or *multi-sourcing*, defined, within the context of smaller PA, as the grouping of small clients of a specific function to become, due to their combined size, more attractive to a supplier or set of suppliers that would otherwise have no interest in them, taken individually.

Lastly, turning to the **Basics on the process**, that regarding *Senior management involvement: strategy versus costs* also appears in the private sector (Table 3: *strong and well defined strategy, Treating IT as an undifferentiated commodity, no overall cost savings, supplier (...) inexperienced*). Nevertheless, we would highlight three ideas: a) that, in the case of the PS, a number of authors point not to a lack of experience, but to a lack of interest in these processes on the part of senior management teams, something that is not likely to be so commonplace in the private sector; b) that, due to the complexity and diversity of the context, of bureaucratisation and a silo mentality, literature warns that, in the PS, grouping together the IT needs of different public departments or bodies may lead to the neutralisation of economies of scale (in other words, the expected cost savings will not occur); and c) that the figure of the CIO also makes sense in the PS, once adapted to its differential features.

With regard to *researching and selecting suppliers*, non-technical aspects (financial solvency, expectations of continuity and solidity), although also present in the private sector (cf. Table 3: *poor supplier (...) financial stability, supplier goes out of business*), are key and vital in any public procurement processes, which cannot be completed if such strengths are not proven.

As far as *supplier relationship management* is concerned, the issues are also recurrent in the private sector (Table 3: *Biased portrayal by vendors, Cultural differences between client and supplier, Inability to manage supplier relationship, loss of control over vendor, Supplier has too much power over the customer, vendor lock-in*, amongst others). However, it would appear that it is more natural in the PS to opt for a contractual relationship that provides a more direct fit with the bureaucratic requirements of formalisation and transparency (even though this emphasis may entail inflexibility and additional complexity that the private sector might be able to avoid). For the same reasons, although acknowledging the advantages of a partnership system, it also appears clear that the cultural differences in values and behaviour between the public and private sectors make it difficult to apply.

To conclude this comparison, as far as *the internal team of professionals for project management* is concerned, their retention is regarded as even more critical than in the private sector, not only for the monitoring of project implementation itself and use of the resulting IT systems, but also to offset the volatility of political offices (and the associated trends) due to electoral cycles. This retention helps ensure maintenance and continuity in supplier relationships to avoid, for example, the risks of service disruptions or to guarantee and explain their operational logic.

## **6. Conclusions**

Although, in recent years, academic literature has shown increased interest in ITO in the PS, there are still few works that aim to summarise the state of the art of the matter. Our descriptive framework, based on a thorough review of the literature, has analysed 96 sources (highly diverse in nature and covering the 1980-2015 period) in an attempt to reveal the most important issues dealt with.

We have organized our proposed descriptive framework in four main categories. The first one explains the context of PS (its defining features, which are not necessarily exclusive). The other three, based on the work of Dibbern et al (2004), develop the rationale of the ITO process in the PS (*Why*: motives or drivers that trigger the ITO process; *What*: scope and object of ITO; and *How*: basics that support the entire ITO process). Those categories have allowed us to fit all the ideas emerging from the literature. Moreover, those categories have been also useful for organizing the discussion about the differences between the PS and the private sector regarding the ITO process. We have developed this discussion by comparing the framework elements with those already depicted by previous general literature on ITO (from that work of Dibbern et al. (2004) and also from those of González et al. (2006) and Lacity et al., (2009).

Thus, this framework encompasses aspects appearing in the PS but not exclusive to it, as they may also arise in the private sector, depending on each particular organisation's *degree of publicness*. However, our concluding discussion highlights those aspects that do appear exclusive to ITO in the PS or that are, at the very least, more frequent there than in the private sector. This differential analysis, although it has not revealed many exclusive aspects, has found some that should not be ignored when undertaking a ITO project or process in the PS. In this sense, a final summarization of the differences can be the following:

- 8 concepts are clearly different: 5 features from PS (Prioritization of non-economistic values, Bureaucratic procedures, Difficulty in hiring qualified professionals, Complexity of the external and internal environment, Difficulty in retaining qualified professionals -with an opposite logic to this of private sector-); 2 drivers (Overcoming hiring rigidities, Industrial policy); and 1 from the scope (Co-sourcing and multi-sourcing as a customer's group strategy to become interesting to the main suppliers).

