

Summary of the doctoral thesis

Object Oriented Project Portfolio Management

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Complexity, uncertainty and organisational environment affect the day-to-day operations, projects, programmes and project portfolios managed by organisations. Business and academics are still looking for tools to help address this challenge properly. There is a consensus that no single solution exists that could fit every organisation or project. While traditional project management approaches have been criticised, there is also a consensus that they should not be abandoned but, rather, extended to achieve better flexibility, responsiveness and contextualisation. New approaches, such as agile, may sometimes move complexity and uncertainty from the project level to the portfolio level rather than address them.

The dissertation refers to the analogy between the complexity affecting software design and development and the increase in complexity observed in project, programme and portfolio management, to transfer elements of the object-oriented approach to portfolio management.

The primary objective of the thesis is to formulate a metamethodology using an object-oriented approach to project portfolio management to provide organisations with the tools to contextualise all their project-related activities in a way that is resilient to increasing complexity. The proposed framework, together with the methodological steps leading to its implementation, has been validated against a simulated business case.

Analysis of the research area directed the author to formulate the following research hypotheses:

H1: It is possible and reasonable to transfer rules of the object-oriented approach to project portfolio management. This allows to build an organisational framework tailored to a given company: a project portfolio management metamethodology.

H2: The introduction of the object-oriented approach allows to build an object-oriented model of project portfolio environment, which has a positive impact on corporate governance and communication, both within this project portfolio and within the parent organisation. It also increases the effectiveness of knowledge management and, as a result, the chance of success of the project portfolio organisation.

The dissertation consists of four chapters formulated in accordance with the research problem and the thesis goals stated.

Chapter 1 presents a review of the literature with a particular focus on issues at the intersection of themes that formed the basis and inspiration for this dissertation.

Chapter 2 provides the basics of model definition. It describes the key concepts of the object-oriented approach, together with its use in project portfolio management. It presents classes and objects, together with the concept of composition and inheritance followed by interfaces and design patterns.

Chapter 3 describes the methodology for implementing the proposed approach in the specific organisation. At this stage it remains high-level and organisation-agnostic, but provides a foundation for further real-life organisation implementations. Due to its iterative characteristics, the proposed sequence of steps – with minor adjustments – may be repeated to expand the model scope and adjust it to an evolving organisation.

Chapter 4 contains an exemplification of the metamethodology presented in this thesis. Due to limited resources, a simulation of the implementation of the approach for a specific organisation and a selected portfolio of projects is presented. An example of a global ERP implementation programme has been used. It consists of a number of similar IT projects and the resulting business process transformation, implemented in a diverse organisational environment. Together with all surrounding projects involving the same ERP system, the programme forms the organisation's project portfolio. The illustrative programme reflects the author's experience from many years of professional career as a manager and consultant.

The substantive part of the dissertation concludes with a summary presenting the author's conclusions, verification of hypotheses indicated earlier and a discussion of issues that the author considers as his contribution to management sciences. It also compares the proposed approach with the existing solutions in order to identify its advantages and disadvantages.

In the author's opinion, it can be concluded that the hypotheses posed have been positively verified. Not only a metamethodology has been presented that successfully uses an object-oriented approach to build an organisation-specific project portfolio model, but also a solid foundation for organisation governance that is open to changes and resilient to increasing complexity has been established. Given that an organisation is expected to be capable to consistently model and manage all areas of project portfolio management, we also expect improvements in knowledge management and communication between projects and the surrounding organisation, thereby reducing the risk of project failure. These assumptions were also supported by the literature research.

Thanks to its flexibility, the proposed approach can be considered universal. It creates a methodological framework through which it is possible not only to build a model for any organisation, but also to put together a customised combination of tools and methodologies that allows for flexible management of each organisation's project portfolio. It is important to remember that the implementation of the approach involves effort and organisational costs, so the decision to implement it should be made by comparing the expected benefits with the costs.

In response to the presented objectives, the following tasks have been carried out, constituting the author's own contribution:

- A theoretical foundation for an object-oriented approach in project portfolio management has been developed. It can be used as a project portfolio management system in heterogeneous organisations exposed to complexity and uncertainty.
- Process steps to support the implementation of the presented approach in an organisation have been defined, together with an exemplification.
- A methodology has been developed that should enable the organisation to integrate different project management methodologies and tools in a coherent way to improve the strategic coherence of the project portfolio and provide a learning loop between projects and the surrounding organisation.
- A project portfolio model based on UML (Unified Modelling Language) elements has been proposed, both at a general level and specific to the example presented.
- As an illustration, a comprehensive implementation of the approach for a sample project subportfolio in a global organisation has been discussed.
- Theoretical foundations have been collected which can be further used to build a dedicated IT tool supporting project, programme and portfolio management based on the presented approach.

The presented approach can significantly improve the way organisations deal with complexity and uncertainty, but the foundations presented in this thesis need to be further developed. An organisational learning loop has been built to enable proper coordination between the project and the parent organisation. Such fit results in a better cascading of existing knowledge, processes and strategic goals to projects, and the knowledge accumulated in the project, including knowledge about process modification, is transparently communicated to the parent organisation. This is important at the project and program level, but also at the project portfolio level.

Future research should focus on implementing the approach in an actual organisation (in a complex organisational context) and on building a dedicated IT solution to support the approach.