



29th World Congress International Project Management Association (IPMA) 2015, IPMA WC 2015, 28-30 September – 1 October 2015, Westin Playa Bonita, Panama

Controlling a multibillion project portfolio - milestones as key performance indicator for project portfolio management

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Abstract

Different studies show that projects tend to be delayed. For one project this is a challenge, but for the portfolio manager managing hundreds of large projects, delays can add up to significant problems. This case study is based on data measuring more than 2000 milestones over a period of more than six years, covering a multi-billion dollar business that runs 200-300 large projects every year. This paper will address strategies for governing portfolios despite delays. Analysis of the milestone delays show reoccurring patterns, which is made into information used to govern. In the five different business areas analysed, the pattern of delays were found to be similar. The curves showing relative milestone achievement repeat themselves year after year, producing tendency curves. Since the portfolio manager expects this behavior he uses the information to govern the project portfolio cash flow. The data are unique, but we think the measured tendencies indicate some sort of global tendencies. Despite relative large delays in the portfolio the portfolio manager manages to meet the budget. Success on project level is not necessarily the same as success governing a portfolio.

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Peer-review under responsibility of the organizing committee of IPMA WC 2015.

Keywords: project management; project management standards; stakeholder management; change management; policy and politics; delays; portfolio management

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1. Introduction

Delays in projects are a global phenomenon and have become a typical part of the project manager's concern. Projects are delayed for a variety of reasons. Zidane et al. (2015) lists a number of reasons mentioned in the literature. Articles discussing delay factors—suggest that reasons often are more external than internal. The articles surveyed (ibid) point to reasons such as construction environment, working cultures, management style, methods of construction, geographical condition, stakeholders, government policy, economic situation, and availability of resources, to name a few. This paper is based on objective data analysis and looks into inherent problems that project managers often face. The article is based on the fact that delays in a large portfolio can be foreseen and strategies to govern the effect of delays can be implemented.

It is often said that project managers are too optimistic and that their plans seldom outlast the first encounter with reality. This can be a reason for delays and failure in time estimation. The problem has been widely studied and many different explanations have been offered (Buehler et al., 1994; Flyvbjerg et al., 2009; Newby-clark et al., 2000). Underestimation in order to make the project “sweeter” is one angle (Flyvbjerg et al., 2002). Uncertainty theories or Project Risk Management is another angle. Another explanation can be a phenomenon called; “the planning fallacy”, under which plans tend to be biased towards the optimistic in terms of how much time is required to complete. Plans are uncertain and are likely to be changed. If we see this in the context of governing a portfolio, we know that most governmental organizations, and many others, govern their business based on a yearly budget planning cycle. Organizations with many projects often organize them into portfolios and programs in order to reduce risk and increase the ease of governance, in order to meet their yearly budgets. When it is likely that plans will be delayed, this will cause challenges for the portfolio manager aiming to stay within the yearly budget. The PMI report “Pulse of the profession” conducted a global survey addressing average project delays in 2012 (PMI's Pulse of the profession, 2012). Projects in mature project organizations reported that an average of 67% of projects were on time, whilst non-mature organizations reported that an average of 39% kept to their schedule. Delay issues, planning and time management have been central topics for many years. Scientific management / Taylorism focus on analyzing workflows (Taylor, 1914.). PERT (Raborn 1957) and CPM (DuPont 1957/59) techniques are well known instruments for project time planning (Morris 1987). Measuring and managing time is a core skill in project management and in scientific management, but little data exists on how a large system, or project portfolio, reacts year after year.

In our study we followed 415 projects and their milestone delays over a seven-year period, with baseline/actual dates for 1531 portfolio-level milestones. The tendency of delays followed the same pattern every year, a pattern we find unique and interesting. The average delay in the portfolio was approximately 40-50 % by the end of the year. A central question is therefore; which metrics or what kind of information can provide us with the right tools to govern a large portfolio to meet the budget? In this study the portfolio managers hit the budget target within 2 % with a total average of 40 % milestone delay in the portfolio. We will discuss our findings, theories, the milestone patterns and the strategies that are used to govern the portfolio towards a yearly budget. Success in portfolio management is not necessarily the same as success in project management (Blomquist and Müller, 2006; Martinsuo and Lehtonen, 2007; Müller et al., 2008; Teller et al., 2012).

2. Methodology and research approach

The study came about due to the opportunity to analyze a large dataset of project milestones from several hundred projects. The data covered every deviation on milestones over a seven-year period. Milestone achievement graphs showed reoccurring behavior year after year. We could not explain what the data showed us and we could not explain the reoccurring “trends”. The analysis of the data was therefore followed up by several interviews of the portfolio management team.

The study is based on data from a Norwegian public body with a project investment budget in excess of one billion USD/year. The portfolio is heterogeneous in the sense that it contains a range of different projects from varying widely in size and nature. All projects are conducted according to Norwegian public acquisition rules. The study is based on data from the project planning system, which is provided directly by the project managers

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