

Adapting PRINCE2® to a Multi Vendor Outsourcing context

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Abstract — The management of projects is a vital point in any organization's operation. However, unfulfilled expectations, failure and disappointment, associated with information technology (IT) projects are rich in example [9]. According to the famous Standish Group Chaos reports, only 29% of all IT projects succeed [16].

In order to perform projects in a controlled manner, several organizations developed standards for the execution and management of projects. A frequently used standard in IT projects is PRINCE2®. PProjects IN Controlled Environments (PRINCE) 2 is a project management methodology originally developed in 1989 for the UK government. It is the most-used IT project management methodology in the UK and Europe.

This paper analyzes the application of PRINCE2® in a multi-vendor outsourcing context. Given the ongoing trend in large and middle-sized organizations to outsource part of their IT operations it is relevant and important to understand the effect of this trend on the way projects can be managed. Based on an analytical and qualitative approach, using an expert panel, the study provides identified three specific considerations for the management of projects in a multi vendor outsourcing context.

Index Terms — Project Management, PRINCE2, IT Outsourcing, Multi vendor.

I. INTRODUCTION

The last two decades saw an impressive growth rate of the outsourcing of information technology (IT) services [3]. In 2008 the International Data Corporation estimated that the worldwide outsourcing market size will rise from \$240.2 billion in 2006 to \$377.8 billion by 2010, with an annual growth rate of 12 percent [5]. The most commonly IT services provided by IT service providers are: IT infrastructure, application development and helpdesk [13]. These services are not static. Luftman [12] stated that the alignment of IT services to the needs and requirements of an organization is like drawing a line in the sand. Once alignment is there, it is gone again. So, in order to create business and IT alignment, IT services need constant updating, change and innovation. This implies that also outsourced IT services constantly need to evolve to stay aligned with the requirements of the end-user organization and the technological developments of the industry.

These changes or innovations are commonly organized as projects [15]. However, unfulfilled expectations, failure and disappointment, associated with IT projects are rich in example [9]. According to the famous Standish Group Chaos reports, only 29% of all IT projects succeed [16]. In order to perform projects in a controlled manner, several organizations developed standards for the execution and management of projects. A frequently used standard in IT projects is PProjects IN Controlled Environments (PRINCE) 2. PRINCE2® is a project management methodology originally developed in 1989 for the UK government. It is the most-used IT project management methodology in the UK and Europe.

PRINCE2® is a generic project management methodology [14], which implies that it is suitable for all types of projects and project contexts. However, it can be argued that a project organization that stretches over multiple organizations, and their interests, will require some specific considerations, compared to a project that does not cross the boundaries of the organization it applies to. It is for this reason that the study reported in this paper analyses the management of projects in case of outsourced IT services to multiple vendors. The research questions are specified as:

To which extend is PRINCE2® applicable in IT projects that are set in a multi vendor outsourcing context?

and

Which additions should be made to PRINCE2® in order to tailor it to projects in a multi vendor outsourcing context?

Given the ongoing increase in IT outsourcing demonstrated earlier, this is a very relevant question in many organizations. In order to answer this question, we will first analyze the main concepts of our study. Following this analysis, we will reveal the research methodology and data collection. The next section will report the findings, resulting in a number of recommended adjustments to PRINCE2®. The final section of the paper will address the research questions and provide the conclusions of the study.

II. LITERATURE AND CONCEPTS

This section will review the literature on the main concepts of the research question: IT outsourcing, multi vendor and PRINCE2®.

A. IT outsourcing

Earlier studies show several definitions of IT outsourcing (ITO), for example [10]; [7]; [17], that differ in wording, but not that much in meaning. For our study we adopted the elaborated definition as provided by Willcocks and Lacity [17]: ITO is “a decision taken by an organization to contract-out or sell some or all of the organization’s IT assets, people and/or activities to a third party vendor, who in return provides and manages the services for a certain time period and monetary fee”. Based on this definition, we will use the word ‘vendor’ for the organization that provides commissioned IT services, and the word ‘demand organization’ for the organization that commissions the services in an IT outsourcing relationship.

