A Survey on the Characteristics of Projects with Success in Delivering Client Benefits[1]

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Abstract
Context: Not being able to produce client benefit, inefficient project work and low product quality currently lead to a large waste of resources in software development projects.
Objective: The main objective is to better understand the characteristics of successful software projects and contribute to software projects better able to produce client benefits.
Method: We requested 63 Norwegian software professionals, representing both the client and the provider role, to report information about their last completed project. In a follow-up survey with 64 Norwegian software professionals we addressed selected findings from the first survey.
Results: The analysis of the project information showed that: i) The project management triangle criteria, i.e., on time, on budget and with specified functionality, are poor correlates of the essential success dimension client benefit. ii) Benefit management planning before the project started and benefit management activities during project execution were connected with success on delivering client benefits. iii) Fixed-price projects and projects where the selection of providers had a strong focus on low price were less successful in delivering project benefits than other projects. iv) Agile projects were in general more successful than other projects, but agile projects without flexible scope to reflect changed user needs and learning, or without frequent delivery to the client, had less than average success in delivering client benefits.
Conclusions: The software projects successful in delivering client benefits differed from the less successful ones in several ways. In particular, they applied benefit management practices during project execution, they avoided fixed-price contracts, they had less focus on low price in the selection of providers and, they applied the core agile practices, frequent delivery to the client and scope flexibility.

Keywords: Software projects, project success factors, survey

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1. Introduction

The high investment in software-based products and services together with the frequent failures of software development projects (Goldfinch 2007, Sauer, Gemino et al. 2007, Tichy and Bascom 2008, Bharadwaj, Keil et al. 2009, Conboy 2010) mean that even small process and product performance improvements would amount to great savings. Better knowledge about the factors that separate successful and failed software projects and the use of this knowledge to improve industry practices are essential to achieve such improvements and, consequently, are of great importance.

The importance of improving software development performance has led to numerous surveys on failure factors of software projects, including those reported in (Cole 1995, Schmidt, Lyytinen et al. 2001, Yeo 2002, Kappelman, McKeeman et al. 2006, Chow and Cao 2008, El Emam and Koru 2008, McLeod and MacDonell 2011). One of the earliest software project failure surveys, conducted in 1967 and reported in (Gotterer 1969), found that lack of support from top management, lack of competent software professionals, changing technology, changing user requirements, and insufficient project management were key failure factors. Interestingly, the failure factors of the early surveys on software project failures, such as the survey in (Gotterer 1969), appear to be very much the same as those reported in more recent surveys on software projects. The 2012 McKinsey-Oxford survey (Bloch, Blumberg et al. 2012), for example, reports that unclear objectives, lack of business focus, shifting requirements, technical complexity, unaligned team, lack of skill, unrealistic schedule and reactive planning are the failure factors of software projects. In spite of the 45-year separation, with ample opportunities to learn from experience, it seems that software projects fail for very much the same reasons as in the early days of software development.

Although we may have had information about why software projects fail for a while, the step from knowing *why* to knowing *how* to improve the situation seems to be challenging. To accomplish this, we need to understand the practical actions likely to reduce the risk of failures. Unfortunately, the empirical research on actions likely to improve the rate of software project successes is less comprehensive. This hampers the software industry's opportunity to be evidence-based when adopting new software development methods and project management strategies (Dybå, Kitchenham et al. 2005, Kitchenham, Budgen et al. 2007).

This paper aims to contribute to the body of empirical knowledge on the characteristics of successful software projects, i.e., to examine which actions and contexts are connected with software project success. We address a few selected action and context elements that we think have the potential to guide future projects and improve the likelihood that a project is successful in delivering the expected client benefits. In particular, we address benefit management and agile practices. There is, to our knowledge, a lack of empirical evidence on the effects of benefit management processes and agile practices on achieved client benefit. In particular, there is a lack of evidence about which elements of benefit management and agile practices are, if any, the key client benefit success factors. This motivates our focus on these two important elements of software project management processes. There is much research on how project characteristics are connected with the traditional "project triangle" of success, defining success as being on time, on budget and with specified functionality. Our results contribute to the body of knowledge by focusing on the, in most software engineering surveys, typically neglected success dimension client benefit. The importance of inclusion of this project success dimension in the analysis of characteristics of successful software projects is demonstrated by the low correlation of the client benefit success dimension with the other success dimensions found in our survey. The finding that a software project is on time, on budget and has the specified functionality is consequently far from a guarantee that the project is a success from the viewpoint of the client.

The remaining parts of the paper are organized as follows: Section 2 gives brief summaries of previous work on the topics addressed in the survey; Section 3 describes the design of the survey; Section 4

reports the results from the analysis of the collected data and their limitations; and Section 5 discusses the results and concludes.

2. Previous work

Previous work on project failures reports widely different proportions and it is not meaningful to discuss the proportion of failed software projects without stating the definition used. When using the narrow definition that a failed project is one that is "aborted" or "cancelled", the proportion is reported to be around 10% (Sauer, Gemino et al. 2007, El Emam and Koru 2008, Tichy and Bascom 2008). When including projects that are either cancelled or get a very low score on one or more performance criteria the proportion increases substantially. The survey in (El Emam and Koru 2008), where a project is defined as failed if it get the score "poor" or "fair" on four out of the five performance criteria: user satisfaction, ability to meet budget targets, ability to meet schedule targets, product quality and staff productivity, finds a failure rate of 26%. The proportion of the nearly 800.000, typically small, outsourcing projects in (Jørgensen 2014) which either were cancelled or had a client rating of "poor" or worse was found to be 14%. Defining every project that does not deliver the specified product, is over budget *or* is not on time as a failure makes most, typically 50-80%, of all software projects to be failures (Hashmi and Stevrin 2009).

While there are many studies on success factors in software projects and on the proportion of projects meeting their budgets or deadlines, we were unable to find peer-reviewed studies on the proportion of software projects successful in their main purpose, i.e., to successfully benefit the client. It has long been pointed out that a software project success is to a large extent dependent on whether the project manage to deliver the expected benefit to the client (Procaccino and Verner 2006). In spite of the understanding that a project can hardly be said to be successful if not successful in delivering client benefits, the software projects surveys still tend to focus on software project success understood as being on time, on budget and with specified functionality, see for example (Gingnell, Franke et al. 2014). In addition, there is, to our knowledge, a lack of surveys or data analyses on the correlation between different success dimensions of software projects. Studies from other types of projects suggest that the correlations between project outcome belonging to the project triangle, i.e., budget control, time control and functionality as specified, and outcome related to the client's benefits, e.g., client satisfaction and business benefits, are very low (Shrnhur, Levy et al. 1997, Shenhar, Dvir et al. 2001). This suggests that the software engineering studies with a focus on budget and/or time control cannot be used to say much about the degree of client benefits.

