

Linking Benefits to Maturity Models

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Abstract

Many organizations today need to deliver more complex products and services in a better, faster, and cheaper way. The business problems that some companies address require enterprise-wide solutions that call for an integrated approach and an effective management of organizational resources to achieve business objectives with an acceptable level of risk. A maturity model is a process improvement approach that provides organizations with the essential elements of effective change. It can be used to guide process improvement across a project, a division, or an entire organization. Maturity models help integrate traditionally separate organizational functions, set process improvement goals and priorities, provide guidance for quality processes, and provide benchmark for appraising current processes outcomes. The benefits management approach emerges as a complement to traditional management practices and proposes a continuous mapping of benefits, implementing and monitoring intermediate results. Benefits management reinforces the distinction between project results and business benefits. Based on a case study the authors show how a set of business objectives can be obtained from identifying, structuring and monitoring business benefits, supported by information technology enablers and organizational transformations, and as a result of a certain maturity level. The authors also state that the main focus of an investment success lies not only in technology implementation, but mainly in changes in organizational performance and business efficiency by means of improved processes and modifications in the way the work is done. We emphasize that the integration between a Maturity Model and a Benefits Management approach can increase the effectiveness of projects, programs or portfolios outcomes. Besides, this linkage can also improve decision-makers confidence that the investments done match the desired maturity stages and will then, with more probability, collect more value for businesses.

Introduction

Gaining a competitive advantage over competitors has been focus of the organizations since a long time because only a competitive advantage can assure the long term existence of the organization [1,2]. Firms that have captured competitive advantage [3] are attempting to maintain their competitiveness by increasing knowledge and managing that knowledge. In a competitive environment, organizations need flexibility to meet customers' demands, by offering customized and high-quality products and services. While managing projects, organizing people and work in an appropriate way is a key success factor. The functional organization, with a distinct hierarchy is being left behind in the modern business world while other organizational structures enabling

higher flexibility are becoming more and more dominant [4]. For organizations to succeed in the global business competition of today, it is necessary that they produce a high standard of performance. Basically, the purpose of the maturity model is to provide a framework for improving an organization's business result by assessing the organization's strengths and weaknesses, enabling comparisons with similar organizations, and a measure of the correlation between organization's [5,6]. There are a number of reasons why organizations might choose to use maturity model to assess their current performance, such as: justifying investment in portfolio, programme or project management improvements, gaining recognition of service quality in order to support proposals or gaining a better understanding of their strengths and weakness in order to enable improvement to happen. Maturity model is an important element of strategic planning as it provides a methodology, a road map to determine and compress the gaps on resources and quality [7]. Working with different types of projects within an organization requires standard models in order to deliver successful future projects repeatedly, improve both the quality of future projects and gain knowledge and learn from past mistakes. According to Andersen and Jessen [8], measuring maturity in organizations is regarded as a subjective instead of objective measurement since most significant research is primarily focusing on what people are doing operationally. Skulmoski [9] recommends a view where competence and maturity should be linked together for project success and not focusing only on action and where competence should be regarded as a combination of knowledge, skills and attitudes that supports performance. The assessment procedures helped an organization understand where they have been, where they are, and what processes they need to implement, in order to continue their implementation of management methodologies. As organizations mature in business and project management processes, and their use of information technology, they implement centralized solutions to facilitate these processes.

Maturity models

These models are usually divided in progressive maturity levels, allowing the organization to plan how to reach higher maturity levels and to evaluate their outcomes on achieving that. According to Levin and Skulmoski [10] the maturity models provide a framework to help enable organizations to increase their capability to deliver projects on schedule, within budget and according to the desired technical performance. The works of Ibbotson and Kwak, [11,6,12], and Ibbotson and Reginato [13] over the last decade focused on recognizing the benefits of investment in project management competency through measures of maturity in an organization's practice of project management. Following, we make a brief description of the three most popular and referenced maturity models, analyzing the singularities of each one and find the approach that fits better on the dynamic characteristics of the case study organization. The CMMI emerged in 1987 as the Capability Maturity Model (CMM), a project at the Software Engineering Institute (SEI), which is a research center at Carnegie-Mellon University. This center was established and funded by the United States Department of Defense. The CMM for Software was first published in 1991 and is based on a checklist of critical success factors in software development projects during the late 70s and early 80s. CMM has achieved considerable adoption and undergone several revisions and iterations. Its success led to the development of CMMs for a variety of subjects beyond software. The proliferation of new models was confusing, so the government funded a two-year project that involved more than 200 industry and academic experts to create a single, extensible framework that integrated systems engineering, software engineering, and product development. The result was CMMI. This framework defines sets of best practices grouped into process areas