- 3 concepts are partially equivalent: 1 feature from PS (Criteria and political volatility) and 2 drivers (Policy requirements, Fashionable trends).
- 4 concepts are equivalent but with some characteristics that are very intrinsic to the PS. These 4 concepts come from ITO basics (Supplier search and selection -non-technical and technical requirements-, Supplier relationship management, Internal staff for project management)
- And, finally, 8 concepts are clearly equivalent: 3 features (Silo mentality, Complexity and specificity of IT, Lack of experience in IT project management); 3 drivers (Cost reductions, Accessing the newest technology and the most experienced professionals, Promoting organizational changes); 1 from scope (Selective ITO focused in commodities), and 1 ITO basic (Senior management involvement: strategy vs costs)

We expect that our proposed descriptive framework (summarized in figures 1 to 5) and our differential analysis (summarized in table 8) can be useful for practitioners and researchers interested in the differences between public and private sector ITO, as well as a starting point for them to enrich, refine and expand it in the future.

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	Dibbern <i>et al.</i> (2004)	Gonzalez <i>et al.</i> (2006)	Lacity <i>et al.</i> (2009)
Decision phase	<b>Why</b> <ul style="list-style-type: none"> <li>• Determinants &amp; antecedents</li> <li>• Advantages &amp; Disadvantages</li> <li>• Risks &amp; rewards</li> </ul>	<ul style="list-style-type: none"> <li>• Reasons</li> <li>• Decision making</li> <li>• Risks</li> </ul>	<ul style="list-style-type: none"> <li>• 1.ITO Determinants</li> <li>• 2.ITO strategy</li> <li>• 3.ITO risks</li> </ul>
	<b>What</b> <ul style="list-style-type: none"> <li>• Alternative outsourcing arrangements</li> <li>• IS functions to be outsourced</li> </ul>	<ul style="list-style-type: none"> <li>• Application software provider (ASP)</li> <li>• Global outsourcing</li> </ul>	<ul style="list-style-type: none"> <li>• 6.Sourcing varieties</li> </ul>
	<b>Which</b> <ul style="list-style-type: none"> <li>• Choice to be made</li> </ul>		
Implementation phase	<b>How</b> <ul style="list-style-type: none"> <li>• Vendor selection</li> <li>• Contract negotiation</li> <li>• Choosing &amp; structuring relationship type</li> <li>• Methods, techniques &amp; approaches for a higher degree of ITO success</li> </ul>	<ul style="list-style-type: none"> <li>• Contract</li> <li>• Assessment &amp; price</li> <li>• Relationship</li> </ul>	<ul style="list-style-type: none"> <li>• 5. Client &amp; Supplier capabilities</li> </ul>
	<b>Outcome</b> <ul style="list-style-type: none"> <li>• Results</li> <li>• Consequences</li> <li>• Success</li> <li>• Failure</li> <li>• Lessons learned</li> </ul>	<ul style="list-style-type: none"> <li>• Success</li> </ul>	<ul style="list-style-type: none"> <li>• 4.ITO success</li> <li>• 5. Client &amp; Supplier capabilities</li> </ul>

Table 1 - Comparison of categories and matters analysed by Dibbern *et al.* (2004), Gonzalez *et al.* (2006) and Lacity *et al.* (2009)



