Improving the success of IS/IT projects in Healthcare: Benefits and Project Management approaches

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Abstract. Rapid changes in the business environment are increasing the pressure on organisations to ensure the delivery of successful projects to fulfil their strategic goals. The use of emerging information systems and technology (IS/IT) has rapidly grown in several contexts, including healthcare. There have been two major drivers for the investments in Health IS/IT: the ever-increasing burden from chronic disease with costs growing significantly faster, and; the recognition of the need for greatly improved quality and safety in the delivery of healthcare. Both of these key drivers have led to very heavy investments in IS/IT in order to enable timely information-sharing for clinical decisions. The authors argue that by combining the Project Management (PM) approach with the Benefits Management (BM) approach, one can improve the current low success rate of implementations and enhance the reliability of the delivery of benefits from investments in IS/IT.

Keywords: Project Management, Benefits Management, Project Success, IS/IT Health investments.

1 Introduction

The investments on IS/IT for healthcare are financially relevant and still growing worldwide. Therefore it seems wise that the organisations should give more attention to adopting formal project evaluations and benefits management methodologies in order to ensure that the expected benefits from investments are eventually realised [1], [2], [3]. Since the late 1960s we have been witnessing an increased boom in IS/IT healthcare investments and this phenomenon has expanded dramatically over last 10 years. IS/IT for healthcare refers to any tool or framework that enhances the communication, processing or transmission of information by electronic means for the purpose of improving human health [4]. IS/IT is recognised as a key instrument in healthcare delivery and in public healthcare [5]. The globally accepted assumption is that technology can, and does have a positive effect on healthcare, although the evidence supporting its practical use is low [6]. In fact, many decisions on the implementation of the IS/IT in healthcare are made with little or no information about the impact and consequences of its use [7]. Project Management is a set of initiatives

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and management activities that is required to ensure that projects are delivered according to plan [8], and that they achieve the expected objectives and benefits [9].The practice of project management has evolved over the last thirty years and project success assessment has become more linked to the needs of business, or to its customers, rather than just technical issues [10]. However the assessment may differ, depending on the perception of the different stakeholders involved. Nowadays the "iron triangle" (time, cost and quality constraints) is inadequate to measures the success of projects, as success is not related exclusively to the completion of a project´s scope, but also to the achievement of business objectives [11]. Success is perceived differently by the different stakeholders involved in the projects [12]. Usually stakeholders have different perspectives about the purpose of the project and different expectations about what outcomes should be achieved by the project [13], [14]. According to Walsham [15], the involvement of different stakeholders during the earlier phases of the project design is essential for a project's success. Shenhar and Dvir [16] defined the four dimensions of project success as being: 1) efficiency-meeting schedule, cost and scope; 2) impact on the customer - meeting the requirements, customer satisfaction and benefits for the customer; 3) business Success – sales, profits, cash flow, service quality and market share; 4) preparing for the future - new technology, new market, new product line, new core competency and new organisational capability.

2 Health IS/IT

Worldwide surveys show that around 70-80% of all information systems and information technology fail (e.g. CHAOS report) [17]. Despite best practices and the definition of the procedures and methodologies applied, we continue to see flaws in the implementation of information systems based projects [18]. The CHAOS report [17] study ranks the most common risk factors and is a recipe for successful projects. When IS/IT is successfully developed and implemented, there is wide consensus that it offers tremendous opportunities to help healthcare professionals in their daily operations and with the efficiency and effectiveness of care [19], [20]. A reliable patient information system is crucial for the quality of care and is one of the key factors of a patient-centred approach. The computer-based patient information system has the potential to store and retrieve large amounts of information and it is a reality that its use improves the effectiveness and efficiency of patient care. Since the 1990s, the computerisation of healthcare organisations has rapidly increased [21], [22], [23], [24] and the systems failures' reports that have accompanied these decades of implementation [25], [26], [27], [28] evidence enormous loss of money and loss of confidence in IS/IT from the side of users and managers. The use of IS/IT in healthcare is recognised as being a major factor for the promotion of improvement in patient care [29] and it is usually widespread in any modern hospital [30]. IS/IT in health provides an important impact on administrative operations, namely, a decrease in paperwork and the workload of the professionals, and it also increases efficiency and expands access to affordable care. Furthermore, it has also been shown that it is effective in preventing medical errors and in reducing health care costs.