that product development organizations implement to improve the predictability of their project costs and schedules [14]. This model consists of transcending disciplines by offering the best practices through pointing out development and maintenance programmers covering the whole life cycle of the product from the conceptualization to the delivery and maintenance [15]. Considerable research has been done to determine the best software and systems engineering development, acquisition, and sustainment practices. Many of these practices are part of the CMMI framework [16]. The five-step CMMI process is used to establish an organization's current maturity level. According to Cooke-Davies [17] no discussion of organizational project management maturity would be complete without the mention of OPM3, the PMI's organizational project management maturity model. The PMBOK Guide describes a process model for the execution of single projects with five process groups including thirty-nine processes, divided into core and facilitating processes [18]. Organizational project management, as defined in OPM3, requires an understanding of not only project management and its processes but also portfolio and program management. The development of this standard was inspired by the increasing interest in a maturity model that shows a step-by-step method of improving and maintaining an organization's ability to translate organizational strategy into the successful and consistent delivery of projects. OPM3 is the systematic management of projects, programs, and portfolios in alignment with the achievement of strategic goals. The concept of organizational project management is based on the idea that there is a correlation between an organization's capabilities in project, program and portfolio management, and its effectiveness in implementing strategy. The degree to which an organization practices this type of project management is referred to as its organizational project management maturity [18]. OPM3 does not measure the maturity of the organization as an achieved level, as is the case with many other maturity models, but as a percentage of best practices achieved. OGC [19] describes P3M3 as a key standard amongst maturity models, providing a framework with which organizations can assess their current performance and put in place improvement plans. The P3M3 is an enhanced version of the Project Management Maturity Model, itself based on the process maturity framework that evolved into the SEI Capability Maturity Model (CMM). Although connected, there are no interdependencies between these models, which allows for independent assessment in any of the specific disciplines. P3M3 uses a five level maturity framework and focuses on seven process perspectives, which exist in all three models and can be assessed at all five maturity levels. For each of the process areas there are a number of attributes defined at each level of maturity. These attributes are the basis on which the organization should assess its current maturity and make plans to improve.

Limitations of Maturity Models

Maturity models are now in widespread use but it seems maturity models do not in themselves result in performance improvements. There is little evidence suggesting that process capability improvement results in improved project success although a few studies are promising [20,21]. No studies have been able to show that using maturity models or assessing project management maturity results in a sustained competitive advantage for an organization [22]. Maturity models claim to represent all processes present for a project to be successful [23,24]. Unfortunately this assertion is not supported by evidence, with many models either lacking empirical evidence to support the use of particular measures [9] or lacking a theoretical basis [22]. Many factors that impact performance are not specifically addressed by maturity models [23,21].

Another underpinning assumption is that an improvement in process maturity will yield an improvement in overall organizational maturity. Neither of these assumptions has been empirically tested. Maturity models characterized as “step-by-step recipes” that oversimplify reality and lack empirical foundation [25,26,27,28]. Moreover, maturity models tend to neglect the potential existence of multiple equally advantageous paths [29]. According to Mettler and Rohner[30], maturity models should be configurable because internal and external characteristics (e.g., the technology at hand, intellectual property, customer base, relationships with suppliers) may constrain a maturity model’s applicability in its standardized version [31]. King and Kraemer [27] postulate that maturity models should not focus on a sequence of levels toward a predefined “end state”, but on factors driving evolution and change. Gareis and Hueman[32] reject the notion of a maturity ladder of stages: the argument being that a ladder model might be too rigid. Instead he goes for a spider web presentation to allow for more differentiation in describing the needed competencies in handling the specific processes of the project-oriented organization. Ibbs and Kwak[12] demonstrated no statistically significant correlation between project management maturity and project success based on cost and schedule performance. Jugdev and Thomas[22] could not find a correlation between process capability and project success of many maturity models. Mullaly[20] raised the concern of lack of evidence of PMM’s contribution on organization success as a means of competitive advantage.