<i>Motivation</i>
Cost control and reduction
Focus on core capabilities
Access to supplier expertise/skills
Improve client's business, processes and capabilities performance (using supplier's help)
Technical reasons (access to leading-edge technology)
Flexibility (in order to adapt to change)
Political reasons (or personal agendas)
Catalyst for change (to bring about large-scale changes in the client's organization)
Commercial exploitation (of existing client assets or in order to form a new enterprise)
On-demand scalability of the volume of required IS services
Access to global markets (by outsourcing to suppliers in those markets)
Alignment of IS and business strategy
Cost predictability
Headcount reduction
Need to generate cash (through the sale of IT assets)
Need to speed up project delivery
Innovation (to use outsourcing as an engine for innovation)
Cost control and reduction
Focus on core capabilities
Access to supplier expertise/skills
Improve client's business, processes and capabilities performance (using supplier's help)
Technical reasons (access to leading-edge technology)
Flexibility (in order to adapt to change)
Political reasons (or personal agendas)
Catalyst for change (to bring about large-scale changes in the client's organization)
Commercial exploitation (of existing client assets or in order to form a new enterprise)
On-demand scalability of the volume of required IS services
Access to global markets (by outsourcing to suppliers in those markets)
Alignment of IS and business strategy
Cost predictability
Headcount reduction

Table 2 – Motivations for general ITO (adapted from Lacity et al. 2009)

<i>Risk</i>
Backlash from internal IT staff
Biased portrayal by vendors
Breach of contract by the vendor
Cultural differences between client and supplier
Difficulty in managing remote teams
Excessive transaction costs
Hidden costs
Inability to manage supplier relationship
Inflexible contracts
Infringement of IP rights
Lack of trust
Loss of autonomy and control over IT decisions
Loss of control over data
Loss of control over vendor
Loss of in-house capability
No overall cost savings
Perceived as unpatriotic (offshore)
Poor supplier capability, service, financial stability, cultural fit
Security/privacy breach
Supplier employee turnover/burnout
Supplier employees are inexperienced
Supplier employees have poor communication skills
Supplier goes out of business
Supplier has too much power over the customer
Transition failure
Treating IT as an undifferentiated commodity
Uncontrollable contract growth
Vendor lock-in (high switching costs)
Backlash from internal IT staff
Biased portrayal by vendors
Breach of contract by the vendor

Table 3 – Risks of general ITO (adapted from Lacity et al. 2009)

<i>Key Success Factor</i>
Client capabilities
Strong and well-defined strategy
Strong and well-defined ITO processes
Contract formulation
Permanent managing of the relationship with providers

Table 4 – Key success factors of general ITO (adapted from Dibbern et al. (2004), Gonzalez et al. (2006) & Lacity et al. (2009))

