Available online at www.sciencedirect.com

ScienceDirect

Procedia Computer Science 64 (2015) 1190 – 1199

Procedia Computer Science

Conference on ENTERprise Information Systems / International Conference on Project MANagement / Conference on Health and Social Care Information Systems and Technologies, CENTERIS / ProjMAN / HCist 2015 October 7-9, 2015

PMO as a key ingredient of public sector projects' success – position paper

Vítor Santos[a,b]*, João Varajão[c,d]

[a]*NOVAIMS, Nova University of Lisbon, Lisboa, Portugal*
[b]*MagIC, Nova University of Lisbon, Lisboa, Portugal*
[c]*Department of Information Systems, University of Minho, Guimarães, Portugal*
[d]*Centro Algoritmi, University of Minho, Guimarães, Portugal*

Abstract

The requirements of public administration institutions are increasing and projects becoming progressively challenging. Managing a project is a complex activity, in particular when it involves many people working over long periods of time and many different stakeholders. This increasing complexity requires management practices and tools that assure an efficient use of resources. In this context, a Project Management Office (PMO) can be of great value. In this position paper we discuss several scenarios for PMO implementation in the public administration sector, as a promoter of project success and a key ingredient for a better resources usage.

Peer-review under responsibility of SciKA - Association for Promotion and Dissemination of Scientific Knowledge

Keywords: Public Administration; Project Management Office; Project success.

1. Introduction

Currently we find projects in almost every organization, public or private [1]. As a consequence of digitalization of business, projects have increasingly become essential elements for organizations, and nowadays they are considered

* Corresponding author. Tel.: +351 213 828 610; Fax.: +351 213 828 611.
E-mail address: vsantos@novaims.unl.pt

Peer-review under responsibility of SciKA - Association for Promotion and Dissemination of Scientific Knowledge
doi:10.1016/j.procs.2015.08.546

the shortest way to innovate within a company's framework [2].

Project management is essential in the context of the development of successful projects, being transversal and having applications in many sectors. This is particularly true in large projects, where the need for a competent project management structure becomes more evident and truly indubitable due to the complexity involved [3].

The knowledge and understanding of project management has matured and organizations recognize the importance of project management for business development. Nevertheless, in spite of the attention that in recent years has been devoted to project management, in many cases the projects are still not providing the desired success [3][4][65]. For instance, failures meeting schedule are still very common, regardless of the activity sector [5][1], what affects the ability of an organization to compete [6].

Project success is a key project management issue, but still poorly defined in terms of its concept and paths necessary to achieve it [7][8][9]. For many years the prevailing view of project success was focused on scope, time and cost [10], variables highlighted in the famous "triangle of virtue" that literature widely describes. Currently, the understanding of what defines project success or failure of a project is far more complex because there are several different views, perspectives and ways of looking to this issue [8].

While attempting to contribute to solve this problem, several studies have identified possible causes of failure and proposed solutions to overcome them [4]. For a project to succeed it is necessary to manage all activities, meet evolving requirements, costs, risks, time and many other aspects [5]. The establishment of effective and efficient project management practices still remains a challenge to organizations. In fact, without well-defined processes, it is very difficult or almost impossible to achieve project's objectives [11].

A PMO can be of outmost value. Directly acting on Project Management practices, PMO provides organizations with help to innovate, reaching competitive advantage and growth in the long run, *ceteris paribus*, and attempts to reduce uncertainty [2]. As the requirements of public administration institutions increase and the projects become more complex, a PMO can be a good solution to assure an efficient use of resources. In this position paper we discuss several scenarios for PMO implementation in the public administration sector.

The remainder of the paper is organized as follows. Next two sections briefly review and discuss projects governance in Public Administration and the main aspects of Project Management Offices. Then, in section 4, are presented several scenarios for PMO implementation in Public Administration. Finally, we conclude with some final remarks and with further work.

2. Projects governance in Public Administration

The public administration institutions can be central (ministries), territorial (county councils, mayor halls, county school inspectorates) and of social insurance (Health Insurance House). They also include schools, hospitals, theatres, museums, public libraries, military units, police, and others; managed by local communities according to the decisions of locals elected and funded by the related administration funds [12].

