The Impact of a Delayed Software Project on Product Launch Coordination: A Case Study

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***Abstract*—An increasing number of today's products include software as their key component. This means that more and more product launches are depending on software projects, which are infamous for delays. While the impacts of delays are well studied in the scope of a software project and the company itself, the impacts on the management of launch activities are not very well understood. This study addresses the gap by an in-depth case study of one delayed software project. The results show that the delays may increase the cost of a product launch, as well as decrease the scope and quality of the launch activities. These impacts are influenced by key personnel's motivational factors, which in turn cause lost working time and postponing the work until it is too late to act as planned.**

***Index Terms*—software product management, product launch, project delay, change management**

I. Introduction

The global software industry has emerged to a significant business segment in a couple of decades [1], and there are no signs of slowing down in sight [2]. Software is applied in an increasingly wide spectrum of business, and it has been claimed that now every company is a software company[1]. Thus, most companies must deal with software projects and product launches, depending on them. This new situation is also a challenge for companies: while the timing of the market introduction is critical for the product's success [3], software projects tend to overrun their schedules [4].

This study focuses on the coordination between the software project and related product launch activities. A product launch refers to activities needed for bringing a new product into the market; a product launch strategy should define what to launch, where to launch, when to launch and why to launch [5]. Timing and good management of key aspects of the launch, such as marketing plans and overall launch direction, have been found as critical success factors for the launch success [6]. However, because of the nature of coordination, launching a product involving software is depending on the outcomes from the software project [7]. While the frequency and impacts of software project delays have been widely reported [4], [8] and the success factors of a product launch are known [6], there seems to be a gap in the pool of knowledge in how to successfully manage launch activities in case of a delay. Regardless of the frequency of delays, high product failure rates [9], [10] and reports about focusing on product development on the cost of market launch management [10], [11], we were, surprisingly, not able to locate a single study addressing the situation.

The research objective of this study is to address the following unanswered question:

RQ What is the impact of software project delays on managing the related market introduction in terms of cost, scope and quality of the launch activities?

This paper reports in-depth findings from one delayed software project and contributes to the field of product innovation management and software product management. The results demonstrate the impacts of delays on cost, scope and quality of product launch activities. Additionally, the significant role of motivation as a moderator of the impacts is considered. Improved understanding of the dependency between a software project and product launch activities may help top managers, product managers and researchers.

The remaining of the study is structured as follows. Section II presents the background and related work of market entry studies. Section III describes the case study subject and research design. It is followed by presentation of findings. Section V discusses the results and concludes the study.

II. Background

PIMS studies (e.g. [12]) were the first ones among the studies trying to identify profit impacts of marketing strategies. These studies developed an understanding of the causes and consequences of e.g. entry timing in order to explain successfulness at the market. A vast number of studies has been conducted in order to analyze the relationships between speed to market, quality, costs, and profitability (e.g. [13], [14]). Literature suggests that the consequences of being late to the market are significant, causing, for instance, lower profit margins, higher development and production costs, and lessening of the firm's market value [8]. Scholars have also argued speed keeps costs in control, is associated with high-quality products [15], and helps to ensure early entrant advantages, and overall profitability (e.g. [16]).

While much of the research has revolved around strategic issues, the importance of the execution of the strategies has

[1]Kirkpatrick, D. Now Every Company Is A Software Company. http://www.forbes.com/sites/techonomy/2011/11/30/now-every-company-is-a-software-company/#1505e9a21100.

also been recognized [6]. It is known that marketing and technological execution proficiency are significant predictors of new product success [17], and, on the other hand, controllable reasons for new product development (NPD) failure include poor execution of marketing and technical activities [18], [19]. Also cross-functional integration between the R&D and marketing has been found as an important success factor in NPD [20].