It is frequently reported that long lasting (Budzier 2014) and high cost (Sauer, Gemino et al. 2007) IT projects are less successful than shorter and smaller projects. The complexity and coordination needs of software projects typically increase with their length and size, which consequently increase the risk of project problems. Larger projects have, on the other hand, occasionally been reported to be subject to economies of scale, see for example, (Kitchenham, Pfleeger et al. 2002), and lower cost overruns, see for example, (Hill, Thomas et al. 2000). Possible reasons for the conflicting results on the effect of project size on success, when success is related to cost and time overrun, are discussed in (Jørgensen, Halkjelsvik et al. 2012). That paper argues that a confounding factor of many cost and time overrun analyses is that when a project gets into trouble it also lasts longer and costs more. In other words, it is sometimes difficult to separate the extent to which a large project experiences more time or cost overrun because it is large, and the extent to which it becomes larger because it experiences more time or cost failure. When measuring project size as the *actual* cost or duration we may consequently exaggerate the effect of project size on lack of success. If we measure project size as the *budgeted* cost, as we do in the current survey, or duration we may, on the other hand, underestimate the effect of project size on lack of success. As a consequence, the prior results of the relations between project size and success should be interpreted with great care. More on these interpretation problems can be found in (Jørgensen, Halkjelsvik et al. 2012).

IT project benefit management, or benefit realization management, may consist of the following steps (adapted from (Peppard, Ward et al. 2007, Serra and Kunc 2015)):

- Identification of alternative investments and completion of cost-benefit analysis, e.g., through the creation of business cases including both quantifiable and non-quantifiable benefits.
- Communication of expected benefits (business objectives of the project) to all stakeholders.
- Plans for the realization of the benefits, with roles and responsibilities.
- Implementation of the benefit realization plan. This should include benefit management activities, such as prioritizing deliveries in accordance with the estimated benefit during project execution, but may also include activities after the project has delivered to the client.
- Evaluation of the degree of benefits actually achieved.

Several studies suggest that the above benefit management process is connected with an increased likelihood of a project delivering the expected benefits for the client (Doherty, Ashurst et al. 2012, Serra and Kunc 2015). The focus on benefit management in software project processes is, however, quite recent and there is in particular a need for more research on which parts of the above steps that are essential to achieve project success.

Not only the provider characteristics are essential for project success. The client involvement and competence is also of great importance. The importance of client involvement is illustrated by the finding that there was a large difference in project success between those clients investing less than 20% of their budget on their own IT resources, and those investing more than 20% (Lacity and Willcocks 1998). In (Han, Lee et al. 2013) it is reported that clients with high IT capability was believed to have around twice as high outsourcing success compared to clients with low IT capability. The client's IT capability score was in this case measured as a combination of capabilities in technology management, organizational relationship and provider management. The binary logistic regression analysis in (Jørgensen 2014) found that client characteristics was as good predictor of project failure as the provider characteristics, suggesting that an incompetent client is as problematic as an incompetent provider.

Surveys of software projects typically report that between 40 and 70% of the projects use fixed-price, and the remaining per-hour (often called "time and material") based contracts (Arora, Arunachalam et al. 2001, Tiwana 2008, Fink, Lichtenstein et al. 2013). There are mixed results on the effect of fixed-price and per-hour based contract types on the performance and outcome of software projects. In (Fabriek, van den Brand et al. 2008) the use of fixed-price contracts was described as a reason for project failures, while in (Gopal and Koka 2010) it was reported that the delivered quality was higher in fixed-price than in per-hour based Indian software projects. The majority of studies, as far as we are aware, seem to find that the use of fixed-price contracts increases the risk of unsuccessful projects (Aundhe and Mathew 2009), and is connected with less trust between the provider and the client (Fink, Lichtenstein et al. 2013). We have been unable to find studies reporting success rates for other types of software development contracts, such as risk-sharing or agile contracts, and studies with measuring success as client benefits.

Agile practices have recently become the default software development method in many countries, see for example (Laanti, Salo et al. 2011). Agile practices may, among others, include frequent deliveries to the client, flexible scope (embracing change), close interaction with the client (the product owner) and automated testing (Doyle, Williams et al. 2014). Despite its widespread use, there are few empirical studies on the effect of agile software development on different success dimensions, see (Dybå and Dingsøyr 2008) for a comprehensive review of the state of knowledge. Knowledge about the effect of individual agile elements is especially relevant given the variation in how agile is implemented in different organizations (Cao and Ramesh 2008). The limited research available suggests that iterative development, continuous integration and collective ownership (Ferreira and Cohen 2008), the presence of correct delivery strategy, close interaction with the client (Lindvall, Basili et al. 2002), proper practice of agile techniques and a high caliber team, team involvement (Chow and Cao 2008), and proper planning and team involvement (Doyle, Williams et al. 2014), may be the elements with the strongest positive effect on project success.

3. Survey design

3.1 Respondents and project population

The invited survey respondents were Norwegian software development clients and providers visiting a seminar on software project management in August 2014. The survey was designed to be answered on-line and to ensure anonymity of the respondents and their projects. The main results of the survey, based on the in-built analysis functionality of the survey tool Qualtrics (www.qualtrics.com), were presented at the end of the seminar. The anonymity of the responses and the feedback of the main survey results at the seminar end were introduced to increase the motivation to give accurate and valid responses. The survey is only used for the purpose of this study.

All participants were asked to provide information about the characteristics and outcome of the *last* completed software project they had been involved in. The selection of the last project reduces the risk that the sample of projects is biased towards the most successful or the largest software projects, and is more likely to be a representative selection of the recent software projects of the participants. Alternative selection methods, such as one self-selected project or one failed and one successful project would easily bias the results.