The structure of a public institution and its leading board is directly influenced by the services delivered during a certain period of time and the available funds. The total of expenditures cannot exceed the organization revenues for a certain period of time. The budget from previous years represents model patterns for the following year so as based on the experience acquired to make improvements in accordance to the structure, intensity and variation of activity volume and previous activity framing. Thus, in routine, bureaucratic activities carried out by public institutions, budgetary management on functions and traditional services proves to be useful, easy to plan and manage, with real chances to ensure the organization's efficiency. However, a public institution faces permanently a series of internal and external challenges, the occurrence of needs that require reorganization, changes, diversification, modernization or adaptation [12], and implementing projects in public organizations has become an important issue in recent years [13].

Due to its role as keeper of our common economy, the public sector differs in its nature from financially interested owners or investors in the private sector [14]. According to Wal, Graaf and Lasthuizen [15][16] the most important public and private sector values differ to some extent. In public sector the most important are 'accountability', 'lawfulness', 'incorruptibility', 'expertise', 'reliability', whereas the highest ranking private sector values are 'profitability', 'accountability', 'reliability', 'effectiveness ', 'expertise , 'efficiency' , 'honesty' and 'innovativeness'.

Differences and similarities between private and public organizations have been widely debated in the literature on public management. The similarities between the two sectors focus mainly on the functions of management, while the differences relate to the conditions or constraints under which management is required to operate [17]. While there is a level of generality at which *management is management*, whether public or private, functions that bear identical labels take on rather different meanings in public and private settings [18][16].

The main conventional distinction between organizations operating in public and private sectors is their ownership [18]. Unlike private companies, owned by entrepreneurs or shareholders, public organizations are owned collectively by members of political communities. Boyne [18] evokes some arguments, which support the statement that public organizations differ from business ones, among which we can mention [16]: Complexity (public organizations face a variety of stakeholders, each of whom places demands and constraints on managers); Permeability (public organizations are 'open systems' that are easily influenced by external events); Instability (political constraints result in frequent changes in policy, and the imposition of short time-horizons on public managers); Absence of competitive pressures (public organizations typically have few rivals for the provision of their services - even when competition is present, public managers frequently enjoy a dominant position in the market, for example in education and health).

The governance of projects covers the complex process of steering multiple coupled agencies and firms. Traditionally, governance has to operate in accordance with regulations, economic means, and information [19]. The governance of national public investment projects has two parallel subsystems: the political; and the administrative. Public projects have become increasingly complex and difficult to manage, long in duration and conducted by multiple organizations [14].

To an organization, project failures often lead to financial loss, including significant losses in opportunity, competition, productivity, and employee morale [20]. The losses are even more significant in the case of the large-scale projects in the public sector [21][22][23]. In general, a large-scale public project is often characterized as uncertain, complex, politically-sensitive and involving a large number of partners. Public projects always deal with multiple, different stakeholders whose opinions can strongly influence the project [16]. Typically, these projects are commissioned by governments and delivered by private enterprises [24]. Many of these projects attract public attention because of their substantial impacts on communities, the environment, and budgets [25][26].

Progress in "projectification" of public sector creates an increasing need for developing competences (knowledge, skills and attitudes) for organizations. David [27] highlights that project managers in public sector face team management challenges such as: the inability to clearly link performance and reward; compensation systems that are biased towards longevity; and the inability to select project team members based on their expertise. In addition, public sector project managers work in an environment which very often is not familiar with results-oriented project management, and are constantly dealing with political interference in the management of projects and the challenges of working with political appointees [16].

3. Project Management Office

Over the last decade, many organizations have implemented one or more Project Management Offices (PMOs) as part of organizational project management, attributing a variety of both operational and strategic roles to their PMOs [28][29][30]. While PMOs are now a prominent feature of organizational project management, the underlying logic that leads to their implementation or renewal is still not entirely understood [29].

PMOs typically perform a number of functions [31][32]: project definition and planning; cost/benefit analysis of projects; risk management; monitoring and control; supply of experience and knowledge; support in undertaking Project Management (PM) processes and procedures; knowledge capture and dissemination; provision of specialist skills; maintenance of projects tools; standards and processes.

According with DeSouza and Evaristo [30], we can segment the roles of PMOs into three levels: strategic; tactical; and operational. Knowledge management is one of the key functions of the PMO at all levels. At the strategic level, the role of the PMO is to guarantee that projects are aligned with the strategic objectives of the organization, so that projects assumed are consistent with the business long-term objectives (project and team members have a direct relation to the organization's strategic operating plans, and are aligned on project process, selection, importance, and execution). Also, at this level PMO contributes to the organization strategic growth as projects assumed will contribute with value to the growth of the business and it has impact on efficient and effective knowledge management,

conducted so as to increase the policies, practices, and methodologies of project management with efficient knowledge capture, knowledge sharing, knowledge transfer, and knowledge reuse mechanisms in place.