Benefits Management

Szczepanek and Winter[33] claims that projects and programs should be seen as value creating processes rather than the old view of a temporary organization for production. Recent surveys highlight the need for a more strategic approach in project management, where value and benefits that contribute to the organizations are having a greater emphasis. Today, projects are not only seen as a tool for solving technical problems, they are also serving as a vehicle for business and change. Project maturity can be seen as an indication of the organization’s ability to initiate and execute projects for different and correct purposes [34]. The benefits management involves the processes for delivering the project’s objectives and goals that are not only based on the outputs of the project as is common for immature organizations but on measurements of the performance of a specific activity. Change management is a central topic as well as ways of measuring long term achievement for the organization’s customer satisfaction through delegation of responsibilities and coordination between several projects. For achieving a high maturity rating within benefits management, frequent collection and analysis of the performance metrics should be made for improvement of future projects. The benefits management process draws on the model for managing strategic change developed by Pettigrew and Whipp[35] as well as on Total Quality Management approaches. Benefits Management (BM) can be described as: “*The process of organizing and managing such that potential benefits arising from the use of IT are actually realized*”[36]. Benefits Management is a process of organizing and managing IS/IT [37,36]. Its objective is to ensure that the potential benefits arising from the use of information technology in organizations are actually attained. BM process is structured in five fundamental phases: (1) Identify and structure benefits. (2) Plan benefits realization. (3) Execute benefits plan. (4) Review and evaluate benefits. (5) Potential for further benefits. The initial phase is probably the most complex phase in the whole process, and it is a critical one. In this phase, all potential benefits should be identified, classified according to their nature, and located in the organizational processes [38]. The key tool of this approach is the Benefits Dependency Network (BDN) that was introduced for the first time by Ward and Elvin [39], designed to enable the

investment objectives and their resulting benefits to be linked in a structured way to the business, organization and IS/IT changes required to realize those benefits. The following answers are used to develop both a robust business case for the investment and a viable change management plan to deliver the benefits: (1) Why must we improve? (2) What improvements are necessary or possible?(3) What benefits will be realized by each stakeholder if the investment objectives are achieved? (4) How will each benefit be measured? (5) Who owns each benefit and will be accountable for its delivery? (6) What changes are needed to achieve each benefit? (7) Who will be responsible for ensuring that each change is successfully made? (8) How and when can the identified changes be made?According to Ward and Daniel [36] to agree on the objectives and benefits is advisable to organize workshops with all the relevant stakeholders to meet the alignment needed to develop the BDN. Bennington and Baccarini [40] also suggest that the benefits identification should be a combined approach of interviews and workshops involving key stakeholders.

Self – Assessment

Considering the three approaches described above, and being aware of the advantages and limitations in order to satisfy the particular business organization characteristics and the market constraints, we decided to adopt P3M3. The reasons for selecting P3M3 model were the following: (1) It is a public model where all characteristics and sample questions and necessary information are available online;(2) Updated frequently, 2009 and 2010; (3) Contains three different perspectives,where the questions are easily addressed to either project managers or senior management; (4) Already includes benefits management as a “vertical” process perspective in the maturity model.The complexity of change management should be built into the organization’s framework in order to deliver attractive projects for the customers. Definitions of dependencies between the benefits to be delivered and descriptions on how to conduct the work necessary to achieve the desired benefits, and not just the project outputs, must be presented and understood.P3M3[19] gives an opportunity to use a self-assessment in order to the organizations can get a direct and up to date evaluation of their project maturity. Our linking process intends to use the BM not only as a contained process area but as a process that crosses all the process areas. We have also decided undertaking a self-assessment process to collect the information needed to get the correct organization “picture”. The organization under the study is assessed in order to satisfy the next two following questions: “where we are now” and “where do we want to be”. This self-assessment will be crucial to feed the strategic analysis that endorses the organization to choose the drivers for the investments, identify and structure the benefits beyond the objectives. The first step was about clearly defining what the assessment is aiming to achieve and how it will be undertaken. Given that the assessment is a defined set of deliverables, to be created by a defined team, within a defined timeframe, it makes most sense to establish and run the self-assessment as a project. This step thus involves creating project initiation documentation aimed at answering the following questions: (1) What is the purpose of the assessment? (2) How will we measure success? (3) What is the scope of the assessment?. (4) How many programs/projects need to be included and which ones will be covered? (5) How long will it take? (6) How much will it cost? The organization expected the following benefits: (1) Evidence of success and improvements related to the targets; (2) Reduced bureaucracy through streamlined processes; (3) Reduced reporting overhead; (4) Better control of resources; (5) Reliable and quicker information; (6) Higher performing workforce; (7) Credibility and achievement of sustained and meaningful change. In order to undertake the assessment it was necessary to gather

