

Vague Project Start Makes Project Success of Outsourced Software Development Projects Uncertain

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Abstract. A definition of a project success includes at least three criteria: 1) meeting planning goals, 2) customer benefits, and 3) supplier benefits. This study aims to point out the importance of the definition of the project start, the project start date, and what work should be included in the project effort in order to ensure the supplier's benefits. The ambiguity of the project start risks the profitability of the project and therefore makes project success at least from supplier's point of view uncertain. Moreover, vague project start makes it more difficult to compare project management metrics, such as duration and effort, between projects. There is no clear definition for the project start either in literature or practice. Based on interviews, the definitions are provided for project start, project start date, and project start-up effort included in the project.

1 Introduction

An ever increasing part of the software development activities are bought from external suppliers. In those cases both the customer and the supplier plan to do viable business together in a way in which the supplier develops the software in a project and the customer will get the desired outcome of the project. In order to have a prosperous relationship between the customer and the supplier the projects should be as successful as possible. The definition of success includes at least three criteria: 1) meeting planning goals, 2) end-user benefits¹, and 3) contractor benefits² (including at least two criteria: commercial success of the project and potential for future revenues) [1]. Without understanding all three criteria of project success and their implications it is less likely to achieve a common project success.

The first project success criterion, the ability of the project to meet the planning goals, is closely related to the traditional measures of project success, namely cost, time and quality [2]. In the case of software projects it is more common to speak about

¹ In this article the end-user benefits are considered to be customer benefits

² In this article the term contractor is replaced with the term supplier because in software engineering standards the used term is supplier.

scope instead of quality. The reason to adhere to time, cost and scope is understandable because for example ISO/IEC 12207 standard defines a project as an endeavor with defined start and finish dates undertaken to create a product or service in accordance with specified resources and requirements [3].

The second project success criterion, the customer benefits provided by the project, can be defined by the project's impact on general corporate strategy, business operations, research and development, IS/IT development, and facilities provision and management [4]. The impact on corporate strategy can lead directly to improvement competitiveness and enhanced shareholder value. The impact of project success on IS/IT development is improved financial benefits and reduced wastage on canceled projects. These benefits cannot always be measured when the project ends because it may take some time and sometimes it may take several years before the actual customer benefits can be estimated.

The customer benefits are not the same as the project delivered in time, within the budget and according to the scope [4]. There are several examples of projects that were clearly over budget and over time, but which were clear successes. The final success of the project is more likely to be influenced by the customer's ability to select a project that has potential to provide actual benefits to the customer than any other factor. Selecting a fundamentally flawed project will ensure project failure even if the project has been completed in time, scope and budget [5].

The third project success criterion, the supplier benefits, is necessary for good long-time relationships between the supplier and the customer. It is necessary for the supplier to run a profitable business, and therefore the overall project portfolio of the supplier has to make profit. Without profitability the supplier will get out of the business and the customer will lose the benefits of a mutually advantageous partnership. The potential for the future revenues is also a very important aspect of project success from the supplier's point of view. This is emphasized by the study by Haried and Ranamurthy [6] in which it is shown that one of the main aims of the supplier is to get additional business in the future, and therefore one of the main criteria of the success of the current activities from the supplier's point of view is the outlook of future deals with the customer.

In order to gain benefits there should be a common understanding between the supplier and the customer of the project, its scope, timetable, and costs. This understanding should come into existence during negotiations between the supplier and the customer before the project is allowed to start and this understanding is usually clarified in the commercial and legally binding agreement and the project plan.

In order to gain its own benefits (commercial success of the project and potential for future revenues) the supplier should fulfill contractual obligations with respect not only to project scope but also anticipated effort and timetable. When the agreed outcome of the project will be delivered to the customer in time and effort estimation is not overrun the supplier may assume that the customer will not only gain its own benefits but also be satisfied with supplier and its performance. Thereby the project has potential to become profitable and the possibility for the future revenue will be ensured.

Especially for the supplier it is important not to overrun estimated effort and timetable. The supplier has usually many projects going on at the same time. Continually supplying the pipeline with additional business in the form of project agreements

the supplier ensures its revenue stream [7]. However, the number of people, and facilities available for a project are always limited. To be able to allocate resources from one project to another the supplier should know how many and what kind of resources are needed in one project and when these resources will be relieved and be free to be moved on to other projects. If there are delays on schedule, the supplier will have challenges not only with current project but also with the other projects waiting for the same resources. Moreover, if the effort estimation will be overrun, depending on the commercial agreement, the supplier has a risk to have a non-profitable project which will engender a shadow over the whole project and it is more difficult to achieve project success and a prosperous relationship between the supplier and the customer.

When doing software projects as a business, the supplier has a need to estimate effort as realistically as possible and the conceivable delivery date is estimated using effort estimation as a basis. The eventual effort and thus costs of the project and its end date are formed under negotiations between the customer and the supplier. The project start and the eventual start date of the project are more problematic. The author's industrial background³ and current industrial cooperation have left the definition of the project start a confusing and unclear concept.