For these authors, at the tactical level, the PMO is responsible for the near integration among project initiatives, so that there is coordination between the various projects being assumed at the organization (this demands the close tracking of each project to deliver the desired results on time and budget) and the consistent quality of products and services generated by projects, by monitoring that projects strictly follow defined standards and methodologies. It implies knowledge sharing between the projects members to ensure clear communication between project teams.

At the operational level, the role of the PMO is to leading project evaluations by building the process for operational reviews, appreciative request for growth budgets and/or resources, and guaranteeing that projects are being led in an efficient way, to integrate the knowledge derived from projects, by ensuring that information is readily available to allow decisions on a specific implementation processes, to constant checking customer satisfaction and coordinating communications across internal and external customers, and to keep expert knowledge on project management, by acting as a central depository of lessons learned, best practices, and methodologies.

In the long run, an organization will reach a series of benefits deriving from the implementation of PMO [33][34][35][36], for example [37]: proactive project risks/issues management; better evaluations in terms of time and budget; increasing of effectiveness and efficiency in project management; increasing in output quality; increased percentage of success of project activities; better coordination and control of tasks and resources; availability and circulation of information; creation of data-clearing house of information and project best-practices; implementation of project management competencies and know-how within the organization; increasing of transparency due to information sharing; increased predisposition to change and innovation; identification of synergies between activities and projects; gaps fulfillment, especially during feasibility analysis, due to increased attention and awareness; better definition of project priority and possibility of negotiations in order to manage urgencies.

PMO needs particular conditions to work properly [38][39]. These conditions could be related to organizational structure; flexible framework; matrix structured disposition; project based view; resources; organizational culture; willingness to innovate; ability to work in dynamic environments; low opposition to change; predisposition to working in team; proactive attitude [37]. A PMO must be carefully introduced in organizational framework, since employees could misjudge its intervention, especially long time workers [40][37]. People might feel threatened or frustrated because of re-organizations; moreover, an increase in controlling procedures could generate stress or loss of motivation [35]. It is necessary to prepare individuals to changes, above all future team members and project managers, explaining tasks and next steps, without insist with control and judgment [37]. It is worth remembering that PMO is not an emergency solution, but rather a permanent support, effective in the long run [39].

Information Technology (IT) can play an important role in the context of project management. Over the last years IT has known very different applications within organizations [41], and they are currently present in almost every aspect of business [42][48], being a core asset for an organization efficiency and effectiveness [43][50][63]. The growing use of IT in the last decades introduced profound changes in organizations [44] and currently are of most importance for improving the productivity, reducing costs or improving processes [45], and project management should not be an exception. Internal and external IT capabilities enhance firm performance [66] and the performance of the projects appears to be linked to the usage time of supporting software [46].

Spelta and Albertin [59] analyzed the question "Which organizational conditions justify and do not justify creating an IT PMO?" aiming to answer that question they developed a conceptual model, shown in figure 1, of the main drivers behind the decision to establish an IT PMO. Their model was tested by applying a discriminant analysis to data collected from large Brazilian companies on the private sector. The obtained results indicated that the conceptual model could differentiate the context of organizations with and without an IT PMO.

Nevertheless, there is still a long road in project management, concerning its support by IT. A PMO can also help in this aspect, since it can reduce access costs do IT (v.g. licensing, training, infrastructure, etc.) and drive change management.

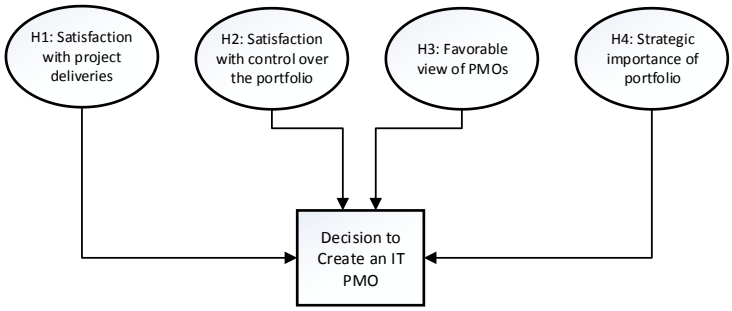

Fig. 1. Spelta and Albertin conceptual model [59].