B. Multi vendor outsourcing

In many organizations, IT outsourcing has developed from single vendor to multiple vendors [6]. Multi vendor outsourcing (MVO), as it used in this study, is also known as multi-sourcing, a term that was coined by the market/technology research firm Gartner in 2005. And although MVO has been practiced in the market since competitors started to produce alternatives to IBM’s datacenter services in the late 1980s [8], it has only recently been defined. In our study we define MVO as “An outsourcing organization where the demand organization has separate contract between multiple vendors.” [6].

C. MVO governance models

An important question in MVO is about how the demand organization governs their multiple vendors in order to coordinate their services. For this MVO governance, three models can be identified.

Governance by the demand organization itself

When the demand organization hold the governance role, the demand organization is responsible for all management and coordination of the vendors. The governance will be based upon contracts between the demand organization and the individual vendors, also if this physically means that one vendor may be providing its services through another vendor. Figure 1 depicts this model.

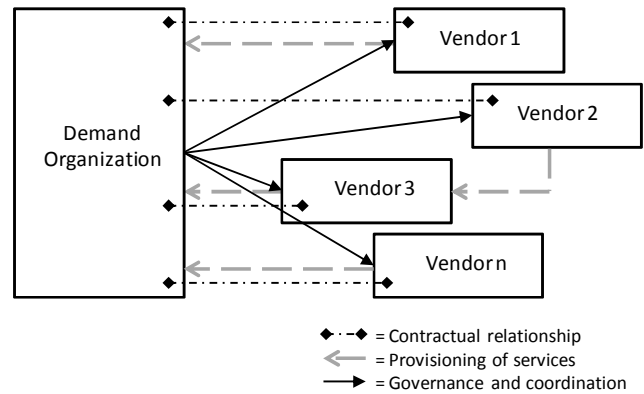


Figure 1. Governance of MVO by the demand organization.

Governance by one of the vendors

The demand organization can also choose to outsource the coordination of the services to one of the vendors. This will result in a coordination role from the demand organization towards one single vendor. This could be a ‘lead’ vendor that is also responsible for delivering a considerable part of the services, or a vendor specialized in management and coordination tasks, without actually delivering IT services himself. In this model, the contracts are still between the demand organization and the vendors individually. (In fact, we consider the situation in which a vendor subcontract part of the services to another vendor as a single vendor outsourcing scenario from the perspective of the demand organization.)

Figure 2 depicts this governance model.

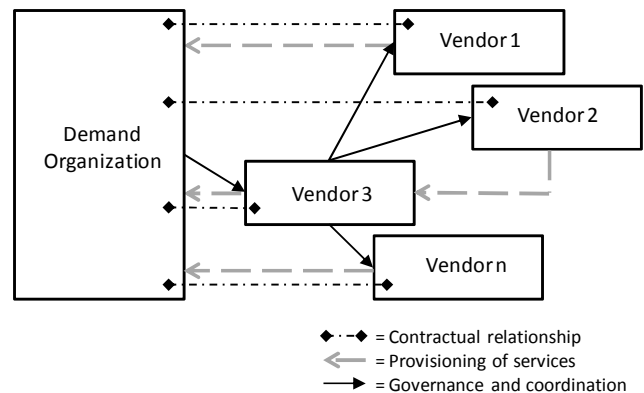


Figure 2. Governance of MVO by one of the vendors.

Governance by a consortium of vendors

In this model, the vendors organize the coordination role in a consortium that they form themselves. Also in this model, the contracts are between the demand organization and the vendors individually. If the consortium of vendors would be the contracting body, this again would be considered as a single vendor, the consortium, outsourcing scenario.

Figure 3 depicts this governance model. The consortium has strictly a coordinating role for the services of the vendors.

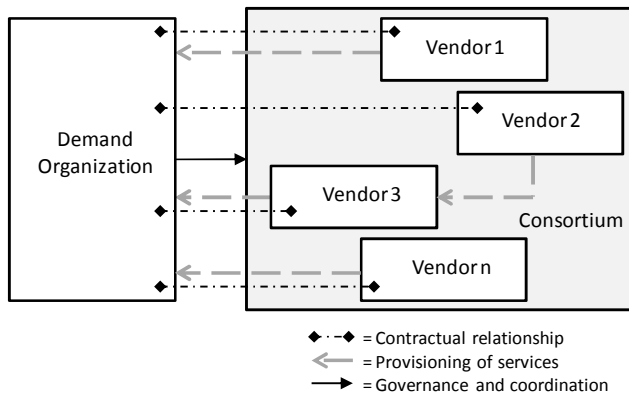


Figure 3. Governance of MVO by a consortium of vendors.