Our sample of respondents and projects was characterized by:

- Response rate of 79% (63 out of 80 invited participants provided information about their last project). Not all responses were 100% complete, i.e., some gave the answer "Don't know" to one or more questions, due to lack of knowledge of the requested characteristics of the reported project.
- Fifty-four percent of the respondents represented the client side and 46% the provider side.
- Of the collected projects, 42% of the clients were in the private sector and 58% in the public sector.
- Seventy-five percent of the projects developed a new software application, 17% extended an existing application, and 8% adapted/introduced an off-the-shelf application.
- Thirty-four percent of the projects had a budget of more than 10 mill. Euro, 33% between 1 and 10 mill. Euro, and the remaining 33% a budget lower than 1 mill Euro.
- The motivations for starting the projects were distributed as follows (more than one motivation was possible):
    - Modernization (replacing legacy software): 60%
    - Increasing work/service efficiency: 51%
    - Introducing new services or products: 35%
    - Required changes (e.g. induced by new regulations): 29%
    - Other motivation (merging of companies, safety etc.): 6%.

Our sample of respondents is a convenience sample, i.e., we included those who participated in the project management seminar. This may, for example, affect the observed proportion of large projects or the proportion of projects developing new applications. For the purpose of analyzing the indicators of successful projects, as opposed to making claims about the software industry's success rate, we believe a convenience sample of projects is reasonable as long as we do not try to extrapolate the results to software project populations substantially different from the surveyed population.

3.2 Success dimensions

There are many dimensions of software project success. The traditional project management triangle, also termed the iron triangle, covers the following three dimensions: time ("on time"), budget ("on cost") and functionality ("with the specified functionality"), see for example (Ika 2009). Many surveys on project success cover only these three success dimensions, see for example the Standish Group's annual surveys on software project success (www.standishgroup.com) or the survey reported in (Sauer, Gemino et al. 2007). In our survey we decided to include three additional dimensions that we believe are essential for evaluating the success and failure of software projects:

- Client benefit, i.e., to which degree the project delivers the expected benefits for the client. This is the success dimension in focus of our survey.
- The technical quality of the delivered software, including reliability, maintainability and other non-functional characteristics.
- The efficiency, or productivity, of the project work.

Our dimensions reflect the importance of including dimensions on both development success and implementation success (Markus and Mao 2004).

The ordinal scale used in our survey for the responses for each of the success dimensions includes the following values: "Successful" – "Acceptable" – "Not very successful" – "Not at all successful". In addition, the respondents could answer "Don't know" or "Other (please specify)". The "Don't know" responses will not be included in the analyses. The "Other (please specify)" responses would be examined by us and decided upon whether to include in one of the categories or not.

Clearly, a response is a respondent's *perception* of a project's success, not an objective measure of a project's actual performance. In addition, our success scale does not allow elaboration of the respondent's meaning of, for example, "Successful". The main reason for not using more objective and precise response scales is that, for several of the success dimensions, no such project information would be available, e.g., most projects do not have objective and precise measures of client benefit, technical quality and project efficiency. In addition, for the success dimensions where more objective information typically is available, e.g., time control, budget control and functionality completeness, this information would frequently not tell us the degree to which the project was a success or a failure on that dimension. A cost overrun of for example 20% may in one context be acceptable given the high uncertainty, but in other contexts indicate a budget control failure. Similarly, delivering only 90% of the specified functionality may be acceptable if the functionality is not essential, otherwise indicate a failure. Expert judgment-based assessments of the degree of success may consequently have the advantage that the context is, to a larger extent, taken into consideration. A drawback is that different people, e.g., people in different roles, may give different answers about the same project. This subjectivity may introduce some noise to the analyses, so that some true relationships are not found, but is less likely to lead to observation of false relationships. Our assumption is that there will be an acceptable level of agreement between the respondents as to what constitutes project success and what is not acceptable project performance and that the stakeholders' perceptions of the degree of success reflect the actual success.

3.3 Questions and hypotheses

Besides collecting information about the project success along the success dimensions described in Section 3.2, we collected information about the following project characteristics:

- Budget
- Processes used for benefit management
- Client competence and involvement
- Contract type
- Software development process elements, with a focus on agile practices.

The questions with the corresponding response alternatives are included as Appendix 1. To ensure that the questions were correctly understood and meaningful, we conducted two rounds of piloting with feedback from software academics and professionals. After completion of the survey we conducted an informal walk-through with four randomly selected respondents about their interpretations of the questions and use of the scales. All questions were perceived to be meaningful to answer and to have proper response categories. As part of the survey, the participants could comment on how meaningful they found individual questions of the survey. The few comments we received supported that the questions were meaningful.

Most parts of our analyses are exploratory, i.e., without hypotheses stated in advance and with the goal of exploring indicators of project success. For these analyses we just report the results without any

statistical tests. We formulated three hypotheses related to project success in delivering client benefits based on our earlier research on software project failures (Jørgensen 2014):

- H1: Projects with processes for benefit management succeed more often in delivering client benefits.
- H2: Projects with a competent (H2a) and/or involved (H2b) client succeed more often in delivering client benefits.
- H3: Projects using fixed-price contracts succeed less often in delivering client benefits.

The hypotheses will be statistically tested using Fisher's exact test. This test was chosen because some of the proportions we compare are based on quite few observations. We will, when appropriate, include more than one explanatory variable in the analysis of connections to examine possible interacting effects.

3.4 The follow-up survey

The analysis of the results from the survey gave two surprising results, one related to the effect of project size and one related to the effect of client involvement, which we wanted to better understand. For this purpose we conducted a brief follow-up survey in April 2015 with many of the same participants as in the original survey. To get more project data, we asked the participants to include information about the *two* last projects they had been involved in and to include *cancelled* as well as completed projects. The inclusion of cancelled projects was there to better analyze the connection between project size and project failure. The follow-up survey included a more specific question about the type of client involvement and contribution than in the original survey. Appendix 2 includes the questions included of the follow-up survey.

We received information about 107 projects from 64 software professionals in the follow-up survey, which had a response rate of 85% (64 out of 75 invited respondents). Similarly to the original survey, about half of the respondents were on the client side (52%) and on the provider side (48%). The project sizes were similar to those of the original survey, with slightly more small projects.

The results from the follow-up survey are included in the relevant sections reporting the results of the original survey, i.e., in the sections discussing project size and (Section 4.2) and client competence and involvement (Section 4.4).

4. Survey results

4.1 Project success outcome

The outcomes of the projects along the six success dimensions are described in Table 1. We merged the success categories "Not very successful" and "Not at all successful", due to few responses in each category, and denoted the merged category "Unsuccessful".