4. PMO implementation in Public Administration

Public sector organizations worldwide are under pressure to increase efficiency while delivering improved and integrated services [47], being innovations capable of increasing the economic value of organizations of outmost value [67]. Under pressure, organizations live with the paradigm of having to reach ever more ambitious goals, under ever more reduced resources and deadlines [42]. Shared services that have been embraced by the private, and increasingly, the public sectors, can be a good solution in this context. Yet implementation has often proved to be difficult and the factors which are critical to success are not always well understood [51]. While many definitions of shared services with slightly different nuances exist, the fundamental essence remains broadly the same. A shared service is one where the provision of a back office service - such as payroll processing, accounts payable or foundational IT services – is consolidated within a single area of an organization [52][53][54][51]. It typically replaces arrangements where there is a duplication of efforts among different business units. The introduction of shared services was initially focused on the private sector and there are some well-known success stories. More recently the potential of shared services in the public sector has started to be investigated [55][56][57]. Janssen and Joha [58], for example, suggested that shared services can offer multiple benefits such as reducing costs, improving access to innovation and allowing an increased focus on core operations. Yet, it is also being realized that shared services success is not guaranteed [51].

Lack of PM systematization in public projects, difficulties in intra ministry PM organization, lack of systematization of inter-ministerial PM, and the lack of a PM culture, these all can lead to waste of resources. Shared services can have an important role in this context. Figure 2 shows a typical structure of shared services in public administration. The existence of this type of structure makes easy to emerge Project Management (PM) innovative solutions.

Thus there is the need to find innovative solutions for Project Management (PM). The implementation of PMO strategies can be a promising way. PMO is associated with the increasing number and complexity of projects and the need of gaining competences [49]. Though the PMOs origin dates back to the 1950s [61], it was not before the 1990s that this concept really took shape and expanded into the forms we see today [62].

A scenario of a simple PMO implementation, not considering shared services, is the local implementation at the ministry level. This scenario, represented in Figure 3, would bring the advantage of better intra ministry utilization of resources. However, would not solve the lack of systematization of inter-ministerial PM, the lack of PM shared culture and may also make difficult the providing of shared services.

Another scenario for implementing PMO is a shared implementation at the shared services level. This scenario, shown in Figure 4, allows a better use of resources intra and inter ministry. However, the non-existence of an intra-ministry entity to make a "bridge" between the shared services and the ministries could complicate the providing of shared services and can also lead to loss of an overall view of the ministries projects. It can also reduce the project execution capacity inside the ministry and limit the deployment of a PM culture.

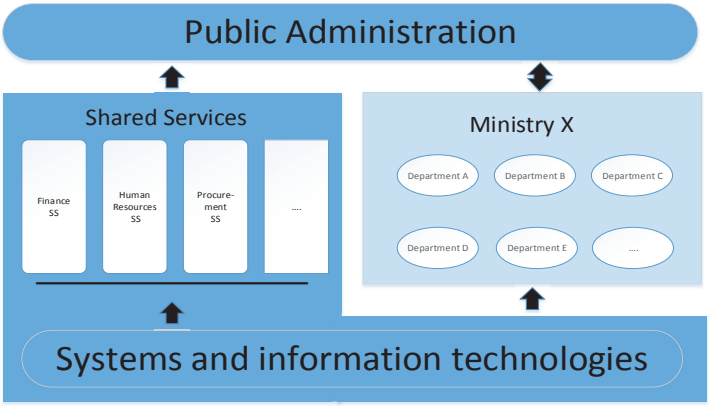

Fig. 2. Typical structure of share services in public administration – adapted from [60].

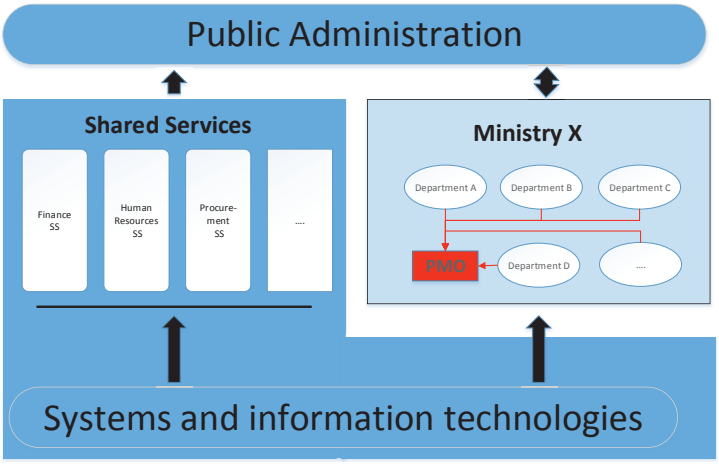

Fig. 3. PMO local implementation at the ministry level.