This study focuses on the first MVO model, in which the governance of the MVO is done by the demand organization. And although some results of our study may certainly apply also to the two other models of MVO, it is likely that in these models also other issues regarding governance, responsibilities and accountability may occur.

D. PRINCE2®

PRINCE2® is a structured approach to project management, released in 1996 as a generic project management method [14]. It combined the original PROMPT methodology (which evolved into the PRINCE methodology) with IBM's MITP (managing the implementation of the total project) methodology. PRINCE2® provides a method for managing projects within a clearly defined framework.

In Europe, and the related outsourcing markets in for example India, PRINCE2® is the leading standard for management on projects [18]. For this reason, the study focuses on the application of PRINCE2® in the MVO context.

PRINCE2® provides project management principles, themes and processes [14].

The principles are guiding obligations and best practices which determine whether the project is genuinely being managed with PRINCE2®. There are seven principles and unless all of them are applied, it is not a PRINCE2® project. The seven principles are: Business justification, Learning lessons, Roles and responsibilities, Managing by stages, Managing by exception, Product focused and Tailored. This last principle provides the opportunity to specify adjustments to PRINCE2® in order to fit the MVO context.

The PRINCE2® themes describe aspects of project management that should be addressed continuously and in parallel throughout the project. The seven themes describe the specific focus points and perspectives that PRINCE2® takes on various project management aspects. The seven themes are:

Plans, Quality, Organization, Business case, Progress, Change and Risks.

The processes describe a step by step progression throughout the project lifecycle, from getting started till project closure. Each process provides checklists and formats of recommended activities, products and related responsibilities. Figure 4 provides an overview of the eight PRINCE2® process groups.

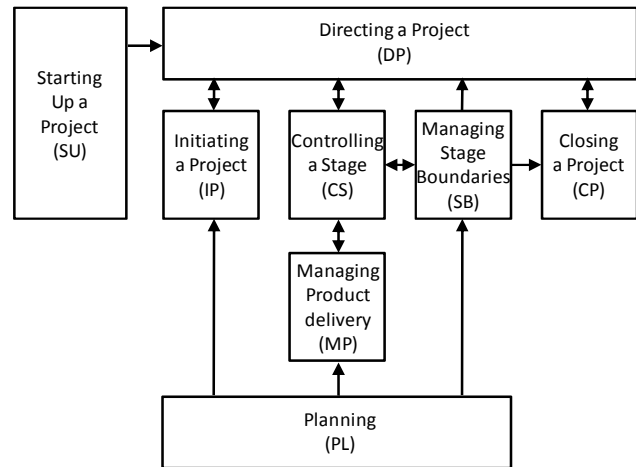


Figure 4. Project management process groups according to PRINCE2®.

When applied in an MVO context, the themes and principals of PRINCE2® should obviously not be compromised. The adjustments, if any, would therefore apply mostly to the processes. These eight process groups are detailed in 45 (sub) processes. For details on the specific processes please refer the official publication of OGC.

Please note that OGC has produced a new version of PRINCE2® [14]. One of the major differences with the 2005 version is the absence of sub-processes, these are called 'Suggested Activities' in the 2009 version. Since the version 2005 is still the most commonly used version of PRINCE2®, the 2005 version was used in this study. However, the conclusions can easily be transferred to PRINCE2® 2009.

III. RESEARCH DESIGN

In order to seek understanding of the specific additions to the PRINCE2® methodology in a MVO context, a qualitative research methodology was followed. This methodology was selected in favor of a quantitative one, as the researchers wanted to gain an in-depth understanding of the use of PRINCE2® in practice. In this understanding, a quantitative research methodology would have been limiting, as it focuses mainly on relationships between various sets of facts [1] [2].