information on the status of the organization's projects. This was done including face-to-face interviews, questionnaires and document analysis. Prior to conducting interviews an assessment of current documentation of management processes to gain an initial understanding of the level of documentation as well as a view of how initiatives should be managed. Sponsors, program and project managers are selected to cover a range of projects and programs in terms of size and life cycle stage. Documentary evidence mentioned during interviews is reviewed and assessed against maturity level criteria. During, and at the conclusion of interviews, documentation for specific initiatives was reviewed. Once the information collected can be assessed against the criteria and report can be produced, it became relatively easy to take the information and come up with a maturity level. However, the real value lies not just in identifying a maturity level but also in understanding how the different perspectives interact, the implications of the maturity assessment and recommendations for improving the management capability. Analysis of the interviews and documentation provides a maturity score for each management perspective. The maturity level is the median score of the assessments for each management perspective. The assessment contains nine questions for project, program and portfolio, resulting in a total of 27 questions with five different alternatives where the user must decide which of five descriptions most represents the organization's current capability.

Case Study

We have carried out seven face-to-face interviews to two top managers and five program managers, questionnaires to fifteen project managers and collected a documentation sampling concerned all the areas. We have followed the "P3M3® v2.1 Self-Assessment" [9] for the instructions and questionnaire. The questionnaire contains nine questions, one for each of the seven process perspectives contained within the approach covering: Management Control, Benefits Management, Financial Management, Stakeholder Engagement, Risk Management, Organizational Governance, Resource Management and two more overall organization maturity models. The organization does not have all the seven analyzed processes, and there was no evidence of a benefits management process. The major issues are the following (Table 1):

Question 1 – the overall organizational maturity levels. **Results:** Processes are not usually documented, there are no, or only a few, process descriptions. Processes are undeveloped or incomplete.

Question 2 - Management control is characterized by clear evidence of leadership and direction, scope, stages, tranches and review processes during the course of the initiative. **Results:** Programme or project management terminology is used by some members of the organization but not consistently and possibly not understood by all stakeholders.

Question 3 – Benefit dependencies and other requirements are clearly defined and understanding gained on how the outputs of the initiative will meet those requirements. **Results:** Not applied.

Question 4 – There should be evidence of the appropriate involvement of the organization's financial functions. **Results:** Programme or projects business cases are produced in various forms. Overall cost not monitored or fully accounted for.

Question 5 - Stakeholder engagement includes communications planning, the effective identification and use of different communications channels, and techniques to enable objectives to be achieved. **Results:** Stakeholder engagement and communication is rarely used by programmes or projects as an element of the delivery toolkit.

Question 6 - Risk management maintains a balance of focus on threats and opportunities, with appropriate management actions to minimize or eliminate the likelihood of any identified threat occurring, or to minimize its impact if it does occur, and maximize opportunities.**Results:** There is minimal evidence of risk management being used to any beneficial effect on programmes.

Question 7 - how the delivery of initiatives is aligned to the strategic direction of the organization.**Results:**Programme or project management from an organizational perspective is beginning to take shape but with ad hoc controls and no clear strategic control.

Question 8 - A key element of resource management is the process for acquiring resources and how supply chains are utilized to maximize effective use of resources.**Results:** There is some recognition within the organization of the need to manage resources effectively to enable successful delivery of programmes or projects, but little evidence of resource acquisition, planning or management.