However, systematic planning and execution is not easy, when software projects are involved: software projects tend to be late [4]. Previous studies have found that the reasons for estimation errors are many [21] including intentional distortion of the estimates [22]. Estimation errors have been shown to cause decreased customer satisfaction, team motivation and additional work, among other things [23], [24]. The importance of estimates is well understood in the management [25], yet the overruns continue.

To summarize, market introductions and especially their timing are essential for product success. In addition to strategic considerations, also launch tactics are understood to influence NPD success significantly. Furthermore, software projects with unreliable schedules are a challenge for the successful execution and coordination of launch activities. Regardless of software being involved in a constantly increasing number of products, there seems to be a gap in the extant literature of what are the impacts of a software project delay on the launch activities.

The classic project management triangle of scope, costs, and schedule is commonly used for studying the goals of a project [26], and Dvir and Lechler have distinguished between two types of changes: plan changes and goal changes [27]. Plan changes refer to the environment and prevent the project from following the original plan. Goal changes refer to the project scope: changes in requirements or inability to meet them within the available budget and time [28]. For the purposes of this study, we employ these commonly used attributes, and focus on the changes in scope, quality, and costs to see what kinds of consequences project delays may have in a firm's internal launch activities.

III. Research process

A. Case company and project

The case company is a Finland-based medium-sized software producing company. It has offices in several countries and its main line of business includes selling software products and services. The case project aimed at launching an application tool for software developers. The product was completely new for the company and it was seen strategically important and generating new sales for the company.

The software project related to the launch started in mid 2014 with a prototype project. The first schedule for the commercial version of the product was set in the end of 2014. Initially, the project was estimated to be ready in three months. After two months, the schedule was extended for the first time, and the project received a late status. After 6 additional schedule extensions, the product was finally launched in October 2015. The launch project planning was started at the same time as the software project, but the implementation was put on hold before its full scale start, when the delay became evident.

The launch activities relied on videos. The marketing manager describes that video clips and YouTube were employed for the first time in large scale in a product launch. Other launch activities consisted of online advertising, product web pages, webinars, tutorials and documentation, among other things. In addition to the marketing activities, a direct sales campaign was conducted. According to the interviewees, there was plenty of manpower and money at disposal for the launch. They also describe that the company's capabilities for making a successful product launch are good. However, when launching new products for the new user groups, there is still room for improvement. Generally speaking, the product launch under the study followed the same process which the company had used several times, when launching other products. The interviewees characterized some of the previous product launches as highly successful.

B. Research approach

The selection of the case study company is based on good access to the company and the richness of the delayed project. Thus, we employ an exploratory qualitative research approach [29], more specifically a case study research strategy [30].

The case study subject, a project, aimed to create a new tool for software developers. The project was selected due to three main reasons: First, the project was delayed but delivered by the time of writing this report, which was a precondition for studying the impacts of a delay on a product launch. Second, the new product was highly expected in the company as it was strategically important. Thus, the company made an important investment into the product and it was followed carefully even by the top management, which improves the validity of the results. Third, the researchers were familiar with the company and the employees were expected to speak honestly, even about difficult topics.

The primary data gathering method for this study is semi-structured interviews [29]. Prior to the interviews, an interview instrument was created. The interviews were conducted by two researchers while one of them acted as the main interviewer. The interviews were recorded and carried out during one week in the beginning of January 2016. All interviews were transcripted and the results were sent to the interviewees for review. All participated in the study voluntarily. The company and the interviewees wished to remain anonymous in this study. The collected data was treated confidentially.

As a secondary data source, we collected different project related documents such as meeting minutes, and marketing and sales plans. In total, we interviewed seven persons, and studied 121 meeting minutes and four plan documents. The interviewees and their role descriptions, as well as their departments in the company, are shown in Table I. The

TABLE I
INTERVIEWEES' ROLES IN THE COMPANY

Role	Department	Length (min)
CEO, Product Director	CEO, Products	55
Key account manager	Sales	35
Product marketing manager	Marketing	55
Sales director	Sales	35
Sales analyst	Sales	25
Product owner (PO)	Product management	50
Marketing director	Marketing	50

analysis was conducted in a series of steps following the guidelines given by Robson [29].