Interviews were chosen as the primary data collection method, as they allow the researchers to fully understand the subjects' experiences as well as to learn more about their answers to the questions posted [4]. Interviews provide a broad

range and depth of information and allow the researchers to be flexible during the interview itself [11].

The following process was applied by the researchers to gather the necessary information.

The first step was a document analysis in which the documentation on PRINCE2®, especially the description of the project management processes, was analyzed for potential issues when applied in a multi vendor context. This analysis was concluded in with the formulation of eight (potential) problem statements.

In the second step of our study, these problem statements were discussed with experts in project management in MVO in a number of interviews. In these semi-structured interviews, qualitative data was gathered, but also the expert’s opinions on the relevance of the problem statements.

The experts were selected based upon their experience with and knowledge of PRINCE2® and their experience in MVO projects. 50% of the interviewed experts represented the demand organization in these projects and 50% represented vendor’s in these project.

IV. FINDINGS

A. Analysis of the issues with PRINCE2® in MVO

Annex A presents the results of the analysis of the potential issues that could arise with the application of PRINCE2® in a MVO context. These potential issues are summarized in the problem statements, listed per process group in Table 1.

<i>Process Group: Starting Up a Project</i>
<p>Problem statement 1: Involvement of vendors in start up Especially in SU1, SU2, SU3 and SU4 there are issues concerning initiating an involvement with de vendors. The demand organization needs to find out which vendors are needed and involve them through an addendum of contract. This is a time consuming approach and will not have a positive influence on the timelines of the project. The most important question is, when to “prepare the formal terms of reference for the project” (SU4) within starting up a project? Without official agreements between the demand organization and vendor organization, no commitments can be made.</p>
<i>Process Group: Initiating a Project</i>
<p>Problem statement 2: Vendor involvement in identifying activities and setting up the project team Most important, the problem lies within the indentifying of the major activities are to be performed to deliver the product (IP2) if the vendors are not yet involved. If they are involved, this has been done in SU, but no addendum could be made without identifying the major activities first in IP4 “Establish the day-to-day monitoring required to ensure that the project will be controlled in an effective and efficient manner”. Although a high level reporting mechanism is already in place (see 2.8.4), the role of vendors in day-to-day monitoring</p>

is not mentioned. This depends on the set up of the project management team.

Process Group: Directing a Project

Problem statement 3: Organizing multi vendor hand-over and maintenance of the product

Directing a project has primary processes (DP1, DP2, DP3 and DP4) where the responsibility lies with the project board, which is the demand organization. DP5 has a problem with the objective: Ensure that the project has a clearly defined end and an organized hand-over of responsibility to the group(s) who will use, support and sustain the products. With multiple vendors maintaining the products after project closure, it will be a complex task to set up. Responsibilities between vendors need to be set up and agreed. This will take considerable time and effort from the demand organization, which is not discussed within PRINCE2®.

Process Group: Controlling a Stage

There are 2 major issues in the process group controlling a stage:

Problem statement 4: Multi vendor coordination within one work item

The first issue is the fact PRINCE2® mentions “ The ‘work discussed in this overview could be executed by people and resources within the customer organization, by outside suppliers or by a combination of both” however, it does not speak of any coordination, nor of the fact that multiple vendors are working on one work item. This will have issues in CS1, CS2 and CS9.

Problem statement 5: Additional work items

The second issue arises in CS3 and CS4, when work items need to be addressed and executed which were not in the original addendum contract between demand- and vendor organization. This will become a commercial discussion which will have influence on timelines and budget (more so than without vendors).

Process Group: Managing Product delivery

Problem statement 6: Managing multi vendor dependencies

If the governance role is held by the demand organization, the vendor organizations themselves have no authority between them. Work packages which are delivered can have influence on other work packages of other vendors. Although this dependency is there, the vendors have no authority to correct the other vendors.

Process Group: Managing Stage Boundaries

No major issues identified in this process group. The demand organization is in de lead with no or minor involvement from the vendor. The only involvement from the vendors is by

providing information to the demand organization, which is done through other processes.
<i>Process Group: Closing a Project</i>
Problem statement 7: Multi vendor acceptance and hand over The most important issue in closing a project (CP1) is the hand-over of responsibility. The guardian vendor needs to accept the work of other vendors. The governance of these actions is a responsibility of the demand organization.
<i>Process Group: Planning</i>
Problem statement 8: Multi vendor planning without addendum The main issue is the problem to plan successfully; without the vendor organizations, this is not possible (PL3, PL4, PL5, PL6 and PL7). In this stage there is no addendum, and PRINCE2® does not provide any process guideline to set this up.