<i>Journal or Conference</i>	<i>Field</i>	<i>N.Ref.</i>	<i>References</i>
Americas Conf. on Information Systems	IS	4	Alexander (2002), Chen (2002), Dertz et al. (2003), Hoang et al. (2013).
European Conf. on Information Systems	IS	3	Davies (1993), Guah & Currie (2007), Markus et al. (2013).
European Jour. of Information Systems	IS	3	Currie (1996), Willcocks & Kern (1998), Allen et al. (2002).
Hawaii Int. Conf. on System Sciences	IS	3	Beyah & Gallivan (2001), Lindskog (2005), Polyviou & Pouloudi (2015).
Decision Support Systems	Mng	2	Rapesak et al. (2000), Pang (2014).
Electronic Government	PA	2	Moe et al. (2006), Moe & Sein (2014).
Government Information Quarterly	PA	2	Scholl (2006), Cordella & Willcocks (2010).
Information and Organization (Account., Manag. and IT)	Mng	2	Heiskanen et al. (2000), Pollock & Williams (2007).
Information Systems Jour.	IS	2	Lacity & Willcocks (1997), Hancox & Hackney (2000).
Information Technology & People	IS	2	Lin et al. (2007), Rossi et al. (2012).
Jour. of Global Information Technology Management	IS	2	Gantman (2011), Nfuka & Rusu (2013).
Jour. of Information Technology	IS	2	Lewis (1999), Domberger et al. (2000).
Jour. of Purchasing and Supply Management	Mng	2	Lawther & Martin (2005), Karjalainen & Kempainen (2008).
Public Administration Review	PA	2	Globerman & Vining (1996), Ya Ni & Bretschneider (2007).
Australasian Conf. on Information Systems	IS	1	Timbrell et al. (1998).
Australasian Jour. of Information Systems	IS	1	Edguer & Pervan (2007).
Australian Jour. of Public Administration	PA	1	Graham & Scarborough (1997).
British Jour. of Management	Mng	1	Willcocks & Currie (1997).
Communications of the ACM	IS	1	Slaughter & Ang (1996).
Communications of the AIS	IS	1	Seddon (2001).
Electronic Jour. of e-Government	PA	1	Moe & Päivärinta (2013).
Electronic Jour. of Information Systems Evaluation	IS	1	Hooper & Bunker (2013).
IFIP World Conf. on IT Tools	IS	1	De Looff (1996).
IFIP Open IT-Based Innovation	IS	1	[blinded reference].
Information Development	IS	1	Moon et al. (2014).
Information Polity	PA	1	Pawlowska (2004).
Information Systems Frontiers	IS	1	Swar, Moon, Oh & Rhee (2012).
Innovation: Management, Policy & Practice	Mng	1	Moon et al. (2010).
Int. Jour. of Business Information Systems	IS	1	Ruzzier et al. (2008).
Int. Jour. of Information Management	Mng	1	Hartnett et al. (2012).
Int. Jour. of Services Technology and Management	IS	1	Swar, Moon & Khan (2012).
Int. Review of Administrative Sciences	PA	1	Mulgan (2005).
Int. Review of Business Research Papers	Mng	1	Lawry & Waddell (2008).
Jour. of Computer Information Systems	IS	1	Sullivan & Ngwenyama (2005).

Table 5 - Detail of sources and references (1/2)

<i>Journal or Conference</i>	<i>Field</i>	<i>N.Ref.</i>	<i>References</i>
Jour. of Government Information	PA	1	Gordon & Walsh (1997).
Jour. of Information Technology Management	IS	1	Al-Omari & Barnes (2014).
Jour. of Management Information Systems	IS	1	Dawson et al. (2010).
Jour. of Strategic Information Systems	IS	1	Cordella & Willcocks (2012).
Procedia Technology	IS	1	Johansson & Lahtinen (2012).
Public Administration	PA	1	Willcocks (1994).
Public Personnel Management	PA	1	Peled (2001).
Software Engineering Approaches for Offshore and Outsourced Development	IS	1	[blinded reference].
Supply Chain Management	Mng	1	Burnes & Anastasiadis (2003).
<i>Other sources: books, chapters and reports</i>		3	De Looff (1997), Khalfan & Gough (2003), Chen & Perry (2003).

Table 5 – Detail of sources and references (2/2)

<i>Source type and field</i>	<i>N..</i>
Information Systems Conferences	7
Information Systems Journals	19
Public Administration Journals	9
Management Journals	8

Table 6 – Number of sources by type and field

<i>Country</i>	<i>N.Ref</i>
Australia	14
UK	14
USA	14
Norway	4
Korea	4
Canada	3
Finland	2
Israel	2
Netherlands	2
Sweden	2
Spain	2
Greece	1
Hungary	1
Italy	1
Kuwait	1
New Zealand	1
Poland	1
Tanzania	1