A project start is quite important point in time for the project. The project work should start at that moment. Moreover, the project start should form the baseline for the estimation of project duration. But according to the personal experience of the author it is not clear when the actual project work has started, what is the project start, and what is the start date of the project.

For a supplier company project start-up activities are commenced when the company has got the order from the customer or the customer has indicated some other way that it will order software development project with agreed deliverables from the supplier company. During start-up phase the supplier company starts project planning using initial project plans made for a tender as a basis, forms the project team, assign responsibilities, establish procedures, install tools and controls, set up communications and makes initial contact between the team and customer [8], and [9].

When analyzing project start-up Turner has divided different projects into four types and emphasizes that start-up activities may be considerable especially in the case of software development [10]. However, in supplier companies it is common that in some projects those activities has been counted as effort to be included in the project but in other projects that work has been neglected and has been left almost totally out from the project work, although for a given project there is a certain minimum effort the project requires in the start-up phase [11].

Because practices vary from one project to another it is not so obvious and well-defined what work is included in the project work both beforehand while making effort estimation at negotiation phase and when the actual project is about to start. Without proper resources planned and reserved for project start-up activities, there is a risk that

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the design and plan stages are not carried out thoroughly enough which is, according to Atkinson, a common source of difficulty in projects [12].

While it is unclear, what activities should be and are included in the project work, it is equally obscure how project start should be defined. Fangel gives two possibilities: “The formal project start may be at the beginning of the start-up process, subject to approval of the developed project plans. Alternatively, the start-up process may be partly or fully carried out before the formal project start.” [13]. This means that project start and therefore also project start date can be anchored to the beginning of the start-up phase or somewhere during the start-up phase. However, an undefined project start makes the timely and controlled execution the project start-up activities more challenging and may result in unnecessary risks.

In order to achieve all three criteria of project success, the supplier should be able to provide accurate effort estimates. The creation of accurate estimates would require an agreement on the types of work included into the project. Therefore the project start-up work and the project start should be defined and agreed on by both the supplier and the customer. Such clarification would benefit both parties by creating a more truthful picture of the project and related activities and possible costs.

As long as both project start and what work is included in the project work are unclear concepts it is difficult for the supplier to measure project profitability truthfully. Moreover, basic project management metrics such effort, duration and timetable are more unsteady than normally presumed. Therefore in this article the research question is formulated as “What is ‘project start’ and how it is defined?”. The question stems from the lack of clarity and the aim of this study is to help professionals to define project start and related issues in a way that makes project success more likely.

A literature review is presented in Section 2. Since literature review was not able contribute a definition to the project start the practitioners were interviewed to obtain a practical definition for the project start. The performed interview is presented in Section 3. The results of the analysis of interviews are presented in Section 4. In Section 5 there are a few definitions and the article is concluded in Section 6.

2 A Literature Review

Both the project start and the project start date as concepts may appear so obvious that they do not seem to have a definition at all. An exact definition is, however, important in order to achieve a common understanding. The literature review was split in three parts. Those parts are a review of the standards, a brief search of definition from common textbooks, and a search of relevant research from databases.

The first part, the analysis of standards, was restricted to the ISO and IEEE standards. Later on the review of standards was backed up with an analysis of project management standards. The first part of the search was by using the keywords “project”, and “start”, and “date” in various combinations. No definition was found through database searches.

After the unsuccessful keyword search the standards ISO/IEC 12207, ISO/IEC 15288, ISO/IEC 15504, ISO/IEC 16085, and ISO/IEC 16326 [3], [14], [15], [16], and

[17] were analyzed. The analyzed standards do not provide a definition for project start or project start date.

The analysis of standards was extended to the most common project management standard, which is “A Guide to the Project Management Body of Knowledge” (PM-BOK) and is often mentioned as “... *the sum of knowledge within the profession of project management.*” [18]. PMBOK describes activities to be done at the project start-up phase but doesn’t describe when the project actually starts and therefore doesn’t define either the project start or the project start date. PMBOK defines, however, a start date as “A *point in time associated with schedule activity’s start, usually qualified by one of the following: actual, planned, estimated, scheduled, early, late, target, baseline, or current.*” Schedule activity means “A *discrete scheduled component of work performed during the course of a project.*” Start date is thereby associated with an activity, which is scheduled and performed during the course of the project. Therefore the definition of the start date doesn’t give definition for the project start, which is the starting point for the whole project and its activities.

The most common standards related to software projects do not provide a useful definition. Therefore the literature review was extended to the common software engineering books like [19], [20], and [21]. Such books cover wide range of concepts and methods for software development as well as short description of project management. As their main purpose is to describe software engineering as a whole without concerning details of software projects, they don’t give definitions for project start or project start date. Moreover, they do not pay any attention to the supplier’s problem of resource allocation and management in a multi-project environment.