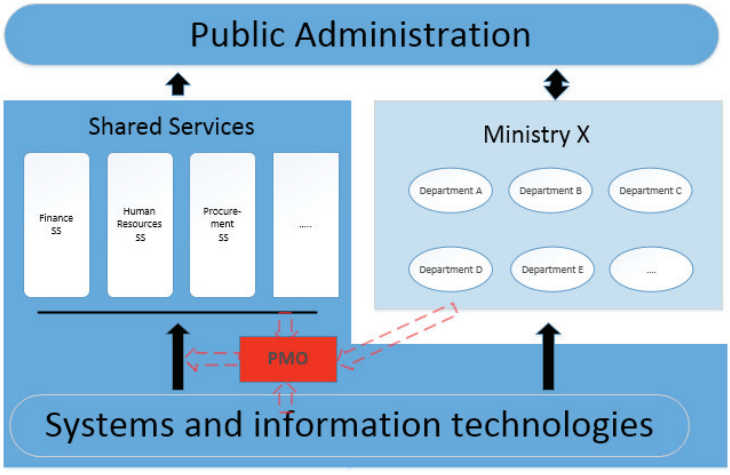

Fig. 4. PMO implementation at the shared services level.

A joint of the two first scenarios configures another possibility: a “PMO” local implementation at the ministry level together with a PMO implementation at the shared services level. This scenario, represented in Figure 5, would allow a better use of intra and inter ministry resources, improve project execution capacity in the ministry, facilitate the "bridge" between the shared services and the ministries, with the existence of a global vision on projects, and facilitate the deployment of a PM culture. Nevertheless, there is still some resource redundancy.

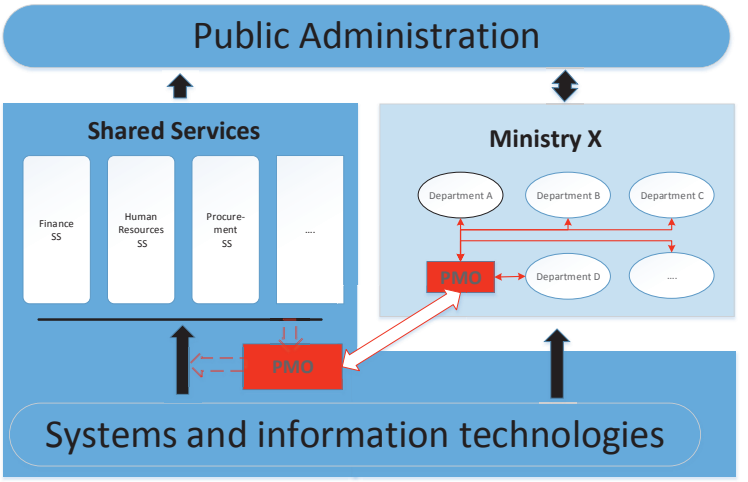

Fig. 5. PMO local implementation at the ministry level together with the implementation at the shared services level.

Finally, a more ambitious scenario, which portrays a greater maturity in project management, would be the existence of a PMO SP&S (PMO Shared Projects and Services), where the Project Management Shared Services (PMO SS) practices are implicit in the projects of the various areas, allowing the resource optimization and systematization of practices transversally. In this case, the PMO SP&S coordinate and offers PM services to the projects of the various areas and assure the synchronization with the different LPMO (Local PMO) of each ministry.

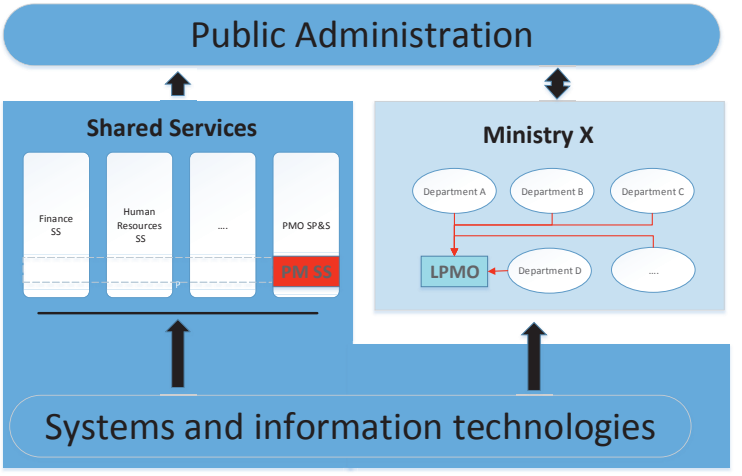

Fig. 6. PMO local implementation at the ministry level.