IV. FINDINGS AND RESULTS

The findings are grouped into categories, as presented in Fig. 1. When a delay occurs, it creates a need for delay management activities, which, according to the findings, influence marketing and sales tactics especially through motivational factors. The impact on sales and marketing tactics is observed through three findings categories, scope, quality and cost.

A. Delay management

1) Forums and other communication channels: Based on the interviews and studying the meeting minutes from different meetings of the case company, the delays were managed primarily in four different weekly meetings:

PRODUCTS WEEKLY: Chaired by the CEO for most of the duration of the project. Other participants were product owners, including the product owner (PO). The schedule was reviewed in every meeting.

MANAGEMENT WEEKLY: Chaired by the CEO, other participants being management team members, including marketing and sales director. The schedule for the beta release was reviewed regularly.

MARKETING WEEKLY: Chaired by the marketing director, other participants were the whole marketing team, including the product marketing manager responsible for the launch. The schedule was reviewed occasionally.

SALES WEEKLY: Chaired by the sales director, other participants being the whole sales team. The schedule was reviewed in every meeting.

The primary forum for the delay and schedule management was the products weekly meeting, which was chaired by the company CEO. The CEO tells that the information on the updated schedule was available for the whole company in the meeting minutes, and passed forward to other meetings through informal discussions by him and the PO. The document review confirmed that the meeting minutes from all of the previously mentioned meetings were publicly available for the whole company. The marketing director and product marketing manager describe having got information on weekly basis from the PO. The sales director got information in the management team meetings and from the CEO, and passed the information forward to the sales team members.

Fig. 1. The findings overview.

The interviewed marketing manager, product marketing manager and sales analyst tell that they would have needed updated information about the product features for their launch related work, but this was not available. According to the minutes of the meetings, the features of the product were not discussed in any of the above mentioned meetings either. The product marketing manager describes the trustworthiness of any schedule and scope information having been low after a couple of updated and missed deadlines and scope changes. The PO concurs that when time passed, a lot of changes regarding the scope and schedule were made, and the status awareness probably suffered from that. As a result of the lack of trustworthy information, the PO describes that he received a lot of direct enquiries regarding the schedule, directly from the involved parties.

2) Schedule and features information availability: The schedule for the final release was updated seven times in the products weekly meeting during the project, as shown in Fig. 2. The beginning of the lines represents the date when the schedule was updated, while the right hand side end represents the planned release date for the final product. The thick gray lines indicate that the release date has been expressed as a range, and no exact date has been given for the release.

The schedule was updated once in January (R1), February (R2) and March (R3), the latest launch date being "in the first half of the year". Thereafter the schedule was updated next in early August (R4), followed by three consecutive updates (R5–R7). The interviewed sales director and key account manager describe that no schedule information was available during the sales campaign, which started in the beginning of August, even if asked from the PO. This confirms the gap in updating the schedule during the summer months. The product was finally released in the end of October.

The CEO and PO say that the scope was pretty stable during the whole project. However, the PO describes that there

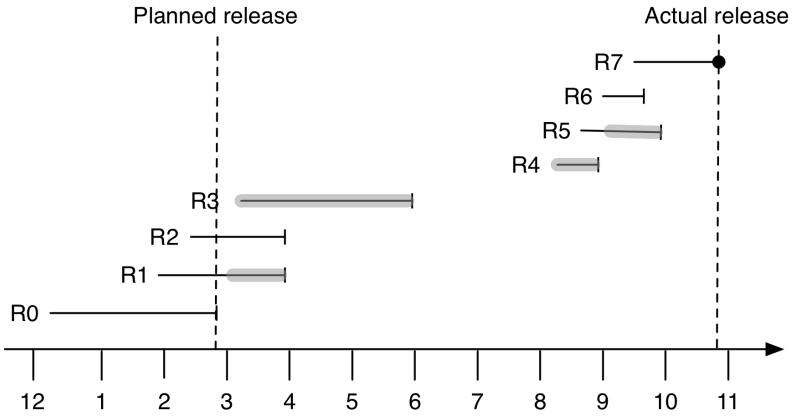

Fig. 2. Schedule updates for the final product release.