As described earlier, we asked for information about the last *completed* software project. This means that the survey does not include cancelled projects. The reported proportion of unsuccessful projects is consequently likely to have been higher, and the other proportions slightly lower, compared to the situation where all *started* projects had been included in the survey. The letter *n* denotes the number of valid project responses for a question.

Table 1: Project success per dimension

Success dimension	Successful	Acceptable	Unsuccessful
Client benefit (n=56)	36%	59%	5%
Functionality (n=58)	35%	55%	10%
Technical quality (n=58)	24%	66%	10%

Budget control (n=53)	38%	40%	22%
Time control (n=55)	33%	40%	30%
Work efficiency (n=54)	19%	57%	24%

An analysis of the combination of successful assessments for the same projects showed that about half of the projects (52%) managed to complete with at least acceptable success on *all* dimensions. This, on the other hand, means that almost half (48%) of the projects were unsuccessful on at least one of the success dimensions. Not surprisingly, the more successful dimensions we include in the definition of failed projects, the higher the rate of failed projects. With many success dimensions, a high threshold for claiming success, and the requirement that a project has to be successful on *all* dimensions, there would be very few successful IT projects. A comparison, or statement, about the proportion of failed projects, without including information about the included successful dimensions and how success has been measured is consequently not very meaningful.

The three dimensions with the highest proportion of unsuccessful projects were budget control (relates to cost overruns), time control (relates to delayed deliveries), and work efficiency (relates to that project work was conducted inefficiently). The dimension with the lowest proportion of unsuccessful project was client benefit, where fully 95% of the completed projects delivered at least acceptable levels of client benefit. If this ability to give satisfactory client benefit is representative of software projects, it gives a different picture of the software project performance than the media headlines of software failures and well-known surveys, such as the Chaos Report by the Standish Group. Two potential reasons for this difference in describing software project performance are the one-sided focus of cost overrun in evaluating success and the selection bias of many surveys, see (Jørgensen and Moløkken-Østvold 2006, Jørgensen 2013a).

Table 2 displays the correlations between the success dimensions. To calculate the correlations we used the original success scale, coded as follows: 1=successful, 2=acceptable, 3=not very successful and 4=not successful at all. The use of correlation analysis assumes ratio or interval scale variables, while our success variables are just ordinal scale variables. Consequently, the correlations should only be used as rough indicators of the strength of the connection between the different success dimensions.

Table 2: Correlations between success dimensions

	Client benefit	**Functionality**	**Technical quality**	**Budget control**	**Time control**
Functionality	0.60				
Technical quality	0.56	0.35			
Budget control	0.27	0.37	0.16		
Time control	0.30	0.45	0.48	0.66	
Work efficiency	0.44	0.40	0.40	0.53	0.83

In many contexts, the delivered benefit to the client may be the most important success dimension. As can be seen from Table 2, success on client benefit is *not* strongly correlated with budget control and time control, i.e., it would be misleading to use budget and/or time overruns as indicators of a successful project in terms of client benefit. Client benefit is, to a larger degree, correlated with delivering the planned functionality and technical quality of the system, but even here the correlation is far from perfect. The strongest correlation is between work efficiency and time control.

Table 3 displays the differences in success rates reported by project providers and clients.

Table 3: Project success and respondent role

Success dimensions	Client respondents	Provider respondents
Client benefit (n=56)	29%	38%
Functionality (n=58)	29%	38%
Technical quality (n=58)	21%	31%
Budget control (n=58)	38%	38%
Delivery on time (n=55)	32%	34%
Work efficiency (n=54)	15%	24%

As can be seen in Table 3, the respondents representing the providers were typically somewhat more positive regarding the project outcomes than respondents representing the clients. This is a result similar to that found in the survey presented in (Serra and Kunc 2015). It is not clear the extent to which an increase in positivity is a result of the role, differences in the actual projects they had been involved in or just random variations in responses. The observation that the most objective success indicators, i.e., those related to budget and time control, were more similar than the other factors indicates that the role of the respondent had some impact on the evaluation of project success, i.e., that those in the role of provider have a more positive view on benefits, functionality, technical quality and work efficiency than their clients. We will join the responses of the clients and providers in the following analyses. This is acceptable, we believe, given that the main purpose of those analyses is to analyze relationship between project characteristics and success, not to analyze how successful software projects are.

Table 4 displays the differences in success rates reported for projects with public and private clients.

Table 4: Project success and client type

Success dimensions	Public client	Private client
Client benefit (n=56)	39%	34%
Functionality (n=58)	30%	41%
Technical quality (n=58)	26%	25%
Budget control (n=58)	39%	31%
Delivery on time (n=55)	26%	34%
Work efficiency (n=54)	13%	22%

Table 4 suggests that there were only small differences in project success dependent on whether the project had a public or a private client. This is different to the results of our 2004 survey conducted with supposedly similar types of Norwegian IT projects, where those with public clients had substantially higher cost overruns (Moløkken-Østvold, Jørgensen et al. 2004), but similar to a New Zealand study from 2007 (Goldfinch 2007) where there were no large differences. It may be that governmental agencies have become more professional IT clients and more successful in their projects since 2004.

4.2 Project size

Table 5 displays the proportion of projects perceived as a "Successful", i.e., those with success score better than "Acceptable", for each of the success dimensions and three budget size categories. Twenty-one projects were categorized as small (< 1 mill Euro), 20 as medium (1–10 mill. Euro), and 20 as large (>10 mill. Euro). One project had a budget size unknown to the respondent.

Table 5: Project success and budget size

Success dimension	Small (< 1 mill. Euro)	Medium (1–10 mill. Euro)	Large (> 20 mill. Euro)
Benefit (n=56)	31%	47%	35%
Functionality (n=58)	29%	47%	35%
Technical quality (n=58)	24%	28%	25%
Budget control (n=58)	24%	47%	47%
Delivery on time (n=55)	29%	35%	35%
Work efficiency (n=54)	24%	12%	24%

The results in Table 5 suggest that, for all of the success dimensions, the projects with the highest budgets were similarly or more successful than those with the lowest budgets. There were not sufficient data about failed projects to enable an analysis of whether larger projects fail more often based on the original survey.

To enable an analysis of the surprising connection between project size and project failure, where we did not found that large IT projects are less successful, we conducted a follow-up survey (see design in Section 3.4 and questions in Appendix 2). The follow-up survey included, as opposed to the original survey, cancelled projects. This we expected would give more data on project failures and enable an analysis of whether or not the largest projects had, as reported in most previous surveys, more failures than the smallest.