This scenario shown in Figure 6, will permit a better use of intra and inter ministry resources, improve the project execution capacity in the ministry and facilitate the "bridge" (interface) between the Shared Services and the ministries. Also would bring a more comprehensive local view on the projects and make easier the development of a PM culture, aligning PM practices, regardless the projects area of the Shared Service or of the local responsibility. In this scenario we still can have some resource redundancy.

It is worthy to mention that, in every scenario, the Information Technologies/ Information Systems (IT/IS) support can be provided by Shared Services, easing access to and assuring a better use of resources.

5. Conclusions

In this article we briefly discussed several scenarios for Project Management Office implementation in the public administration. Each implementation scenario is suitable for different areas and reflects different levels of maturity in project management. The last presented scenario, with the implementation of a PMO SP&S, corresponds to the higher level of maturity in which the PMO is itself a shared service.

In future work we intend to study the relationship between project management maturity and the implementation of a PMO. Poor organization and lack of maturity leads to financial and structural losses, being this a major theme [64]. The analysis and evaluation of PMO that are already in place in public administration and its fit to the scenarios that we propose, will also be a continuation of this research.

References

[1] Varajão J, Cardoso J, Gonçalves D, Cruz J. Análise à gestão de projectos de desenvolvimento de software em grandes empresas portuguesas. Semana Informática 2008; 904: 10-12.
[2] Pansini F, Terzieva M, MorabitoV. The path towards discovering PMO: an exploratory analysis of the Italian banking sector. International Journal of Information Systems and Project Management 2014; 2(2): 27-40.
[3] Varajão J, Cunha M. Using AHP and the IPMA Competence Baseline in the project managers selection process. International Journal of Production Research 2013; 51(11): 3342-3354.
[4] Marques A, Varajão J, Sousa J, Peres E. Project Management Success I-C-E model – a work in progress. Procedia Technology 2013; 9:910-914.
[5] Varajão J, Dominguez C, Ribeiro P, Paiva A. Failures in Software Project Management – are we alone? The Journal of Modern Project Management 2014; May-August: 22-27.
[6] Chilton M. Resource allocation in IT projects: using schedule optimization. International Journal of Information Systems and Project Management 2014; 2(3): 47-59.
[7] Belassi W, Tukel O. A new framework for determining critical success/failure factors in projects. International Journal of Project Management 1996; 14: 141-151.
[8] Santos C, Santos V, Tavares A, Varajão J. Project Management success in health – the need of additional research in public health projects. Procedia Technology 2014; 16: 1080-1085.
[9] Varajão J, Dominguez C, Ribeiro P, Paiva A. Critical success aspects in project management: similarities and differences between the construction and the software industry. Technical Gazette 2014; 21(3):583-589.
[10] Pankratz O, Basten D. Ladder to success – eliciting project managers' perceptions of IS project success criteria. International Journal of Information Systems and Project Management 2014; 2(2): 5-24.
[11] Liberato M, Varajão J, Martins P. CMMI Implementation and Results: The Case of a Software Company. In: Gao Z, Rusu L, editors. Modern Techniques for Successful IT Project Management. IGI Global; 2015. p. 48-63.
[12] Istrate L, Marian L, Ferencz IS. The Use of a Project Management Application in Managing Investments in a Public Administration Institution. Procedia Economics and Finance 2014; 15: 1732–1739.
[13] Arnaboldi M, Azzone G, Savoldelli A. Managing a public sector project: the case of the Italian Treasury Ministry. International Journal of Project Management 2004; 22: 213–223.
[14] Klakegg OJ, Williams T, Shiferaw AT. Taming the 'trolls': Major public projects in the making. International Journal of Project Management 2015.
[15] Wal ZV, Graaf GD, Lasthuizen K. What's Valued Most? Similarities And Differences Between The Organizational Values Of The Public And Private Sector. Public Administration 2008; 86(2): 465-482.
[16] Jałocha B, Krane HP, Ekambaram A, Prawelska-Skrzypek G. Key competences of public sector project managers. Procedia - Social and Behavioral Sciences 2014; 119: 247–256.
[17] Schneider D, Vaught B. A Comparison of Job Satisfaction Between Public and Private Sector Managers. Public Administration Quarterly 1993; 69-83.