were attempts to reduce the scope because of the schedule pressure, but finally the original scope was restored. The product marketing manager also names a couple of items that were dropped from the scope early in the project. The PO and product marketing manager conclude that all this together had probably caused a perception of a changing scope. This was confirmed by the interviewees from the marketing and sales departments, who perceived that the scope of the product was changing.

3) Decision making: According to the CEO and other interviewees, the PO was accountable for the overall release of the product. The PO describes that he first re-estimated the schedule with the development team, and the updated schedules were accepted by the CEO as such. However, the PO adds that the targeted release dates were always known by the team at the time of re-estimation, and that the knowledge of the release dates had most likely affected the estimation work. The PO concludes that *"If you know that the targeted release date is after one month, you are not likely to present an extension of half a year in the schedule."* The CEO describes the product under the study having an important role in the company's strategy. He continues that the investors of the company were also following the project closely, and that there was a high pressure to release the product successfully, and realise the projected sales. The PO and the product marketing manager describe that because of the deep involvement of the CEO in the project, the whole team was well aware of the schedule and product related targets.

4) Summary of delay management practices: A covering meeting structure has been in place. The schedule has been reviewed regularly in the products weekly meeting, and the schedule has been available in the meeting minutes. However, the interviewees in sales and marketing describe the available information not being trustworthy, and that there was a lack of updated information. There were no schedule updates between April and September, even though the schedule was slipping simultaneously. These items seem to have created significant uncertainty and confusion, and triggered ad-hoc enquiries to the PO. As a response to the enquiries, the PO provided information, which differed from the targeted schedule. The scheduling decisions have been made by the PO, based on the estimates affected by business targets. The scope of the product was perceived to be changing, and although the feature information was requested and would have been needed, it was not provided.

B. Motivation factors

Both the marketing director and the sales director describe that their teams have experienced low motivation during the product launch and the sales campaign. The marketing director attributes the decreased motivation to the overly optimistic official schedules, not to the delay itself. Many marketing activities, like video recordings and messages of the key benefits, were depending on the product and its features. Without the final product, no recordings could be done, because the product was changing constantly. Also, the feature set of the product was perceived to be changing, making it impossible to know, which features and related benefits the final product would have. Thus, aiming at a moving target caused the production of the marketing artefacts to be postponed, since reproduction would be considered demotivating and unreasonable.

The sales director describes that they had no monetary targets for the sales campaign, because the product was not ready to be sold. Instead, they were demonstrating the product to potential customers. The sales director describes the motivation having been low, because the product quality was low and there was very little support for the sales from the products and marketing. The sales was conducting a campaign, from which they did not expect sales, but there was a risk of losing a credibility in front of the existing customers due to a low quality product. The interviewed key account manager describes the focus of the demonstrations having been in avoiding known bugs, and the sales analyst estimates the campaign having caused lost of sales in other product categories.

The PO and the product marketing manager had a monetary performance bonus bound to the release schedule. These bonus

targets were not updated with the delays, and it became obvious in an early phase that the targets will not be reached. The PO tells having pretended that the bonus target does not exist, and that he could not let it affect the needed decision making: releasing something that is not ready does not contribute to the company's goals. He continues that many other important aspects, such as quality, were missing from the bonus scorecard. The product marketing manager comments that missing a target, which was perceived as unrealistic, in an early phase, was demotivating. The interviewed key account manager comments that even though the sales targets were not depending on the product, the time spent on the sales campaign not generating sales worked against achieving his goals.