Table 7 – Number of references by country

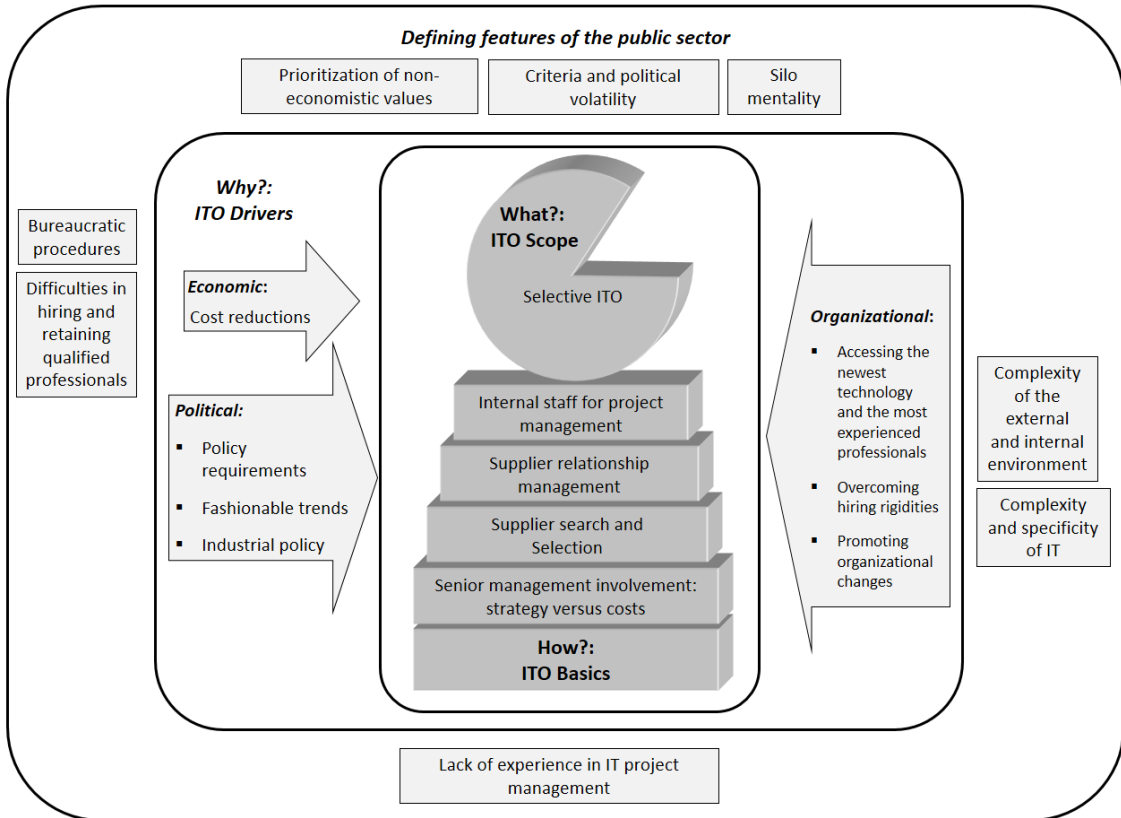
<i>Item in Descriptive Framework for ITO in the PS (figure 1)</i>	<i>Items equivalents in general ITO (tables 2 -Motivations-, 3-Risks- and 4 – Key Succes Factors, KSF)</i>	<i>Equivalence level public vs private sector</i>
<b><i>Definining features of the public sector</i></b>		
Priorisation of non-economistic values	Not found	No equivalence
Bureaucratic procedures	Not found	No equivalence
Difficulty in hiring qualified professionals	Not found	No equivalence
Complexity of the external and internal environment	Not found	No equivalence
Difficulty in retainnig qualified professionals	It appears implicitly but in a complementary logic: in times of crisis the public sector retains professionals easily; And in times of prosperity the private sector retains them better.	No equivalence (but complementary)
Criteria and political volatility	It appears in <i>Motivations</i> : Political reasons or personal agenda	Partial
Silo mentality	Equivalent: Idea from general literature of management	Total
Complexity and specificity of IT	Equivalent in <i>Risks</i> : Poor supplier capability, service, financial stability, cultural fit	Total
Lack of experience in IT project management	Equivalent in <i>KSF</i> : Client capabilities	Total
<b><i>Why: ITO drivers</i></b>		
Overcoming hiring rigidities	Not found	No equivalence
Industrial policy	Not found (although it has a punctual appearance in <i>Risks</i> : Perceived as unpatriotic)	No equivalence
Policy requirements Fashionable trends	It appears in <i>Motivations</i> : Political reasons or personal agenda	Partial
Cost reductions	Equivalent in <i>Motivations</i> : Cost control and reduction	Total
Accessing the newest technology and the most experienced professionals	Equivalent in <i>Motivations</i> : Access to supplier(s) expertise/skills; Technical reasons (access to leading edge technology)	Total
Promoting organizational changes	Equivalent in <i>Motivations</i> : Change catalyst (to bring about large scale changes in the client's organization)	Total