[18] Allison GT. Public and Private Management: Are They Fundamentally Alike in All Unimportant Respects?. In Sergiovanni JCT, editor. Leadership and Organizational Culture. New Perspectives on Administrative Theory and Practice. University of Illinois Press; 1986. p. 214-234.
[18] Boyne G. Public and Private Management. What's the Difference?. Journal of Management Studies 2002; 39(1): 97-122.
[19] Bemelmans-Videc ML, Rist RC, Vedung E. Carrots, Sticks and Sermons: Policy Instruments and Their Evaluation. New Brunswick: Transaction Publishers; 1998.
[20] Williams T. Assessing and moving on from the dominant project management discourse in the light of project overruns. IEEE Transactions on Engineering Management 2005; 52(4): 497–508.
[21] GAO. DOD business systems modernization: Navy ERP adherence to best business practices critical to avoid past failures. United States Government Accountability Office; 2005.
[22] GAO. Post-hearing questions on FBI management capabilities. United States Government Accountability Office; 2005.
[23] Nelson RR. IT project management: Infamous failure, classic mistakes, and best practices. MIS Quarterly Executive 2007; 6(2): 67–78.
[24] Clegg SR, Pitsis TS, Rura-Polley T, Marosszeky M. Govern mentality matters: Designing an alliance culture of inter-organizational collaboration for managing projects. Organization Studies 2002; 23(3): 317–337.
[25] Flyvbjerg B, Bruzelius N, Rothengatter W. Megaprojects and risk: An anatomy of ambition. Cambridge: Cambridge University Press; 2003.
[26] Patanakul P. Managing large-scale IS/IT projects in the public sector: Problems and causes leading to poor performance. Journal of High Technology Management Research 2014; 25: 21–35.
[27] Wirick DW. Public-Sector Project Management - Meeting the Challenges and Achieving Results. New Jersey: Wiley; 2009.
[28] Dai CXY, Wells WG. An exploration of project management office features and their relationship to project performance. International Journal of Project Management 2004; 22: 523–532.
[29] Aubry M, Müller R, Hobbs B, Blomquist T. Project management offices in transition. International Journal of Project Management 2010; 28: 766–778.
[30] Desouza K, Evaristo JR. Project management offices: A case of knowledge-based archetypes. International Journal of Information Management 2006; 26: 414–423.
[31] Marsh D. The project and programme support office handbook. UK: Project Manager Today Publications; 2001.
[32] Pellegrinelli S, Garagna L. Towards a conceptualisation of PMOs as agents and subjects of change and renewal. International Journal of Project Management 2009; 27: 649–656.
[33] Aubry M, Hobbs B, Thuillier D. A new framework for understanding organizational project management through the PMO. International Journal of Project Management 2007; 25: 328-336.
[34] Dai CX, Wells WG. An exploration of project management office features and their relationship to project performance. International Journal of Project Management 2014; 22: 523–532.
[35] Atkinson R, Crawford L, Ward S. Fundamental uncertainties in projects and the scope of project management. International Journal of Project Management 2006; 24: 687–698.
[36] Pinto A, Cota M, Levin G. The PMO Maturity Cube, a Project Management Office Maturity Model. PMI Research and Education Congress; 2010.
[37] Pansini F, Terzieva M. Challenges and benefits on the path towards discovering PMO: cases from Italian banking sector. Procedia Technology 2013; 9: 627-637.
[38] Turner R, Keegan AE, Crawford L. Delivering Improved Project Management Maturity Through Experiential Learning. International Project Management Journal 2002; 8(1): 72-81.
[39] Hobbs B. The multi-project PMO. A global Analysis of the current state of practice. Project Management Institute; 2007.
[40] Aubry M. Project management offices in transition. International Journal of Project Management 2010; 28: 766–778.
[41] Varajão J, Trigo A, Barroso J. Motivations and trends for it/is adoption: insights from Portuguese companies. International Journal of Enterprise Information Systems 2009; 5(4): 34-52.
[42] Varajão J, Trigo A, Figueiredo N, Barroso J. Information systems services outsourcing reality in large Portuguese organisations. International Journal of Business Information Systems 2009; 4(1): 125-142.
[43] Amaral L, Varajão J. Planeamento de sistemas de informação. 4th ed. Lisbon: FCA; 2007.
[44] Gonzálvez-Gallego N, Acosta PS, Trigo A, Castillo FJM, Varajão J. El papel de las TIC en el rendimiento de las cadenas de suministro: el caso de las grandes empresas de España y Portugal. Universia Business Review 2010; 28: 102-114.
[45] Varajão J, Trigo A, Figueiredo N, Barroso J. TI nas empresas nacionais. Revista CXO 2007; 2: 19-23.
[46] Pellerin T, Perrier N, Guillot X, Léger PM. Project characteristics, project management software utilization and project performance: An impact analysis based on real project data. International Journal of Information Systems and Project Management 2013; 1(3): 5-26.
[47] Crawford L, Costello K, Pollack J, Bentley L. Managing soft change projects in the public sector. International Journal of Project Management 2003; 21: 443–448.
[48] Santos, V.; Amaral, L.; Mamede, H.; Gonçalves, R. "Creativity in the Information Systems Planning Process". In Handbook of Research on Innovations in Information Retrieval, Analysis, and Management. IGI-Global. 2015.
[49] Aubry M, Hobbs B, Thuillier D. New framework for understanding organizational project management through the PMO. International Journal of Project Management 2007; 25: 328–336.
[50] Santos, V., Amaral, L. "Estratégias para a introdução de Criatividade em diferentes abordagens de Planeamento de Sistemas de Informação – 11ª Conferência da Associação Portuguesa de Sistemas de Informação - Guimarães, Portugal, Setembro. 2012: 8-10.
[51] Borman M, Janssen M. Reconciling two approaches to critical success factors: The case of shared services in the public sector. International Journal of Information Management 2013; 33: 390– 400.