The follow-up survey gave results on the relation between project size and success similar to that observed in Table 5, i.e., the large projects had about the same or higher proportions of successes as the smallest ones. However, when looking at the projects that were either cancelled or failed to deliver the expected benefits (20 projects), we found that the largest projects (>10 mill. Euro) were strongly over-represented. The proportion of unsuccessful projects regarding client benefit was 25% for the large, 7% for the medium and 6% for the small projects. This suggests that the largest IT projects are indeed more likely to fail than the smaller ones, but when not failing and being cancelled, they may be about as successful in delivering client benefits as the smaller ones.

4.3 Benefit management

To assess the, presumably positive, effect of benefit management practices on client benefit success and other success dimensions, we included five statements related to the presence of benefit management practices. The statements on which they should agree or disagree were as follows:

- B1: A good cost-benefit analysis of different alternatives was completed before the project started.
- B2: The expected benefits were clearly communicated to and understood by the project stakeholders.
- B3: There were good plans for how and when to realize the expected benefits.
- B4: There were good processes for prioritizing and managing activities during the project with focus on achieving the expected benefits.
- B5: There were good processes for evaluating (quantifying or formally assessing) the achieved benefits after the project was completed.

For each statement the respondents were asked to select one of the response alternatives “Fully agree”, “Agree more than disagree”, “Disagree more than agree”, “Fully disagree” and “Don’t know”. We merged the first two categories to form the category “Agree” and the two last categories to form the category “Disagree” to avoid too few observations for meaningful analyses in each category.

Our hypothesis (H1) was that projects with processes for and focusing on benefit management succeeded more often than the other projects in delivering client benefits. The results are displayed in Table 6, where the variable “Increase in client benefit success rate” is the difference in proportion of successful projects for those with the response category “Agree” and those with the response category “Disagree”. In

the forthcoming analyses, the increase in success rate is always measured as the percentage point difference. The p-values are based on Fisher's exact two-tailed test on differences in proportions.

The increase in success rate should be interpreted with the overall success rate for client benefit (36%) in mind. An increase from, for example, 20% to 40% is an increase of 20 percentage points, but also showing a doubling (100% increase) in success rate.

Table 6: Project success and benefit management

Client benefit management practices	Proportion of responses with "Agree"	Increase in client benefit success rate (percentage points)
B1: Cost-benefit analysis (n=51)	47%	6% (p=0.8)
B2: Communication (n=56)	57%	22% (p=0.2)
B3: Planning (n=54)	33%	31% (p=0.03)
B4: Prioritizing and managing (n=55)	53%	34% (p=0.02)
B5: Formal evaluation (n=54)	31%	19% (p=0.2)

As can be seen in Table 6, there are systematic (and for B3 and B4 also statistical significant at $p<0.05$) increases in success rates when benefit management practices are included. It is only with respect to the cost–benefit analysis motivating the project (B1) where we found no large difference. This suggests that an up-front cost–benefit analysis itself is far from a guarantee of a successful project. It is the benefit management processes related to project execution, in particular (B3) and (B4), which separated successful and unsuccessful projects.

We examined the two statistically significant indicators of client benefit, i.e., those related to questions B3 and B4, to ascertain the extent to which they were indicators of the other success dimensions, as well. The increases in success rates for those responding "Agree" and "Disagree" to the other success dimensions are displayed in Table 7.

Table 7: Project success, and benefit planning (B3) and prioritizing and management (B4)

Success dimensions	Increase in success rate (percentage points) due to presence of benefit planning (B3)	Increase in success rate (percentage points) due to presence of prioritization and managing during project execution (B4)
Functionality	4% (n=51)	35% (n=53)
Technical quality	49% (n=52)	9% (n=52)
Budget control	3% (n=47)	35% (n=48)
Delivery on time	7% (n=49)	12% (n=50)
Work efficiency	9% (n=48)	12% (n=49)

As can be seen in Table 7, the presence of a benefit plan (B3) and the presence of benefit management during the project execution (B4) were connected with increased success in all success dimensions. Although the increases in success rate on the other success dimensions were typically small, there were no signs of adverse effects, e.g., that a focus on benefit management would decrease the focus on budget control or some other success dimension. Note the large increase in technical quality due to the presence of a benefit plan (B3), and the large increase in success related to functionality in accordance with plan and budget control due to the presence of benefit management practices during the project (B4). These three potentially interesting connections should be subject to further studies. While it is not surprising that

the presence of delivery prioritization processes may lead to better functionality and budget control, the strong connection between benefit planning and technical quality is harder to explain.

4.4 Client competence and involvement

To examine the effect of client competence and involvement on project success we included the following two questions to our questionnaire:

- C1: How much own IT-competence had the client?
  - The possible responses were: "Very much", "Much", "Some", "Little" and "Very little".
  - To avoid too few responses in some of the categories we merged the categories "Very much" and "Much" to form the category "Competent client" and the categories "Some", "Little" and "Very little" to form the category "Less competent client".
- C2: What was the proportion of the total project effort completed by the client's own staff?
  - The possible responses were: "More than 40%", "Between 20 and 40%", "Less than 20%" and "almost nothing or nothing".
  - To avoid too few responses in some of the categories, we merged those with "More than 40%" and "Between 20 and 40%" to the group "High client involvement" and those with "Less than 20%" and "Almost nothing or nothing" as "Low client involvement".

The hypotheses were that increased client competence (H2a) and more client involvement (H2b) would lead to an increase in success rate in delivering client benefits.

Our analysis of the responses showed that there was only a small increase, 7% (n=56, p=0.6), in client benefit success rate for those in the category "Competent client" and a decrease in success rate, 3% (n=52, p=0.8), for those in the category "High client involvement". Consequently, our data does not give support to the hypotheses H2a and H2b.

In an examination of the few projects assessed to be unsuccessful, we found, however, that *all* of them either had an incompetent client and/or a client with a low level of involvement. Consequently, it may be the case that low client competence and involvement are meaningful indicators of increased risk of failures, i.e., a result similar to that reported by (Jørgensen 2014). Discussing this result with some of the provider survey participants, we ascertained that they found incompetent and non-involved clients to be challenging, but also that high competence and involvement did not always lead to the type of contributions they needed from the client, which was more related to giving input about needs and priorities and making decisions without delaying the projects.