Table 8 - ITO in the Public sector vs ITO in the Private sector: comparison (1/2)



<i>Item in Descriptive Framework for ITO in the PS (figure 1)</i>	<i>Items equivalents in general ITO (tables 2 -Motivations-, 3-Risks- and 4 – Key Succes Factors, KSF)</i>	<i>Equivalence level public vs private sector</i>
<b><i>What: ITO scope</i></b>		
Cosourcing and multisourcing (as a customer’s group strategy to become interesting to the main suppliers).	Not found	No equivalence
Selective ITO (Commodities)	Equivalent	Total
<b><i>How: ITO basics</i></b>		
Senior management involvement: strategy vs costs	Equivalent in <i>Risks</i> : strong and well defined strategy, Treating IT as an undifferentiated commodity, no overall cost savings, supplier (...) unexperienced. But with some specificities in the public sector: the management team is not interested in supporting the process; Grouping the IT provision of various customers can neutralize the expected savings; The role of the CIO is useful properly adapted to the PS context.	Total (with some specificities in the public sector)
Supplier search and selection (no-technical requirements)	Equivalent in <i>Risks</i> : poor supplier (...) financial stability, supplier goes out of bussiness. But specially important in public sector (because of the requirements of economic solvency)	Total (with some specificity in the public sector)
Supplier relationship management	Equivalent in <i>Risks</i> : biased portrayal by vendors, Cultural differences between client and supplier, Inability to manage supplier relationship, Loss of control over vendor, Supplier has too much power over the customer, vendor lock-in.. But biased to <i>contractual relationship</i> rather than <i>partnership</i>	Total (with some specificity in the public sector)
Internal staff for project management	Equivalent But specially important in public sector (due to the volatility resulting from the electoral cycles)	Total (with some specificity in the public sector)
Supplier search and selection (technical requirements)	Equivalent	Total

Table 8 - ITO in the Public sector vs ITO in the Private sector: comparison (2/2)