Table 1. Potential problem statements for applying PRINCE2® in an MVO context.

B. The expert's impact assessment

Table 2 shows the result of the expert's assessment of the impact of the problem statements.

From the expert's opinions it should be concluded that both the experts from the demand organization and from the vendors rate as issues with significant impact on the project management processes:

- Problem statement 6: Managing multi vendor dependencies;
- Problem statement 7: Multi vendor acceptance and hand over;
- Problem statement 4: Multi vendor coordination

- within one work item;
- Problem statement 5: Additional work items.

Both the experts from the demand organization and from the vendors also rate as issues with low impact on the project management processes:

- Problem statement 1: Involvement of vendors in start up;
- Problem statement 2: Vendor involvement in identifying activities and setting up the project team.

Regarding Problem statement 3: Organizing multi vendor hand-over and maintenance of the product, the experts of the demand organization assess the impact on the project management processes considerably higher than the experts of the vendors, which is perhaps not that surprising. More unexpected is the fact that also Problem statement 8: Multi vendor planning without addendum, is considered more impactful by the experts of the demand organization.

C. Main problem statements

In the interviews, the experts were also asked to summarize the main problems with using PRINCE2® in a MVO context. The following main problem statements were derived from this.

Main problem statement A:

Coordination of vendors is not mentioned anywhere in PRINCE2®. It is assumed that work packages are non-dependent and linear, but in a complex architecture IT landscape this is not the reality. The dependencies between work packages are present, and therefore there are dependencies between vendors as well.

Main problem statement B:

Involvement of vendors is done through addendums on an existing contract. PRINCE2® does not provide any process

	<i>Expert opinion Demand side</i>	<i>Expert opinion Vendor side</i>
	PS6: Managing multi vendor dependencies PS7: Multi vendor acceptance and hand over PS8: Multi vendor planning without addendum	PS4: Multi vendor coordination within one work item PS5: Additional work items PS6: Managing multi vendor dependencies
	PS3: Organizing multi vendor hand-over and maintenance of the product PS4: Multi vendor coordination within one work item PS5: Additional work items	PS7: Multi vendor acceptance and hand over
	PS1: Involvement of vendors in start up	PS1: Involvement of vendors in start up PS8: Multi vendor planning without addendum
	PS2: Vendor involvement in identifying activities and setting up the project team	PS2: Vendor involvement in identifying activities and setting up the project team
Issue with low impact		PS3: Organizing multi vendor hand-over and maintenance of the product

Table 2. Expert's assessment of the impact of the potential problem statements

which enables such a mechanism. This will create contradictions, for example: attempting to create a planning without involving the vendors, but an addendum cannot be set up without planning, for the vendor does not know the effort he needs service.

Main problem statement C:

The handover of responsibilities will be done between vendors. The contradiction between the responsibility of work by vendor 1 and the responsibility which is to be maintained by vendor 2 is not mentioned in PRINCE2®.

D. Solutions suggestions

The experts also gave some suggestions that could overcome the issues raised.

Solutions to main problem statement A:

On this problem statement, the interviewees suggested:

- Create a good organization-overview, this will make sure no gaps or overlaps are created between vendors.
- Apply good leadership to monitor the gaps or overlapping between vendors.
- Make sure every work package involves only a single vendor.
- Create a project responsibility for the vendors, not just a work package responsibility.
- Establish a culture change between the vendors. This will create a trust between the vendors and create a project concern rather than a work package concern.
- The contracts with vendors should be created with resilience. In other words there should be room to create extra work which was not foreseen in the beginning of the project.

Summarizing these suggestions, it can be concluded that the solution directions to this main problem statement A are:

Solution direction A1: Work package should be defined in a specific way.

All interviewees made recommendations on the definition and demarcation of work packages. Their recommendation:

- a) Use a proper organization view/diagram;
- b) Use a work break-down structure;
- c) Work packages need to be independent from each other;
- d) No multiple vendors should be incorporated into one single work package;
- e) Create project responsibilities for a vendor, not just work package responsibilities.