The introduction of IS/IT systems offers tremendous opportunities for healthcare professionals and they radically affect health organizations, namely, by accessing a large amount of information regarding patients, support for the clinical decisions and direct access to vast resource and knowledge data bases [31]. IS/IT in healthcare should deliver relevant medical information about patients and support decisions based on the latest scientific research [23]. There is a broad consensus that organisational factors are more crucial to the successful implementation of IS/IT than just purely operational matters [32]. Obtaining successful change is much easier with the commitment of all stakeholders, and the earlier this involvement is achieved, the easier is the path to a successful project [33]. The implementation of IS/IT in healthcare is distinct from other projects in other sectors. The key differences are mainly related to the environment, the diversity of systems and devices and the challenge of integration and interoperability, all of which are requirements for meeting the expectations of different stakeholder [34]. The effective integration of IS/IT practices for health professional applications tends to be influenced by several factors, which are related to individuals, professional groups, organisational and contextual characteristics, as well as to the nature of their own intervention [35] [36]. One of the most critical factors that are recognised by the academic literature is resistance to change by healthcare professionals, particularly amongst doctors [37] [38]. The complexity of systems, organisational diversity and the amount of investment needed, and also the difficulties on the successful IS/IT adoption, are all largely justified by the way that IS/IT is implemented, and by the need to identify best practices and to act on a number of critical factors in order to reduce the chance of failure [39] [40]. According to Reyes-Alcázar et al., [35] the critical success factors that need to be considered for the health sector are the following: 1) a patient-centred approach - needs and expectations of end-users [36]; 2) leadership - the importance on improving the quality of healthcare [37]; 3) team work – a multidisciplinary process focussed on a healthcare team that shares common goals [38]; 4) autonomy and responsibility – the need for a greater degree of autonomy amongst health professionals [39]; 5) an integrated view of healthcare - the quality of patient care as perceived by end-users is a key element [40]; 6) professional skills – promoting skills encourages professional development [35]; 7) results focussed – the measurement and evaluation of clinical performance, hospital management and end-user satisfaction [41]; 8) internal and external audits – the concept of continuous quality improvement [42], [43], [44].

3 Benefits and Project Management approaches

Benefits and Project Management methodologies are crucial for the success of IS/IT investments, mainly in the areas that experience complex system integration, such as IS/IT Healthcare projects. Many factors can lead to failures in IS/IT projects in healthcare, such as: incomplete or unclear scope, planning, failure to identify and involve stakeholders and communication and risk management problems [45], [46]. The management of the project stakeholders' needs is an essential part of project management and is crucial for ensuring project success [47]. Any intervention

concerning the public service perspective should be based on their expectations and their needs [35]. Over the last decades, a significant amount of literature has referred and advocated a patient-centred approach for healthcare [36]. The benefits management process approach focusses especially on the benefits of IS/IT investments [3], [48]. The potential benefits are identified, a realization plan is defined and then the results are reviewed and evaluated. Benefits management comprises a set of management activities which are designed to ensure that an organisation realises the benefits from an investment. In recent years there has been a significant interest in benefits management. Although it has been recognised for more than one decade, there are still many projects and programmes that fail to realise their expected benefits. Recent surveys highlight that only a minority of responding organisations had adopted a comprehensive approach to managing benefits [49]. There are a set of principles to follow for realizing benefits through IS/IT investments, namely [50]: 1) just having the technology does not necessarily give any benefit, or generate value; 2) benefits occur when IS/IT allows people to carry out their work differently; 3) benefits result from changes and innovations in ways of working; 4) all IS/IT projects have outcomes, but not all outcomes are benefits; 5) benefits must be actively managed if they are to be realised. Benefits are typically delivered through extensive changes to business practices and decision making. There is a consensus that organisational factors are far more critical to successful implementation than technical considerations [51]. Problems are often the result of either a lack of common understanding of the purposes of changes, or from different perspectives as how to achieve them successfully [52]. In this study, we follow the Benefits Management model developed by Cranfield University of UK [3]. This model is widely cited, and is one of the most well-known in the literature [53]. The Benefits Dependency Network (BDN) is the key central tool of the model (Fig.1). It is a framework designed "to enable the investment objectives and their resulting benefits to be linked in a structural way to the business, organisation and IS/IT changes required to realise those benefits" [54].