To analyze whether the effect of client attributes remained non-significant if we emphasized client contributions rather than client competence and involvement, we included a question on this in the follow-up survey. In the follow-up survey we tried to be more explicit about the essential contribution of the client to the project, i.e., the degree to which they perceived that they as clients (if the respondent was from the client side) or the client (if the respondent was from the provider side) had been able to prioritize requirements, take decisions and focus on business benefits. The response alternatives were "To a large degree", "To some degree", "To a small/no degree". There were few responses with "To a small/no degree" and we redefined these responses as the category "To some/little degree". The responses, with valid data from 107 projects, are displayed in Table 8. The follow-up survey included, as before, cancelled projects, not only those completed as in the main survey. The responses from clients and providers were, on average, very similar and are merged.

Table 8: Client benefit success and degree of client contribution in follow-up survey

Client contribution	Successful	Acceptable	Unsuccessful
Large degree (n=41)	66%	34%	0%
Some/little degree (n=66)	14%	68%	18%

A Fisher's exact test of the data in Table 8 gives $p<0.01$, i.e., it is highly unlikely that client contributions and client benefit success are independent. The increase in success rate, relative to client benefits, from a project with and without a large degree of client involvement was as high as 52% (percentage points). Even more telling is that, similar to the findings in the original survey, *all* unsuccessful projects failed to have a large degree of client contribution.

Table 9 shows, for the original survey, the increase in success rate for those responding with the category "Competent client" and "High client involvement" for the other success dimensions. The data suggests that client competence and involvement are positively connected with project success along most success dimensions. The increase in success rate is, however, typically not very large and for one success dimension (work efficiency) even negative for the higher competence of the client.

Table 9: Project success, and client competence (C1) and involvement (C2)

Success dimensions	Competent client (C1)	High client involvement (C2)
Functionality (n=58)	23%	14%
Technical quality (n=58)	0%	8%
Budget control (n=58)	26%	12%
Delivery on time (n=55)	9%	13%
Work efficiency (n=54)	-3%	5%

In total, the results suggest that a competent and involved client may play an important role for the success of software projects, and even more to avoid failures. It does, however, also suggest that to ensure successful client benefit it is not the competence and involvement alone, but rather the use of in setting priorities and making timely decisions that matter. Implicitly, this also indicates that there were many software projects in our survey with a competent and involved client that were not successful in delivering client benefit. As an illustration, as many as 62% of the projects where the response was that the client was both competent and involved (n=21), were not successful with respect to delivering client benefits.

While a competent and involved client is likely to be important, we do not know very much about how a client should contribute and what skills, in which contexts, that are needed to enable successful software development projects. There is a need for more studies, providing more concrete results and advises on types of client competence and involvement.

4.5 Contract type

Our hypothesis was that projects with fixed-price contracts would have less client benefit successes (H3). To test this hypothesis and to explore the relation between contract type and the other success dimensions, we asked the survey participants to describe their contract model. We categorized their contracts as either per-hour based or fixed price. Most contract types were easily described as either fixed-price or per-hour based. Those including elements of both fixed-price and per-hour based contracts (n=7) were categorized as fixed price given that a major part of the project deliveries were based on fixed price, otherwise as per-hour based. Nine projects had contracts based on risk sharing. These contracts had mechanisms for sharing the "profit" if less effort was spent than contracted and sharing the "loss" if more effort spent than contracted. This type of risk sharing contract was categorized as a fixed-price contract,

since the profit sharing is relative to a "target price" which to some extent resembles a fixed-price. Eight contracts used an agile type of contract, where the price was, to some extent, fixed, but the deliveries were flexible to fit the planned number of work-hours. This resembles a per-hour contract type, since all work-hours are paid for. We include a separate analysis of the risk sharing and agile contract types.

The proportion of fixed-price projects was 51%, i.e., a proportion similar to that found in other surveys (Arora, Arunachalam et al. 2001, Tiwana 2008, Fink, Lichtenstein et al. 2013). There were slightly fewer large projects among those paid per hour (23% vs 37% large projects) and slightly higher client competence for those who selected per-hour contracts (59% vs 40% assessed to be projects with a competent clients), but no other large differences in other project characteristics.

Table 10 displays the increase in project success for projects with per-hour compared with fixed-price contracts.

Table 10: Project success and contract type

Success dimensions	**Increase in success rate (percentage points) for projects applying per-hour rather than fixed-price contracts**
Client benefit (n=49)	34%
Functionality (n=51)	5%
Technical quality (n=51)	11%
Budget control (n=50)	14%
Delivery on time (n=50)	3%
Work efficiency (n=49)	10%

While there was a clear increase in success rate for client benefit when applying per-hour based contracts (p=0.02, supporting our hypothesis H3), there were only smaller differences for the other success dimensions. Consequently, it seems that there is a positive effect of using per-hour based contracts mainly for success related to client benefit.

A deeper look into the types of contracts used showed that projects with pure per-hour contracts were the most successful with respect to client benefits (59% successes, n=17) and the pure fixed-price contracts were the least successful (0% successes, n=8). Those using a combination of fixed-price and per-hour based contracts had a 29% success rate (n=7), those using risk sharing mechanisms a 22% success rate (n=7) and those using agile contracts a 29% (n=9) success rate on client benefits. One fixed-price project was not categorized into subgroup contract type, due to lack of information.

The analysis, consequently, suggests that the closer to a pure per-hour based contract, the more likely it is to see success in relation to client benefits. The extent to which a fixed-price contract causes, or is just a symptom of, higher risk in not succeeding in delivering client benefits is hard to determine from the data. Projects using fixed-price contracts were similar to the other projects with respect to most characteristics, except that they had a stronger focus on low price when selecting providers, used fewer agile practices, and were less likely to include benefit management plans and benefit management practices during project execution. Consequently, it is possible that it is not the fixed-price contract itself, but rather the connected tendency to focus on low price and less on competence when selecting providers, lower focus on benefit management practices, and less use of agile practices that were reasons for the lower proportion of successes. The decision to use fixed-price projects may enforce a stronger focus on low price, see (Jørgensen 2013b), and complicate the use of benefit management and agile processes during project execution, e.g., through more complex processes for changing the scope to reflect changes in needs and learning.