Question 9 - The overall organizational capability maturity evaluation.**Results:**Programmes and projects may be running informally with no standard processes or tracking system.

Table 1. Self - assessment questions

P3M3 Model Answers						
	Questions	a	b	c	d	e level
1	How our organization can be characterized	x				1
2	How our management control is best described	x				1
3	How our benefits management is best described			Not applied		
4	How our financial management is best described		x			2
5	How our risk management is best described	x				1
6	How our approach to stakeholder management is best described	x				1
7	How our organizational governance is best described		x			2
8	How our resource management is best described	x				1
9	How does the organization about program/ project management	x				1

Table 2 .Process area capability model

Process perspectives								
Code		Capability level	1	2	3	4	5	level
MC	Management Control		x					1
BM	Benefits Management				Not applied			
FM	Financial Manangement			x				2
SM	Stakeholder Management		x					1
RM	Risk Management		x					1
OG	Organizational Governance			x				2
RM	Resource Management		x					1

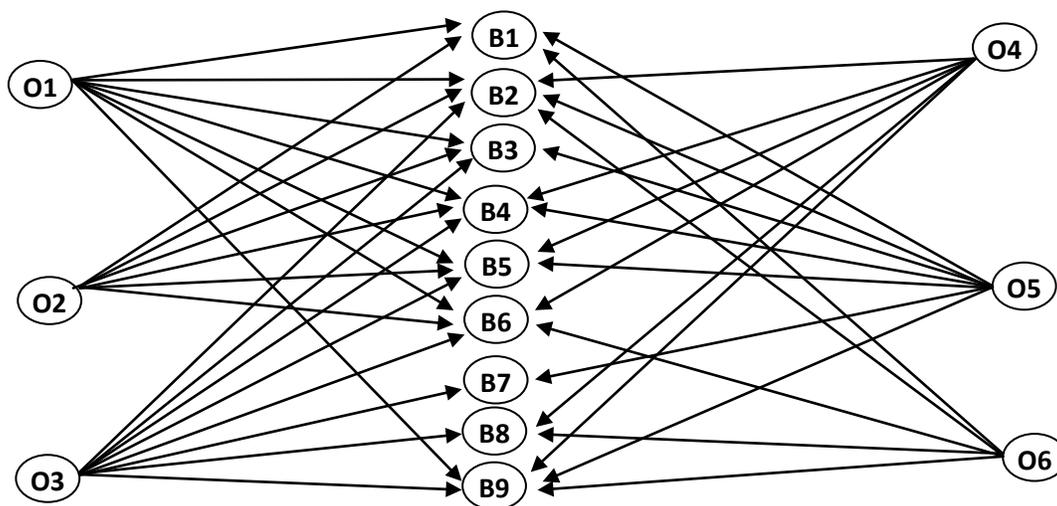
The results of the self-assessment gives to the organization a maturity stage below two on the majority of the processes areas (Figure 2).It should be noted that the overall assessed maturity level is equal to the lowest score for the process perspectives. So, after wide open internal discussion with the top managers, business managers IS/IT specialists and others relevant stakeholders they all agree that the stage two will be the immediate target to achieve. The

maturity level 2 is characterized for basic management practices, e.g. tracking expenditure and scheduling resources, are in place and being improved. Key individuals are trained and demonstrate a successful track record and through them, the organization is capable of repeating success. Initiatives are performed and managed according to their documented plans; project status and delivery is visible to management at defined points. To ensure that the benefits from the investments do arrive there are two questions to answer: “What benefits are we seeking?” and “How will get them?”.The following BM activities to start the process are: Analyse the drivers to determine the investment objectives, identify the benefits that will be measure, establish ownership of the benefits, identify changes required and stakeholder implications and produce an initial business case.Two internal workshops were settle down for further discussion and sharing the knowledge and expertizes. The ability of all stakeholdersto commit the time and resources required by the project shouldalso be ensured. The outputs from the workshops will form the basisof the business case and benefits plan and should become integralcomponents of the overall project plan.