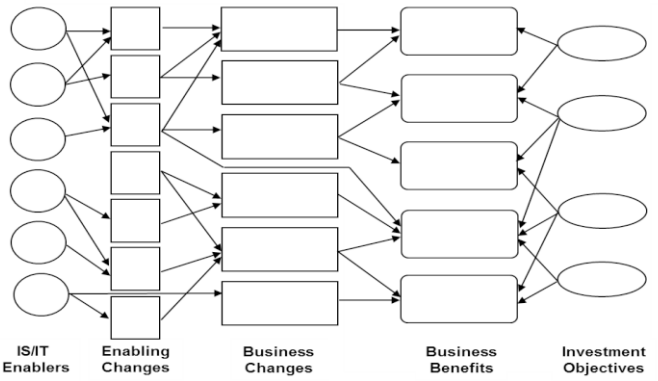

Fig. 1. Benefits' dependency network [3]

Developing a BDN is an interactive process, as it requires changes which are identified and a network of interrelating changes and benefits evolves and the feasibility of achieving some of the benefits originally identified will be questioned [33], [55], [56]. Building the BDN (Fig.1) highlights that the objectives and the related benefits were achieved by the combination of the business changes powered by the enabling changes and IS/IT enablers. A BDN depicts the business changes that can enable organisational change [57]. The majority of business value from investments in IS/IT comes from the changes that the organisation is able to make [54], [55], namely: 1) in a new build, or by reformulating old processes; 2) new functions and responsibilities; 3) new teams, groups or operational divisions; 4) new governance; 5) new measurements and metrics; 6) Redefinition of the appraisal and reward schemes; 7) new procedures for managing and sharing information. The IS/IT investment enables and performs organisational change, not only in managing the technology issues needed to improve business processes and organisational performance. The realization of benefits obviously depends on the correct implementation of the technology. Studies suggest that success and failure in projects depends on organisations ability to accommodate and exploit the capabilities of such technology. Changes in business represent how the organisation wants to work in the short time, but other investments and changes will need to be made in the future. Benefits' management considers a five-stage cycle [54]: 1) identifying and structuring benefits; 2) planning the realization of benefits; 3) executing the realization of benefits plan; 4) evaluating and reviewing results; 5) the potential for further benefits. The initiation process is a crucial stage of the benefits' management approach. In this phase, all the desired benefits should be identified and documented. Best practices recommend the involvement of the key stakeholders in order to maximise the likelihood of their commitment to the benefits achieved. The realisation of benefits plan should include the key assumptions and a risk analysis of those benefits that are expected to contribute to outcomes, and this should be seen as a crucial component of the decision-making processes. Ward et al., [3] highlight that, without a plan, it is difficult to predict how an organisation might effectively realise business benefits. Business cases represent the interface between business and investments [58], and thus it is extremely important to ensure that this interface is well defined [59]. Benefits' monitoring compares results with benefits the realisation plan during the project, and assesses whether any internal or external changes have occurred that will affect the delivery of planned benefits [56]. The benefits' management process includes a stage of post-implementation review, which is a crucial project phase. This review stage should not focus just on technology usage. Instead, the review should explore which of the expected benefits have been achieved, whether any unplanned benefits arose, and which planned benefits are still expected, but may well need additional attendance in order to ensure that they are fully completed. Benefits' review is the process by which benefit delivery is addressed and evaluated and it is when new opportunities for further benefits are identified. Reiss et al. [57] highlight that the relationship between projects, programmes and benefits is frequently quite complex, especially regarding the following aspects: 1) Projects do not deliver benefits, but create simple deliverables; 2) Programmes rarely deliver benefits directly, but create capabilities that will enable the desired benefits to be achieved; 3)

Benefits management processes ensure that the capabilities created are used to deliver anticipated business benefits.