C. Marketing tactics

1) Scope: According to the CEO, the scope of the launch was decreased significantly because of the delays. There were a lot of planned videos, tutorials, blog posts, webinars, documentation and other material, of which a significant amount was not ready by the product launch. This proposition gets support from the product marketing manager, who describes having postponed everything as much as possible to avoid doing everything again later. According to him, the last video edits were made in a hotel room the night before the launch event. The marketing manager continues that the videos were affected the most, more videos were planned.

2) Quality: The product marketing manager considered the impact of the delay having influenced the quality of the marketing activities the most. According to him, there were a lot of uncertainties related to the product's features and related benefits, which made creating marketing messages difficult. Long waiting times, uncertainty and noise in the communication caused the focus to be lost and the creativity was not at its best. Furthermore, the schedule was tight after timeboxing the development and deciding upon the release date in the trade show. Suddenly there was a hurry to do all the postponed work. Considering the previous and the reported reductions in the scope of the marketing activities, it seems likely that the level of finalization of the marketing artefacts was not as good as planned.

3) Cost: The marketing director describes that they lost roughly three persons' work effort for three months during the summer. The team was just waiting for the technical product release getting closer, so that they could start working with the related marketing artefacts. The marketing director speculates that it could have been possible to get something out of the waiting period, but it would have been difficult to motivate the team to do work, of which 80% would have needed to be reproduced later. The CEO describes that the prolonged launch required additional coordination work with e.g. an external video production company, as well as internally. The product marketing manager adds that the video material had required additional editing, causing a minor cost increase.

D. Sales tactics

1) Scope: The original target of the sales campaign was to sell licenses to the new product. Because of the delay, the target was updated to include the introduction the product to potential customers, collect feedback and get reference customers. According to the interviewed key account manager, the sales did not want to demonstrate the product to existing customers because of the low quality, and therefore the risk of losing credibility. This caused that not all customers were contacted as planned. The sales director adds that reaching customers in August was difficult because of vacations, and they did not get reference customers. The CEO describes that the collected feedback validated the value proposition, but the PO assesses that the feedback started to repeat the same problem reports quickly, and it was not very relevant. The sales director tells that the campaign was ended prematurely after one and a half months because of the aforementioned problems, instead of continuing for the planned three months.

2) Quality: According to the interviewees from the sales team, they did not have sales material, necessary training and sales support available during the campaign, which prevented them from giving product demonstrations to the potential customers by themselves. The PO confirms this. He was on vacation when the campaign started and after returning from the vacation, prioritized other things. As a result the sales team did not give product demonstrations, but invited potential buyers into demonstration events, where the PO demonstrated the product. According to the key account manager, the discussions were also more about informing the customers of the product instead of selling, because there had not been a marketing campaign prior to the sales campaign, making the potential customers aware of the product.

3) Cost: The CEO states that the sales campaign was a waste of time, because the product was not ready to be sold. The total lost working time in the sales was estimated to be 10 person months. The interviewed sales analyst comments that probably also some sales of other products were lost because of focusing on an immature product instead.

V. Discussion, limitations and conclusions

This study has captured in-depth experiences from a launch of a delayed software development tool product for the global market. As is typical for delay situations, many things did not go as planned, and the effects of the delays escalated in the product launch related activities. When a delay is a fact, preventing the difficulties from escalating and mitigating their impact on related activities becomes a priority.

A. Key findings and analysis

This study clearly shows that delays in a software project have a remarkable impact on the cost, scope and quality of a product launch. The most significant finding of this study is that the uncertainty of the software project schedule and product features makes planning and scheduling launch activities difficult, which may decrease the motivation of the involved personnel. The decreased motivation in turn leads to postponing the implementation of the launch activities, until there is not enough time for implementing them in the planned scope and quality. The decrease of motivation is mainly driven

by the fear of needing to reproduce significant amounts of work because of the changes in product features and related customer benefits.