Lack of experience in IT project management

Fig 1. Descriptive framework

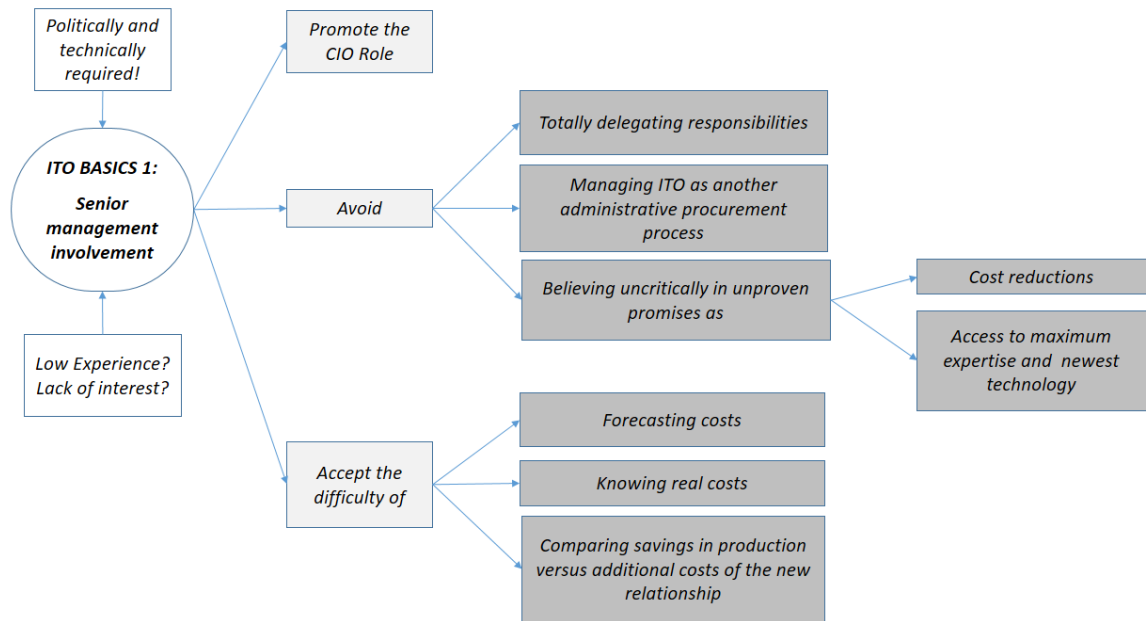


Fig 2. ITO Basics. 1. Senior Management Involvement

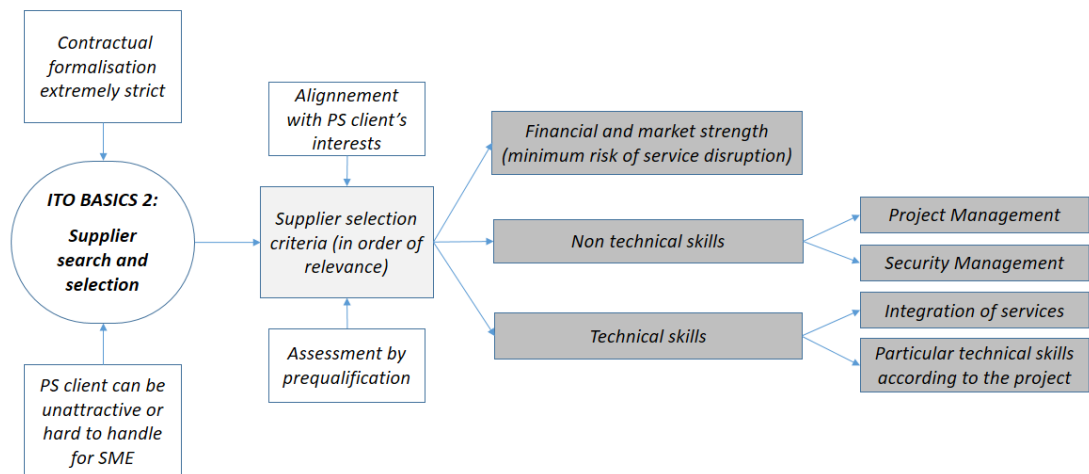