Table 3. Investment objectives and business benefits codification

Investment objectives	Business benefits
01 – Improve efficiency and efficacy	B1 – Better skills
02 – Increasing projects success rate	B2 – Better internal cooperation
03 – Implementing best practices	B3 – More reliable process system
04 – Improving internal communication	B4 – More cost and time control
05 – Better organization alignment	B5 – Costs reduction
06 – Better customer intimacy	B6 – Better services
	B7– Better internal communication
	B8 – Better client intimacy
	B9 – Better team work

Figure 1. Linking Investment objectives with business benefits



In order to manage an investment properly it is essential that we can know that the benefits have actually been realized, so the benefit should be observable and in some way measurable. Each benefit should be considered in turn and the changes that would be necessary to realize that benefit should then be identified and described on the BDN (Figure 3). The things only improve when people do things differently. New ways of working always needed some

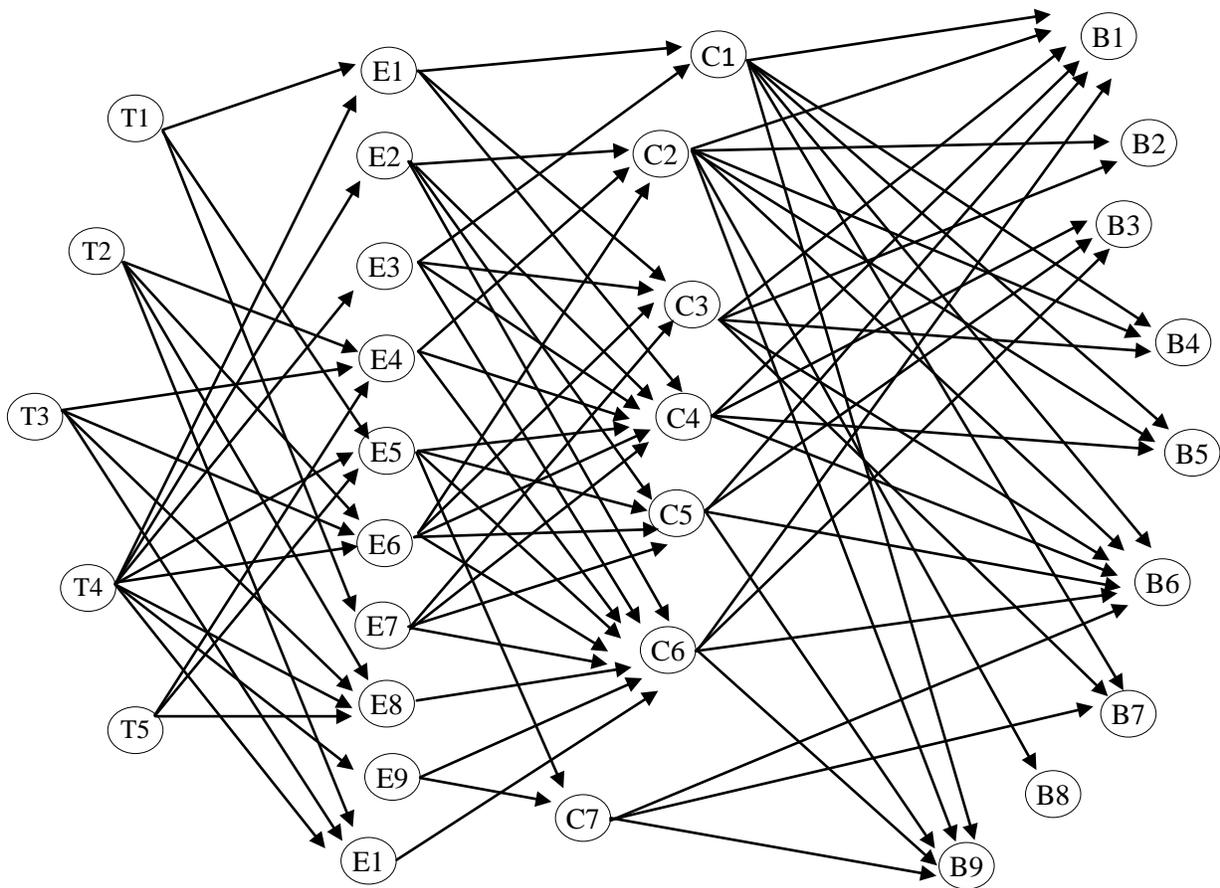
enabling changes. Once the expected benefits from the investment have been identified, it is then important to add two essential pieces of information to each benefit: firstly, how the benefit could be measured and secondly, an individual who will be the owner of the benefit. An owner should also be assigned to each benefit. The BDN (Figure 4) enables both the investment and changes to working practices and processes necessary to deliver each of the benefits to be identified and agreed. An important step in developing a BDN is the identification of change owners. A good business case should enable the outcome of the investment to be assessed in terms of the benefits delivered, or if they were not achieved, to explain why. Following the full implementation of the outcomes and business changes, the achievement of the business case and benefits plan should be formally reviewed. The purposes of the review include a detailed assessment of whether each of the benefits intended have been achieved or not. This stage provides the opportunity to plan for and realize these further benefits as well as to learn from the overall process. The benefits review may identify opportunities for realization of benefits which were not identified at the start of the process. Such opportunities may arise at any time during or after the process, and mechanisms should be in place to capture these opportunities and exploit them, by bringing these new benefits within the scope of the IS/IT investment [19]. In P3M3 the BM appears as a vertical process. By using the BDN we noticed that the BM could be advantageous as a means to integrate initiatives of other processes, in order to synchronize and align the transformations execution to get benefits. Thus, the BDN is an instrument to capture and visualize the integrative initiatives from different areas of the organization towards benefits. That is, in the context of P3M3, BM should also be considered as a "horizontal" process, since it integrates transversely the initiatives and dependencies between various fields of the overall organizational maturity.