The schedule was updated by repeatedly extending the schedule by a short period of time. The schedule extensions seemed to be driven by the pressure to get the product out, rather than assessing the situation purely from the project realism's point of view. The estimation seemed to be affected by the business goals. Furthermore, there was a connection between the scope and schedule [26], also making the scope live with the schedule, although the eventual scope changes were minor. The launch team was facing a situation where there was no trustworthy schedule and scope available. This created uncertainty and mistrust, and decreased the motivation because any changes would mean significant reproduction of the launch related marketing artefacts.

Practice for updating the schedule correlates well with the previous findings. Excessive pressure occurs in 75% to 100% of large projects [31], which is often caused by the response of managers, when the schedule does not align with the business targets [23]. The technical staff is also known for being poor at defending their estimates [32]. Furthermore, the project seems to have experienced the anchoring phenomena [33], where the estimate is affected by an expressed starting point, i.e. the targeted release date. Sometimes managers may also want to launch products despite the fact that the products are compromised in terms of functionality and reliability [20]. Appreciation of work and interesting work have been found to be among the five most important employee motivation factors [34], and therefore it seems not surprising that the fear of losing the results of the work and needing to repeat the work is described as decreasing the motivation. The evidence suggests that the decreased motivation and related consequential effects might have been avoided by a more realistic rescheduling of the launch, and publishing a clear master schedule and scope to the software project, which would have been effectively rolled out in the organisation, making all involved parties aware of them. This would likely to have enabled a more effective coordination between the software and launch projects. The best project results are suggested to come from the most accurate estimates [35].

Personal scorecards were seen to have decreased the motivation instead of driving towards the goals. The scorecards were bound to the schedule of the product launch, while the involved personnel saw other topics, such as the quality of the work and the scope of the work, more important. Also, the performance indicators were not updated, although the project received a late project status eight months before the launch. This was perceived as unreasonable. Monitoring too many conflicting goals, like cost, budget and schedule, have been reported to be connected to demoralized staff, and staff ignoring all of the measures or shifting emphasis from one to another [36]. A reward becomes a demoralizing punishment, if it is missed out.

Postponing the work lead to a lack of time to implement the planned launch activities with the planned quality. The activities were planned early with the assumption that there is plenty of time to be used, but when the actual launch date was set, there was significantly less time to be used, although most of the work remained. This was reported to have lead to cutting out parts of the planned actions, as well as implementing them with a reduced scope or weaker quality. The additional spending originated mostly from lost working time resulting from waiting, reproducing changed items and additional coordination. All of these impacts are consequential, caused by changes in the launch schedule and scope. Coordination is managing dependencies between activities [7]. There was a clear producer / consumer dependency between the software project and the launch, as further described by Malone and Crowston [7]. The products from the software project were pre-requisites for the launch activities. In the light of the previous it seems clear that problems in the software project caused consequential effect in the related product launch.

Finally, the delays caused various other impacts on the product launch because of the previously described dynamics. For example, under pressure a sales campaign was started before the product was ready, and while the PO and customers were on summer vacation. Uncertainties also caused an extensive number of status enquiries for the PO, which prevented him from attending more important tasks, like training the sales and creating sales support material.

B. Managerial implications

We recommend that when a delay in a software project is unavoidable, the escalation of negative effects to product launch activities should be prevented or mitigated by implementing effective delay management actions. Especially important is to reduce the uncertainty by using the best effort to prepare a new, reliable master schedule and scope for the project, and making the involved parties effectively aware of them. This makes it possible to also update the respective launch plans. If done early enough, the marketing and sales activities may be able to continue their ordinary course of actions, until the product has reached the planned maturity to work as a basis for the launch activities. A clear master schedule is also likely to improve the work motivation.

Furthermore, we recommend carefully considering different scenarios before setting personal incentives bound to a launch date, especially in the marketing and sales activities, where the persons have limited influence over the schedule. Considering the track record of software projects overrunning their schedules, the scorecards bound to schedules are more likely to do harm than good.