[52] Longwood J, Harris RG. Leverage business process outsourcing lessons to build a successful shared business service organisation. Stamford: Gartner; 2007.
[53] Quinn B, Cooke R, Kris A. Shared services: Mining for corporate gold. Harlow: Prentice-Hall; 2000.
[54] Ulbrich F. Improving shared service implementation: Adopting lessons from the BPR movement. Business Process Management Journal 2006; 12: 191–205.
[55] Janssen M, Joha A, Weerakkody V. Exploring relationships of shared service arrangements in local government. Transforming Government: People, Process & Policy 2007; 1: 271–284.
[56] Niehaves B, Krause A. Shared service strategies in local government—A multiple case study exploration. Transforming Government: People, Process and Policy 2010; 4: 266–279.
[57] Ulbrich F. The adoption of IT-enabled management ideas: Insights from shared services in government agencies. Stockholm: EFI – The Economic Research Institute; 2008.
[58] Janssen M, Joha A. Motives for establishing shared service centres in public administrations. International Journal of Information Management 2006; 26: 102–115.
[59] Spelta, A. G., & Albertin, A. L.. Project Management Offices in the IT Area: A Context–Discriminant Model for their Establishment. São Paulo: Taylor & Francis, 2012.
[60] Caseiro, Gonçalo A. Gestão Documental nos Serviços Partilhados. Conferência "Gestão documental na Administração Pública". APDSI. 2012.
[61] Wells W. From the editor. Project Manage Journal 1999; 30(1): 4–5.
[62] Dai CX, Wells WG. An exploration of project management office features and their relationship to project performance. International Journal of Project Management 2004; 22(7): 523–32.
[63] Santos V, Amaral L. Estratégias para a introdução de Criatividade em diferentes abordagens de Planeamento de Sistemas de Informação. 11ª Conferência da Associação Portuguesa de Sistemas de Informação, Portugal, Setembro 8-10. 2012.
[64] Liberato M, Varajão J, Martins P. CMMI Implementation and Results: The Case of a Software Company. In Modern Techniques for Successful IT Project Management. IGI Global. 2015.
[65] Rijo R, Varajão J, Gonçalves R. Contact center: information systems design. Journal of Intelligent Manufacturing. 2012. 23 (3): 497-515.
[66] Gonzálvez-Gallego N, Molina-Castillo F-J, Soto-Acosta P, Varajão J, Trigo A. Using integrated information systems in supply chain management. Enterprise Information Systems. 2015, 9(2): 210-232.
[67] Lourenço J, Santos-Pereira C, Rijo R, Cruz-Correia R. Service Level Agreement of Information and Communication Technologies in Portuguese Hospitals. Procedia Technology. 2014. 16: 1397-1402.