Solution direction A2: More attention for the ‘soft side’ of cooperation.

All interviewees stipulate the importance of the ‘soft side’ of cooperation when dealing with multiple vendors and work package management, for example by good leadership,

communications, team development, cultural aspects and attitude change.

Solutions to main problem statement B:

The solutions for this problem statement created some diverse suggestions from the interviewees:

- Create a process to describe the temporary budget between SU 1 and SU2. This budget will be used to create the addendums with the required vendors. This ensures direct involvement from the vendors.
- Create an additional IP process. In this process, the addendums created between SU1 and SU2 can now be incorporated into the project. A new complete budget can be requested including the total cost of the vendors.
- The solution is simple, make sure that the first work package(s) which are created include the addendums with the (needed) vendors.
- Create a consultant role within the SU process for the (most needed) vendors, this will guarantee their involvement.
- Create the first milestones which are to be the addendums with the (needed) vendors. This will ensure a more detailed project planning, more specific budget management and a more defined scope of work.
- Create a ‘project-in-a-project’ in Starting up the project to get the vendors involved.
- Create an additional start up process to get the commitments from the vendors.

The statements from the interviewees show that most experts suggest to change the PRINCE2® processes to solve the problem with involving multiple vendors. More specifically, it is recommended to add an additional process to the Starting Up the Project process group.

Solution direction B1: Identifying an additional process in Starting Up the Project.

Involvement of vendors is done through addendums on an existing contract. PRINCE2® does not provide any process which enables this. This will create contradiction, for example: trying to create a planning without involvement of the vendors, but an addendum cannot be set up without planning, for the vendor does not know the effort he needs service. Therefore, before SU5 and SU6, a new sub process needs to be implemented. One of the fundamentals in SU2, is setting up a project management team, which needs to reflect the interests of all parties which will be involved, including business-, user- and supplier-interests. Only the supplier interest needs to be included, no mentioning of including the suppliers is done. SU4 can be done without vendor involvement. This concludes that the sub process needs to be included before SU5 but not before SU4.

Please note, after SU5 there could be a change in project management team: if during SU5 the approach predicts a large involvement of one or multiple vendors in a project, the

decision can be made to involve vendors as part of the project management team. Another consequence can be the need of adjusting of the project brief.

Solutions to main problem statement C:

Suggestions from the interviewees for this problem statement included:

- First, describe the responsibilities of vendors in a work break down structure;
- Secondly, overlap these responsibilities onto your organizational diagram and manage the responsibilities.

Some of the experts also suggested that this problem statement would be solved by implementing the solution directions mentioned above.

V. CONCLUSION

Managing successful projects has a high value for organizations to keep their competitive position within the market. Multiple vendor outsourcing (MVO) is nowadays a matter of fact in large organizations. It is a challenge to combine these two realities and to keep projects flexible and efficient including a positive return. PRINCE2® is the most commonly used structured project management methodology in Europe and related outsourcing markets, especially in the IT project domain. PRINCE2® can be used as a framework in any organization and for any kind of project, but will need adjustments to facilitate the challenges brought forward with working in a MVO project. Project managers in an MVO context encounter this challenge on a daily basis, and need to find workarounds in order to cope with the specific circumstances of this context.

Our study explored the issues and problems that may arise with using PRINCE2® in a MVO context. Our research questions were specified as: *To which extend is PRINCE2® applicable in IT projects that are set in a MVO context? and Which additions should be made to PRINCE2® in order to tailor it to projects in a MVO context?*

With regards to the first question, three main problem statements regarding PRINCE2® in a MVO context were concluded:

Main problem statement A: Coordination of vendors is not mentioned anywhere in PRINCE2®. It is assumed that work packages are non-dependent and linear, but this is not the reality anymore. The dependencies between work packages are present, and therefore there are dependencies between vendors are as well.

Main problem statement B: PRINCE2® does not provide any process that enables the involvement of vendors is done through addendums on existing contracts. This create in the execution of project management processes.