4 Framework

In our framework (PM&BM) (Fig.2) we combine the PMBOK 5th version (PMI, 2013) project management approach [60], with the Cranfield Model [3] benefits' management approach.

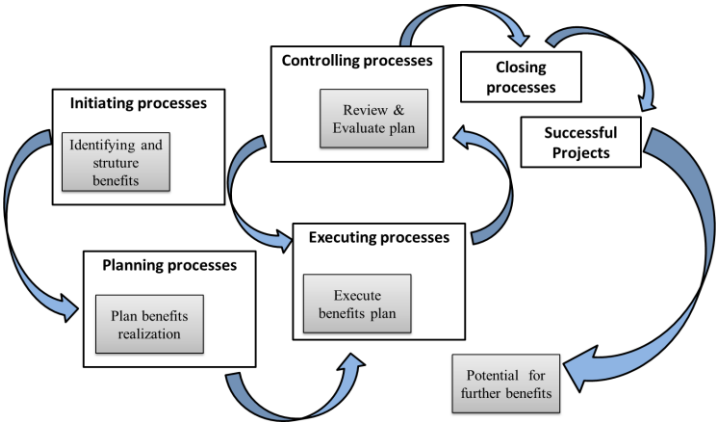

Fig. 2. PM&BM framework

In Table 1, we show the combined phases from these two approaches. There are five process groups required for PM&BM projects. PM&BM processes are linked by the outputs which are produced. The output of one particular phase becomes the input for the subsequent phase. For example, planning processes provide a project management plan and a realization of benefits plan for the executing group. This processes groups that have clear dependencies and which are typically performed in each project. The PM&BM processes group are often identified prior to completing the project, and can have interactions within a processes group, and among processes groups.

Table 1. PM&BM life cycle processes groups

Initiating	Commit the organization to a project and set the overall solution Define project objectives alignment with strategic objectives Approvals, resources and assignment of the project manager Establish the connections between drivers, objectives and benefits Identify benefits and business changes Identify stakeholders and change and benefits' ownership Build the business case

Planning	Scope statement and scope management plan Work breakdown structure Project schedule and schedule management plan Resource requirements, cost management plan, and project plan Measurements scales for benefits and required changes. Stakeholders agreement for the benefits and the required changes Business case approval that supports the realizations of benefits plan
Executing	Managing work results and requests for change Using tools and techniques in the implementation of the project plan Business changes management Follow up of the realization of benefits
Controlling	Performance reports, change requests, updates and corrective actions Updates to the risk management plan Evaluation of benefits' achievement and lessons learned
Closing	Formal acceptance and closure
Successful projects	Project management success (time, budget, requirements/quality) Strategic alignment, changes and stakeholders' expectations
Further benefits	Identify new opportunities and identifying new benefits

It is also understood that alongside planned benefits unplanned benefits often emerge which are the consequence of an implemented change or another gained benefit. The achievement of benefits obviously depends, partially, on an effective implementation of technology assets. However, evidence from project successes and failures shows that it is organizations' inability to accommodate and exploit the capabilities of the technology that causes the poor return from many investments in IS/IT [61]. The realization of benefits plan and the benefits' dependency network are means of ensuring that these links are made explicit. Besides, these are the basis for the business case, as this is the tool that includes not only those benefits that are intended to be identified and specified, but also how each one can be achieved [54], [61].