C. Implications for theories

This paper contributes to the body of knowledge by showing that the delay impacts escalate easily from the software project to the launch activities. The impacts include increased cost, and decreased scope and quality of the launch. The reason for the negative impacts results from a missing reliable master schedule and scope, which decreases the motivation and makes a meaningful planning of launch activities difficult. The reason

for the decreased motivation is an immature product and fear towards needing to reproduce work items because of the changes in the product. The decreased motivation itself causes persons involved in the launch to postpone all work as long as possible, which leaves not enough time to implement all of the planned launch activities, and not with the planned quality.

Furthermore, the impacts of a delayed software project are studied thoroughly in the scope of the project itself, and in the scope of the company. However, the impacts on the company's internal activities have not been in the focus. This paper clearly shows that the impacts can be significant also on the internal coordination, and cannot be ignored. A broader and holistic view is needed when assessing and managing the impacts of a runaway software project inside a company. Therefore, we would suggest the field of software product management to pay more attention on software project delay management, as well.

D. Validity discussion and further research

This study has certain limitations. First, the findings of this study are subject to constraints of the research methodology. This research studied only one software project, which limits the generalization of the findings to similar contexts. To improve transferability, we have given rich information about the case, thus allowing researchers to compare their cases against the one described in this study. Second, obviously mistakes were made when managing the delay in the case company, but nonetheless the results draw attention to the importance of the existence of a master schedule and scope. It is recommended that further research be conducted in different contexts to study the delay management especially in cases, where the delay has been managed successfully, and no decreased motivation or impacts on the launch activities are reported.

Third, to reduce inherent subjectivity of a case study, potential biases were attempted to reduce, e.g., by checking and approving all transacripts and the manuscript by the interviewees. The results of this study were also supported by an exemplary trail of meeting minutes. Finally, the confirmability of the results is partly supported by our literature review on non-software projects. However, further studies are needed to verify the results.

Considering the number of products containing software today, the high share of software projects overrunning their schedules and the importance of the product launch for the financial success of the product, further research of the topic is justified. Our unstructured literature review did not reveal many studies on the impact of a software project delay on a product launch, or on any other company internal activities for that matter. Thus, a more thorough literature review should focus to shed more light on possible research gaps in the impact of a delay on company's internal coordination.

E. Conclusions

This research provides evidence that the delays in a software project increase costs and decrease scope and quality of product launch activities. These impacts are mainly the results of an uncertain schedule and scope, which causes lost working time and reproduction of work within the launch project, and postponing the launch activities until there is too little time to implement all of the planned activities with the planned scope and quality. The research suggests that postponing the launch activities is caused by decreased motivation, driven by the fear of needing to repeat work phases because of changes in the immature product. The decreased motivation was amplified by personal reward systems, which were bound to the launch schedule. This goal was seen to conflict with other goals, which in turn caused ignorance of the schedule. Furthermore, the early discovered loss of reward was perceived as a punishment instead of an incentive.

The main implications are the following: 1) A delay in a software project may cause increased cost and decreased scope and quality of product launch activities. 2) A new, realistic master schedule and scope should be established immediately, when the delay becomes evident, and all involved parties should be effectively made aware of them. This may help to limit the escalation of negative impacts into the product launch. 3) A personal reward system bound to the launch schedule may lead to conflicting goals, decreased motivation and ignorance of the goals. 4) Top managers, software managers and sales and marketing managers must recognize the widespread impacts of a software project delay, and manage the situation holistically from the whole company's perspective, instead of individual departments' perspectives.

Finally, the study showed the importance of the delay management in software industry as well as noted lack of studies in this area regarding product launch processes. Further studies are with more companies and industries are needed to validate the results. Furthermore, the interaction of feature and requirement changes should be addressed in future studies.

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