Main problem statement C: The handover of responsibilities will sometimes be done between vendors. The contradiction between the responsibility of work by vendor 1 and the

responsibility which is to be maintained by vendor 2 is not mentioned in PRINCE2®.

With regards to the second question, the study brought forward three solution directions:

Solution direction A1: Work package should be defined in a specific way.

Specific attention need to be paid to the identification, demarcation and organization of work packages, with the goal to create, as much as possible, work packages that are independent from each other, and to establish that multiple vendors should not have a shared responsibility for a single work package.

Solution direction A2: More attention for the 'soft side' of cooperation.

Also specific attention needs to be given to the 'soft side' of cooperation. It is suggested to create, as much as possible, responsibilities for individual vendors that relate to the completion or success of the total project, not just the completion of a work package.

Solution direction B1: Identifying an additional process in Starting Up the Project.

The Starting Up a Project process group needs to be adjusted to the MVO context. The alignment between demand organization and vendors should be improved by early involvement of (major) vendors. The creation of an additional process in this process group is advised.

REFERENCES

- [1] Balnaves, M. and Caputi, P. (2001). *Introduction to quantitative research methods – an investigative approach*, Sage Publishers, London.
- [2] Bell, J. (2007). *Doing your research project: A guide for first-time researchers in education, health and social science* (4th ed.), Open University Press, Berkshire.
- [3] Cullen, S. and Willcocks, L.P. (2003). *Intelligent IT Outsourcing: Eight Building Blocks to Success*, Elsevier, Chicester.
- [4] Cunningham, W.S. (2008). Voices from the field: Practitioner reactions to collaborative research initiatives. *Action Research*, 6(4), pp. 373-390.
- [5] DeGraw, B. and Ye, Hye Yu (2008). Outsourcing, The collections process generates more than \$650K improvement for billion-dollar manufacturer, a case study, The Hackett group, retrieved from <http://www.tcd.com/sitebuildercontent/sitebuilderfiles/Hackett.pdf> on June 30th 2011.
- [6] Delen, G. (2008). *IT Outsourcing, een introductie*, ISBN 10: 9087531230, Van Haren Publishing, first edition. (In Dutch)
- [7] Fink, L. (2010). Information Technology Outsourcing Through a Configurational Lens, *Journal of Strategic Information Systems*, 19(2): 124–14.
- [8] Gerstner, L.V. Jr. (2002). *Who Says Elephants Can't Dance? Inside IBM's Historic Turnaround*, Collins.
- [9] Hollaway, A. (2005). *IT Project Failures*, Accountancy Age, KPMG Highlights.

- [10] Hu, Q., Saunders, C. and Gebelt, M. (1997). Research report: Diffusion of information systems outsourcing: A reevaluation of influence sources, *Information Systems Research*, vol.8, no. 3, pp. 288-301.
- [11] Kwok, J.Y. and Ku, H.B. (2008). Making habitable space together with female Chinese immigrants to Hong Kong: An interdisciplinary participatory action research project. *Action Research*, 6(3), pp. 261-283.
- [12] Luftman, J. (2003). *Competing in the Information Age: Align in the Sand*, Oxford University Press.
- [13] Miozzo, M. and Grimshaw, D. (2006). Modularity and innovation in knowledge intensive business services: IT outsourcing in Germany and the UK., In *Knowledge Intensive Business Services: Organizational Forms and National Institutions*, eds. Miozzo, M. and Grimshaw, D., Cheltenham: Edward Elgar.
- [14] Office of the Government Commerce (2009), *Managing Successful Projects with PRINCE2*, Norwich.
- [15] Silvius, A.J.G., Brink, J. van der and Köhler, A. (2012). The impact of sustainability on Project Management, in *The Project as a Social System*, Henry Linger and Jill Owen (Eds.), pp. 183–200, Monash University Publishing, Victoria, ISBN:978-1-921867-04-0.
- [16] Standish Group International, The (2004). *Third Quarter CHAOS Report*.
- [17] Willcocks, L.P. and Lacity, M. (2001). *Global IT outsourcing: search for business advantage*, John Wiley & Sons, Chichester. ISBN 9780471899594.
- [18] Zoete, L. de (2010). *PMBOK of Prince 2, Automatisering Gids*, April. (in Dutch).