5 Conclusion

Projects are powerful assets which are designed to bring about change and deliver some form of benefit. Projects are affected by internal and external factors and their success is largely dependent on the satisfaction of stakeholders' expectations. The evaluation and the realization of benefits are both processes which assist organisations to spend money wisely and then account for the amounts spent. Changes and benefits achieved are expected to continue after the end of a project. IS/IT assets support a greater capacity for the planning, monitoring and evaluation of activities in healthcare and they maximize health gains through the efficient allocation of resources. IS/IT also provides greater support for healthcare operations, assisting the integration of information and facilitates for the efficient flow of processes and clinical acts. This study highlights that a combination of benefits and project management outcomes could contribute to enhancing the chances of success through the systematic application of best practices, namely: 1) The involvement of different stakeholders in defining objectives, expectations and benefits; 2) Creating a greater awareness of how project results lead to achieving objectives and to the corresponding benefits; 3)

Establishing a formal method for planning and evaluating objectives, expectations and benefits, in line with initial requirements; 4) Creating an environment of learning and improvement. The authors argue that this combined approach provides a more efficient and useful framework for supporting decision-making which helps organisations improve the success of their projects.

References

1. Dibb, S.: Customer Relationship Management and Barriers to the One Segment. Journal of Financial Services Marketing, 6(1), 10-23 (2001).
2. Schultz, J. R.: Measuring Service Industry Performance; Some Basic Concepts. Performance Improvement, 45 (4), 13-19 (2006).
3. Ward, J., Taylor, P., Bond, P.: Evaluation and Realization of IS/IT Benefits: An empirical study of current practice. European Journal of Information Systems, 4, 214-255 (1996).
4. Bukachi F., Pakenham-Walsh, N.: Information technology for health in developing countries. Chest Journal, 132(5), 1624-1630 (2007).
5. Drury, C.: Management Accounting for Business 3th edition. Bedford Row, London: Thomson Learning (2005).
6. Wootton R.: The future use of telehealth in the developing world. In, Chapter 28, R. Wootton, N. Patil, R. Scott, and K. Ho (eds.), Telehealth in the Developing World. London, United Kingdom: Royal Society of Medicine Press (2009).
7. Kazanjian, A., Green, C.: Beyond effectiveness: the evaluation of information systems using a comprehensive health technology assessment framework. Computers in Biology and Medicine, 32, 165-177 (2002).
8. Brynjolfsson, E., Hitt, E.: Paradox Lost? Firm-level Evidence on the Returns to Information Systems Spending. Management Science, 42(4), 541-558 (1996).
9. Devaraj, S., Kohli, R.: Performance Impacts of Information Technology: Is Actual Usage the Missing Link? Management Science, 49(3), 273-289 (2003).
10. Kerzner, H.: Applied Project Management: Best Practices on Implementation. John Wiley & Sons, Inc., New York (2000).
11. Turner, R., Zolin, R.: Forecasting Success on Large Projects: Developing Reliable Scales to Predict Multiple Perspectives by Multiple Time Frames. Project Management Journal (2012).
12. Freeman, M., Beale, P.: Measuring Project Success. Project Management Journal, 23(1), 8-17 (1992).
13. Lim, C. S., Mohamed, M. Z.: Criteria of project success. International Journal of Project Management, 17(4), 243-248 (1999).
14. Lyytinen, K., Hirschheim, R.: Information systems failures: A Survey and Classification of the Empirical Literature, Oxford Surveys in Information Technology, 4, 257-309 (1987).
15. G. Walsham, Interpreting Information Systems in Organizations, John Wiley & Sons, Chichester, UK (1993).
16. Shenhar, A. J., Dvir, D., Levy, O., Maltz, A, C.: Project Success: A Multidimensional Strategic Concept. Long Range Planning, 34, 699-725 (2001).
17. Standish Group.: CHAOS report 2000. Standish Group International, Boston (2000).
18. Gheorghiu, F.: Why companies fail on the way to implementing project management methodology. Project Management Today, 8(10), 1-7 (2006).
19. NCVHS: Information for Health: a strategy for building the National Health information Infrastructure. National Committee on Vital and Health Statistics, Washington, DC (2001).