We have built the BDN "left side" considering the enablers and changing elements (Table 4 and Figure 2).

Table 4. Enablers and changing elements

Enablers IS/IT	Enabling Changes	Business Changes
T1 – Project management tool	E1 – Project Management Training	C1 – Project Planning
T2 – Management System tool	E2 – Quality Training	C2 – Formal Management
T3 – Customer relationship Management tool	E3 – Intranet Training	C3 – Uses of Management and Monitoring Tools
T4 – Intranet	E4 – Communication Training	C4 – Lessons Learned
T5 – Website	E5 – Team Building	C5 – Organizational and Individual Performance Measures
	E6 – Customer Management Training	
	E7 – Creating KPI's	
	E8 – New Services Identification	
	E9 – Encourage Internal Relationship	
	E10 – Processes New Design	

Figure 2 - Linking organizations changes to business benefits



Conclusions

We claim that by integrating Benefits Management and Maturity Model approaches one can increase the effectiveness of the strategic projects portfolio and improve the confidence of business sponsors that their investments in projects will return business benefits. Higher level of maturity is achieved when organizations assess their capabilities and benchmark their performance against standards and among competitors. Knowing the impact that process maturity has on organizations performance, it is essential that they can focus on eliminating the internal resistance to change, taking advantage of the favorable factors that positively influence organizational maturity. By using a Benefits Management approach we've shown how to collect the business drivers, discuss with all the relevant stakeholders, agree on the objectives and the benefits, as well as on the organizational changes and on the right set of IS/IT enablers. Benefits Management adds value providing relevant information to the strategic framework of the Maturity Model, by identifying the goals and the benefits and by mapping the way to get them, supported on the right combination of organizational changes, enabling factors and IS/IT enablers. The authors claim that Benefits Management provide a richer and more useful decision support and monitoring tool, making the strategy implementation visible, traceable and measurable. Developing a Benefits Dependency Network results in a clear statement of the benefits from an investment, the activities and the IT capabilities required to achieve those

benefits. Benefits Management not only increase the value of investment but also avoid spending money on projects that would not have delivered benefits, increasing greatly the likelihood of the benefits expected from the investment being realized. The maturity model is designed to enable organizations to understand their current level of maturity and highlight areas that would give them the most value and performance improvement in the short and long terms. Our study is an attempt to reinforce maturity models with a more integrated view. We have approached the Benefits Management process, explaining how it could be seen as a more transversal process by integrating the initiatives from distinct areas of the overall organizational maturity.

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