Fig.3.Model How-ITO Basics. 2. Supplier search

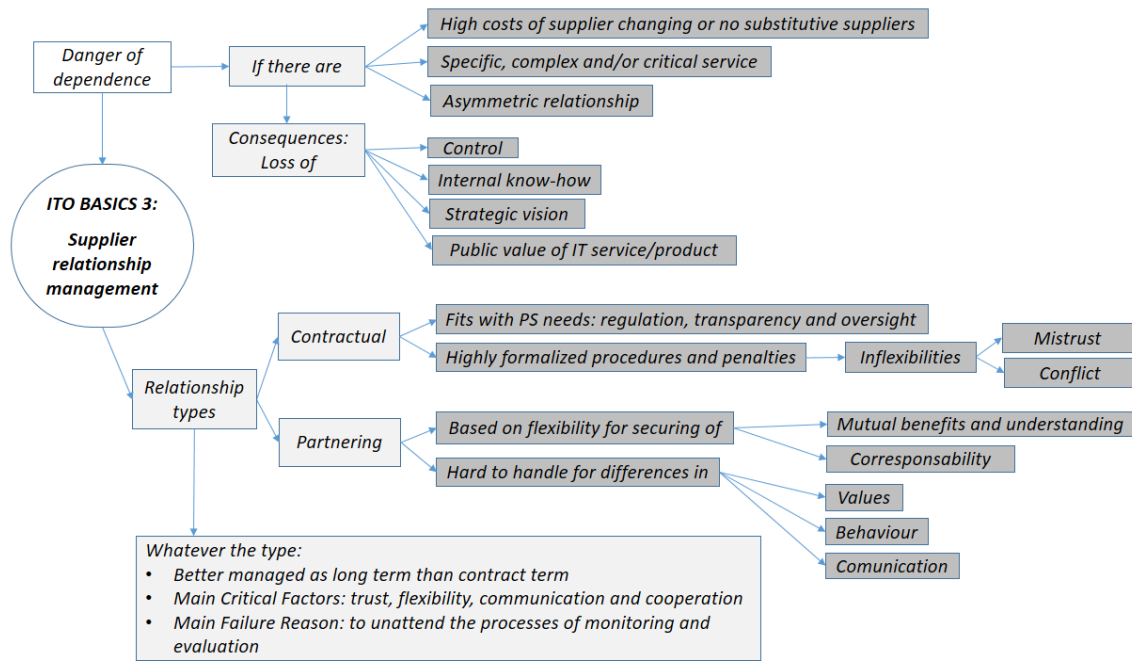


Fig.4.Model How-ITO Basics. 3. Supplier relationship

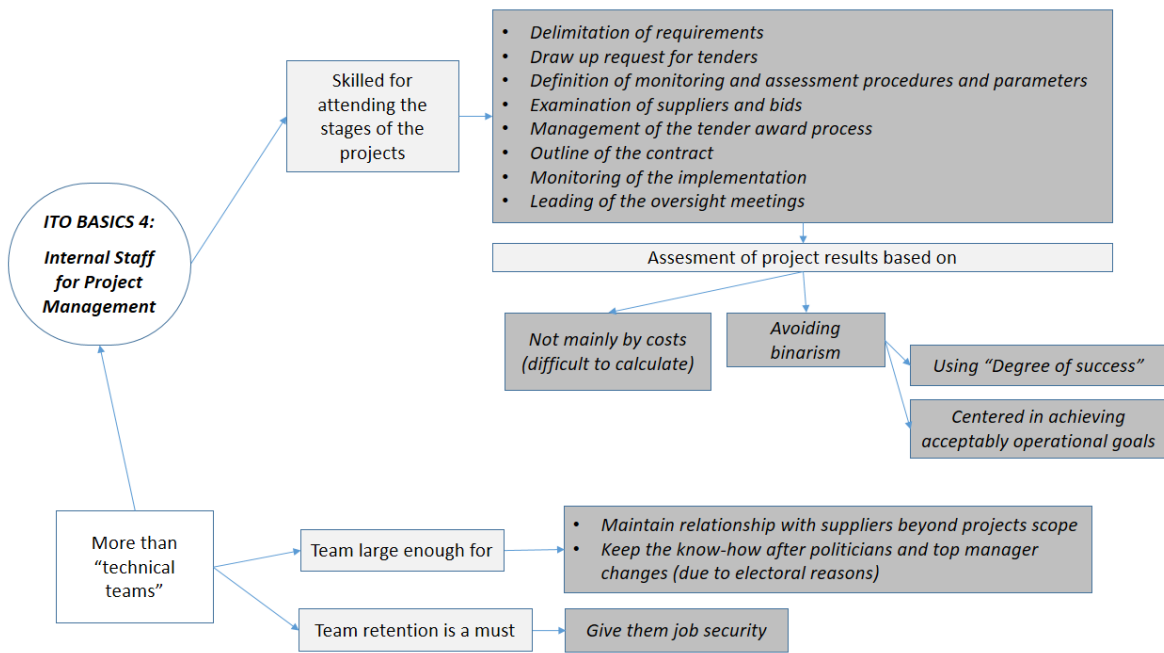


Fig.5.Model How-ITO Basics. 4. Internal staff for PM