20. WHO: Innovative care for chronic conditions: Building blocks for action. World Health organization, France, WHO/NMC/CCH/02.01 (2002).
21. Brailer, D. J., Terasawa, E.L.: Use and Adoption of Computer-Based Patient Records. California HealthCare Foundation, Oakland, CA (2003).
22. Dick, R.S., Steen, E.B., Detmer, D.E., editors: The Computer-Based Patient Record. National Academy Press, Washington, DC (1997).
23. Yasnoff, W.A., Humpheys, B.L., Overhage, J.M., Detmer, D.E., Brennan, P, F., Morris, R. W., Middleton, B., Bates, D. W., Fanning, J, P.: A consensus action agenda for achieving the national health information infrastructure. Journal of the American Medical Informatics Association, 11, 332-338 (2004).
24. Barrett, M. J., Holmes, B. J., McAulay, S. E.: Electronic Medical Records: A Buyer's Guide for Small Physician Pratices. California HealthCare Foundation, Oakland, CA (2003).
25. Southon, F., Sauer, C., Dampney, C.: Information technology in complex health services: Organizational impediments for successful technology transfer and diffusion. Journal of the American Medical Informatics Association, 4, 112-124 (1997).
26. Southon, F., Sauer, C., Dampney, C.: Lessons from a failed information systems initiative: Issues for complex organizations. International Journal of Medical Informatics, 55, 33-46 (1999).
27. Goddard, B.L.: Termination of a contract to implement an enterprise electronic medical record system. Journal of the American Informatics Association, 7, 564-568 (2000).
28. Poon, E. G., Blumenthal, T., Jaggi, M., Honour, M. N., Bates, D. W., Kaushal, R.: Overcoming barriers to adopting and implementing computerized physician order entry in US hospitals. Health Affairs, 23(4), 184-190 (2004).
29. Li, J., Jiang, Y., Fan, R.: Adoption of ICT at Hospital: A case study of UMMC. In proceedings of the 2010 International Conference on Electronic Computer Technology, ICECT, 157-167 (2010).
30. Lymberis, A., Dittmar, A.: Advanced Wearable Health Systems and Applications: Research and Development efforts in the European Union. Engineering in Medicine and Biology Magazine, IEEE, 26(3), 29-33 (2007).
31. Kohn, L., Corrigan, M., Donaldson (Eds): To Err is Human: Building a Safer Health System. National Academy Press, Washington DC (2000).
32. Markus, M. L., Axline, S., Petrie, D., Tanis, C.: Learning from adopters experiences with ERP: Problems encountered and success achieved. Journal of Information Technology, 14(4), 245–265 (2000).
33. Bradley, G.: Benefit Realization Management: A Practical Guide for Achieving Benefits through Change, Gower, Aldershot, Hants, England (2006).
34. Abouzhara, M.: Causes of failure in Healthcare IT projects. In Proceedings of 3rd International Conference on Advance Management Science, 19, IACSIT Press. Singapore, (2011).
35. Reyes-Alcázar, V., Torres-Olivera, A.: Núñes-García, D., Almuedo-Paz, A.: Critical Success Factors for Quality Assurance in Healthcare Organisations, in Quality Assurance Management, Prof. Mehmet Savsar (ed.) 2012.
36. Mead, N., Bower, P.: Patient-centredness: A conceptual framework and review of empirical literature, Social Science and Medicine, 51(7), 1087-1110 (2000).
37. West, B. Lyon, M. H., McBain, M., Gass, J.: Evaluation of a clinical leadership initiative. Nursing Standard, 19(5) 33-41 (2004).
38. Mickan, S. M.: Evaluating the effectiveness of health care teams. Australian Health Review, 29(2) 211-217 (2005).
39. Harrison, S. R., Dowswell, G.: Autonomy and bureaucratic accountability in primary care: what English practitioners say. Sociology of Health and Illness, 208-226 (2002).