4.6 Agile software development

We included questions about the presence of selected agile-related development process elements to assess their connection to project success. The included elements were:

- P1: Agile development method
- P2: Frequent delivery to client
- P3: Scope flexibility
- P4: Prototyping
- P5: Automated testing

The questions were formulated as yes/no questions, i.e., the respondents were instructed to state whether the project followed an agile development method, had frequent delivery to client, whether there was flexibility in scope to reflect changes in needs and learning, including prototyping, and/or included automated testing.

The analysis of the increase in success rate (in percentage points) comparing the situation with and without the specified process element is displayed in Table 11. For each column we compare the projects that were confirmed to use the agile element and those that were not.

Table 11: Increased rate of project success when agile element was present

	Agile method	**Frequent delivery**	**Scope flexibility**	**Prototyping**	**Automated testing**
Client benefit (n=56)	16%	22%	29%	15%	14%
Functionality (n=58)	22%	29%	16%	0%	7%
Technical quality (n=58)	21%	6%	32%	28%	16%
Budget control (n=58)	2%	22%	29%	15%	27%
Delivery on time (n=55)	8%	11%	24%	-16%	15%
Work efficiency (n=54)	11%	5%	24%	7%	13%

All process elements, except the effect of prototyping on delivery on time, were connected with increased success rate for all success dimensions. The elements scope flexibility and frequent deliveries were those connected with the strongest increase in client benefit success rate. These elements are usually, but not always, part of projects using agile methods. Interestingly, when projects claimed to be based on an agile method, but did not have a flexible scope, the success rate on client benefit was as low as 25%, i.e., lower than the average success rate of the projects. In comparison, the agile projects with flexible scope had a success rate of 42%. Similarly, when projects claimed to follow an agile method, but did not have frequent deliveries to client, the success rate on client benefit was as low as 22%, again lower than the total average. In comparison, the agile project with frequent delivery to client had a success rate of 45%. This suggests that some agile elements are much more essential for the success of agile projects than others.

4.7 Limitations

Our survey and analyses have limitations that should be considered when assessing the strength and generalizability of the results. We believe that the following are the most essential limitations and weaknesses:

- The results are based on relatively few observations of software projects. Among others, this has the consequence that we have not included analysis integrating all elements to find those which best explain project outcome as was the case in regression-model based analyses, as in (Jørgensen 2014).
- The included projects are not randomly sampled, but a convenience sample based on Norwegian software clients and providers participating at a project management seminar. Consequently, the generalizability to other contexts is more difficult compared to including a representative sample from a larger sample. Note that this is, to a larger degree, a problem when examining the actual success rates of the included software projects, but not so much when examining how different factors are connected, as long as one can assume that the underlying success mechanisms are similar in different software development contexts.
- The high number of analyses and the degree of unexplained (stochastic) variations in outcome means that many of the connections may be there by random. The high number of analyses caused us to formulate just a few (three) hypotheses in advance and use the remaining analyses as more exploratory work to pose hypotheses about characteristics of successful projects.
- The respondents knew the project outcome when they responded about the project characteristics. Knowing that a project has been unsuccessful may, for example, have biased the responses to be overly negative about the degree of client competence or the lack of benefit management processes. We were aware of this threat when designing the survey and consequently tried to request mainly objective information about the project characteristics. There is still the possibility that people would have answered differently before knowing the project outcome.
- A few seminar participants were from the same organizations and may potentially have reported information about the same project. It is also possible that people from the providers and the clients reported on the same project, although from different perspectives. The size of the overlap in projects reported is hard to assess, given the anonymity of the respondents and projects. An analysis of the list of seminar participants shows that the overlap in projects is likely to be small. All those representing the same organization (maximum five organizations) were from very large organizations, with many departments and many projects running in parallel. The number of recently completed projects of the provider and client companies represented at the seminar is very high and to include more than a very few projects from the clients and the providers is, we believe, highly unlikely.

In total, we think that, as with other surveys and analyses, the results should be interpreted carefully and in the light of other evidence. When there is correspondence between the findings in this survey and those of surveys in different contexts and with different limitations there are good reasons to think that the result is robust. When, however, the results diverge, as with the effect of fixed-price contracts in India and Norway, the results may be more context-dependent and/or less robust.

5. Discussion and conclusions

The survey provides results on that which separates successful and less successful software projects. In particular, we think the results should contribute to actions that increase the likelihood of project success measured as delivering client benefits, a topic not covered by many previous surveys. Delivering client benefits is typically the main purpose of software projects and it is, we argue, debatable to analyze project successes without including this success dimension. A focus on client benefit as a success criterion is particularly important since the other dimensions, especially the much more frequently reported success dimensions “on time”, “on budget”, were only weakly correlated to success in delivering client benefits. The traditional success factor “with specified functionality” may, to some extent, even be in conflict with success in delivering client benefits, i.e., we found that changing the scope in accordance with changing business needs and learning (having a flexible scope rather than delivering the initially specified functionality) was a strong indicator of success in delivering client benefits.

As opposed to that which is commonly reported, usually with a focus on cost and time overruns, we did not find the proportion of successful projects to decrease much with increased project size, as measured by the size of the project budget. When, however, looking at the projects failing to provide much client benefit, i.e., those that were neither considered as successful nor acceptable in delivering client benefits, we see that the larger projects, i.e., those with a budget of more than 10 mill Euro, were strongly over-represented. A follow-up survey showed that the large projects were three or four times more likely to fail. Our results, therefore, support the advice of avoiding very large software projects, e.g., by reducing scope or splitting larger projects into smaller ones.

Our results support the previously found positive effect of the use of benefit management practices, and extend the results by identifying the key elements of benefit management. In particular we found that the existence of a benefit management plan and practices that enable prioritization of functionality and management of benefit during project execution were connected with significantly ($p<0.05$) higher client benefit success rates. The relations between benefit management practices and other success dimensions were weaker.

We did not, as typically reported, find strong connection between project success and client competence and involvement. In the follow-up survey conducted to test the robustness of this finding, we found however that this may have been a consequence of how we asked and the lack of inclusion of cancelled projects in the data set. When asking more directly about the *contributions* of the client in prioritizing requirements and taking decisions related to benefit management, i.e., not only about whether they were competent and spent much effort on the project or not, we found clear connections between client contributions and project success. In addition, both the original survey and the follow-up survey found that all failed software projects were with less competent, less involved or less contributing clients. Our results, therefore, correspond with other studies emphasizing the importance of a competent and involved client, but also extending previous results in that it is not sufficient to be competent and involved to make a project successful. The competence and involvement have to translate into actual contributions in delivering good client benefits.

Our results are consistent with most previous results suggesting a negative effect of using fixed-price contracts on software project success. Especially for the success in delivering client benefit, the per-hour paid projects had a much higher, statistically significant ($p<0.05$), success rate than the fixed-price projects. Some contract types were between pure fixed-price and pure per-hour payment. The closer to the pure per-hour based contracts, the higher the proportion of projects successful in delivering client benefits. Fixed-price projects had more focus on low price when selecting providers and were less likely to use benefit management and agile practices, which may partly explain the lower success rate.

The use of agile practices was consistently and, for some elements, strongly connected with increased rates of success. The increase in success rate was for all analyzed success dimensions, not only client benefits. This supports previous studies on the benefits of agile practices, but also extends the results in that some practices are more central to success than others. Agile projects that did not include frequent delivery to the client or flexibility in scope had less than average success in delivering client benefit. Agile is a group of methods and practices and not all combinations are equally likely to lead to project success.

Summarizing the results, we may conclude that, according to our survey, a successful (or non-failed) project tend to be small (not larger than 10 mill Euro), use a per-hour based contract, and have a client who is not only competent and spends many hours on the project, but also contributes with prioritizing requirements, making decisions and focusing on business benefits. In addition, a successful project tends to include a benefit management plan and mechanisms to implement the plan during project execution. Finally, it tends to use the agile practice frequent deliveries to the client and flexibility in scope that enables meeting changes in needs and learning during the project. To increase the likelihood of successful software projects as many as possible of the above elements should be included. For each of the elements not in place, the risk of a project failing in delivering the expected client benefits may increase.

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Appendix 1: Questions and response categories for the original survey

<The questions are translated from Norwegian. All questions included the options "Other (please describe)" and "Don't know". These options are not included below. Responses using "Other (please describe)" were evaluated by us and included in an existing category if judged appropriate or not included in the analysis if outside the scope of the analysis or not possible to categorize.>

Welcome to this on-line survey on benefit management in IT-projects. Your responses are anonymous. Neither we nor other people will be able to identify who has responded what to which questions. We ask for information about the last IT-project with budget larger than about 100.000 NOK <*Corresponds to about 10.000 Euro*> you have been involved in – as client or as provider – and which is now completed. If you have not been involved in any IT-project the last 5 years, do not respond to this questionnaire. You will have the opportunity to answer don't know on every question and give your comments to the questions at the end of the survey. There is no requirement that you should have information about all aspects of the project to start the survey.

On behalf of the IT-management Network of the Oslo-region
Prof. Magne Jørgensen

Question 1: Your role in the project (multiple answers possible)

- On the client side of the project
- On the provider side
- Project leader
- Developer

Question 2: Client from the public or private sector

- Public
- Private

Question 3: Type of project (multiple answers possible)

- Development of a new software application
- Extending an existing software application
- Adapting/introducing an off-the-shelf application

Question 4: Budget

- Less than 10 mill. NOK <*less than 1 mill. Euro*>
- Between 10 and 100 mill. NOK <*between 1 and 10 mill. Euro*>
- More than 100 mill. NOK <*more than 10 mill. Euro*>

Question 5: Motivation for project (multiple answers possible)

- Modernization
- Increasing work/service efficiency
- Introducing new services or products

- Required changes (e.g., induced by new regulation)

Question 6: How much to you agree on the following statements related to benefit management in the project? (Scale: Fully agree – Agree more than disagree – Disagree more than agree – Fully Disagree)

- A good cost-benefit analysis of different alternatives was completed before the project started
- The expected benefits were clearly communicated to and understood by the project stakeholders
- There were good plans for how and when to realize the expected benefits
- There were good processes for prioritizing and managing activities during the project with focus on achieving the expected benefits
- There were good processes for evaluating (quantifying or formally assessing) the achieved benefits after the project was completed

Question 7: How much IT-competence had the client?

- Very much
- Much
- Some
- Little
- Very little

Question 8: What was the proportion of the total project effort completed by the client's own staff?

- More than 40%
- Between 20 and 40%
- Less than 20%
- Almost nothing or nothing

Question 9: What was the contract type used for the project? (multiple answers possible)

- Fixed price
- Risk sharing-based contract
- Agile contract
- Per hour (time and material)
- Combination of contracts (please describe)

Question 10: How important was a low price when selecting provider?

- Very important (more than 50% weight)
- Important (30-50% weight)
- Less important (10-30% weight)
- Not important at all (less than 10% weight)

Question 11: Which of the following agile elements were present? (multiple answers possible)

- Agile development method (yes/no)
- Frequent delivery to client (yes/no)
- Scope flexibility (yes/no)
- Prototyping (yes/no)
- Automated testing (yes/no)

Question 12: How successful was the project with respect to the following dimensions? (Scale: Successful – Acceptable – Not very successful – Not at all successful)

- Client benefit (as compared with the expected benefits for the client)
- Functionality (as compared with the planned functionality)
- Technical quality of the deliveries
- Budget control
- Delivery on time
- Work efficiency

Appendix 2: Questions and response categories for the follow-up survey

<Questions translated from Norwegian. All questions included the options "Other (please describe)" and "Don't know". These options are not included below. Responses using "Other (please describe)" were evaluated by us and included in an existing category if judged appropriate or not included in the analysis if outside the scope of the analysis or not possible to categorize. Notice that this survey, as opposed to the original survey, includes cancelled projects.>

Welcome to this brief on-line survey on management of IT-projects. Your responses are anonymous. Neither we nor other people will be able to identify who has responded what to which question. We ask for information about the two last IT-projects you have been involved in as client or provider, and which are either completed or cancelled in 2010-2014. You should have relatively good knowledge about the project to complete the survey.

On behalf of the IT-management Network of the Oslo-region
Prof. Magne Jørgensen

Question 1: Your role in the project (multiple answers possible)

- On the client side of the project
- On the provider side of the project

Question 2: Budget

- Less than 10 mill. NOK *<less than 1 mill. Euro>*
- Between 10 and 100 mill. NOK *<between 1-10 mill. Euro>*
- More than 100 mill. NOK *<more than 10 mill. Euro>*

Question 3: To what degree had the project a client able to prioritize requirements, take decisions and focus on business benefits.

- To a large degree
- To some degree
- Ta small/no degree

Question 4: What was the outcome of the project with respect to client benefits?

- Successful
- Acceptable
- Not very successful
- Unsuccessful or cancelled