40. Torres Olivera, A.: La gestión por procesos asistenciales integrales: una estrategia necesaria. Atención Primária, 31(9) (2003).
41. Patton, M. Q.: Utilization-Focused Evaluation, Thousand Oaks, Sage Publications, California, USA (1997).
42. Chovil, N.: One small step at a time: implementing continuous quality improvement in child and youth health services. Child and Youth Services, 31(1) 21-34 (2010).
43. Hyrkäs, K., Lehti, K.: Continuous quality improvement through team supervision supported by continuous self-monitoring of work and systematic patient feedback. Journal of Nursing Management, 11(2), 208-226 (2003).
44. Le Brasseur, R., Whissell, R., Ojha, A.: Organizational learning, transformational leadership, and implementation of continuous quality improvement in Canadian Hospitals. Australian Journal of Management, 27(2), 141-162 (2002).
45. Andrew, T.: IT projects: sink or swim. Computer Bulletin, 42, 24-26 (2000).
46. Pinto, J. K., Mantel, S. J.: The Causes of Project Failure. IEEE Transactions on Engineering Management, 34, 67-72 (1990).
47. Landin, O.S.: Evaluation of stakeholder influence in the implementation of construction projects. International Journal of Project Management 23, 321-328 (2005).
48. Gomes, J., Romão, M., Caldeira, M.: Linking Benefits to Balanced Scorecard Strategy Map. In New Perspectives in Information Systems and Technologies: Advances in Intelligent Systems and Computing, 206, 357-369, edited by Rocha, Á., Correia, A.M., Wilson, T., Stroetmann, K. A, Springer Berlin Heidelberg (2013).
49. Ward, J., Hertogh, S. D., Viaene, S.: Managing Benefits from IS/IT Investments: an Empirical Investigation into Current Practice. In proceedings of 40th Hawaii International Conference on Information Systems (2007).
50. Peppard, P., Ward, J., Daniel, E.: Managing the Realization of Business Benefits from IT Investments, MIS Quarterly Executive, March (2007).
51. Markus, M.L., Axline, S., Petrie, D., Tanis, C.: Learning from adopters experiences with ERP: Problems encountered and success achieved. Journal of Information Technology, 14, 4, 245-265 (2000).
52. Ramiller, N. C., Swanson, E. B.: Organizing Visions for Information Technology and the Information Systems Executive Response. Journal of Management Information System, 20, 1, 13-50 (2003).
53. Braun, J., Ahlemann, F., Riempp, G.: Benefits Management: A literature review and elements of a research agenda. In Wirtschafinformatik Proceedings, 54 (2009).
54. Ward, J., Daniel, E.: Benefits Management, Delivering Value from IS and IT Investments. Chichester, UK: John Wiley & Sons (2006).
55. Ward, J., Elvin, R.: A New Framework for Managing IT-enabled Business Change, Information Systems Journal, 9, 3, 197-222 (1999).
56. Payne, M.: Benefits Management – Releasing project value into the business, Hampshire, UK, Project Manager Today (2007).
57. Reiss, G., Anthony, M., Chapman, J., Leigh, G., Pyne, A., Rayner, P.: Gower Handbook of Programm Management, Gower Publishing (2006).
58. Morris, P., Jamieson, A.: Translating Corporate Strategy into Project Strategy. Newton Square, Pennsylvania: Project Management Institute, Inc. (2004).
59. Nogeste, K., Walker, D.H.T.: Project outcomes and outputs: making the intangible tangible. Measuring Business Excellence, 9, 55-68 (2005).
60. PMI: A Guide to the Project Management Body of Knowledge (PMBOK® Guide), Fifth Edition. Newtown Square, Pennsylvania, USA: Project Management Institute Inc. (2013).
61. Gomes, J., Romão, M.: How Benefits Management helps Balanced Scorecard to deal with business dynamic environments. In proceedings TMS2012 - Management Studies International Conference, Algarve, November (2012).