The last part of the literature review was searches performed in the scientific databases. The first database used was IEEE database. The search strings used were ((project <and> start date) <in> metadata), ((project <and> start time) <in> metadata), and (('project start') <in> metadata). All those searches produced only one page of results. The abstracts of the result articles were read and the most promising article found was [9].

Eginton concentrates on two things: the handover from the sales organization to the project organization and how to achieve a rapid launch of the project [9]. For the former he presents a handover workshop as a way to ensure a smooth and complete transition of responsibility from the sales management to the project management. For the latter, the rapid launch of the project, he suggests a project kick-off meeting with participants from all major project partners. With the help of both handover workshop and kick-off meeting it is possible without dispute to contribute to the successful start of the project. It is, however, unclear if the kick-off meeting is intended to be the actual project start.

From the ACM portal the search strings were project "start date" (328), project "start time" (1 777), project "start-date" (328), project "starttime" (1 777), and "project start" (156). The number in parenthesis after the search string denote the number of hits. With those cases in which the number of hits was larger than 200 only the first five pages of results were subjected for closer scrutiny. With the string "project start" the whole list was looked at, although only those

articles with a promising title and abstract were considered more closely. No definitions were found.

The Elsevier ScienceDirect database was used with the search term "project start". The search was limited to the journals *International Journal of Project Management*, *European Journal of Operational Research*, *Journal of Systems and Software*, *Information and Software Technology*, *Research Policy*, *Technovation*, *Information & Management*, and *European Management Journal*. The search produced 229 hits. The hits were looked at by the title and the abstract. Only those articles that seemed most promising were looked at more closely.

Fangel discusses purpose of project start-up, planning of the project start-up, and presents tools for the project start-up procedure [8], [13]. He also describes differences between project start and project start-up [13]:

... To me it is natural to distinguish between to start and to start-up. When you are going to drive a car, you start by merely turning the key, releasing the clutch, and simply drive away. You rarely give any thought to the matter of performing the kick-off.

When you are going to run the diesel engine of a ship, you perform a start-up which is a process involving several activities all needed before the marine engineer can give the final 'Go'. Examples of the activities are the manning of the start-up, communication with the captain, fuel check, lubrication of bearings, starting pumps, initiation of filters, and building up sufficient air pressure.

Such a professional start-up process is the basis for getting the engine going, but at the same time it gives an effective and economical operation of the engine.

It seems to me that the difference between a project start and a project start-up is just as obvious as the difference between starting a car and starting up a ship's diesel engine.

Using the example above he succeeds to clarify difference between project start and project start-up, but, however, he gives incomplete definition for project start and project start date, and these are already presented in Section 1.

In addition to Fangel, Turner and Cochrane [10] have analyzed the relationship between methods, goals, and start-ups. According to them, the start-up is important and may require considerable amount of effort [10]. Two other studies concentrate on efficient project start-up [22] or evaluating effectiveness of project start-ups [23]. Both studies emphasize the importance of the project start-up in order to ensure the successful completion of a project. They do not, however, commit themselves on a definition of the project start or the project start date.

In a fairly recent article it is noted that at present some projects may have unclear boundaries, e.g. the start and end dates of the project are unclear [12]. The example of a project type that has unclear boundaries is organizational change projects, which are totally different from outsourced software projects, which are contract based and should start and end sometime and provide a deliverable result. In that article the project start was not defined at all, although it was mentioned to be sometimes a fuzzy concept.

Wiley InterScience database did not provide any interesting results. The search string `project NEAR/3 start` for journals did produce 244 hits, but the results were not promising. The titles of the articles and the names of the journals made it unlikely that any of the articles would have provided the searched definition for the project start.

Due to the seeming inaccuracy of the Wiley's search engine, *Information Systems Journal*, *Software Process Improvement*, and *Project Management Journal* were looked at more closely. No relevant articles were found.

SpringerLink database was searched with the string "project start". The search produced 362 hits. The title of every hit was considered and the more interesting articles were opened for further analysis. If the abstract of the article did not include relevant terms, then the article was not considered any further. There were only two articles [24], and [11] that somewhat covered the project start. Neither of those articles defined the project start, but Barry et al. [11] considered the start-up important in the beginning of the project and after interruptions. This is because an organization needs time to set up the project team, train them, and allow them to become familiar with the project [11].

The literature review made it clear that there exists no common definition of the project start. A clear definition of the project start is, however, important because confusion and delays make project success less likely. The lack of definition in the literature does not mean that companies that supply projects to customers do not have a clear definition. The interview was performed in order to get a definition formulated by practitioners and the analysis of the interview is presented in the following section.

3 The Interview

The interview described in this section is a part of a larger study which consisted of two different interviews performed in four software engineering companies. The larger study aims to gain better understanding of those activities which are performed in a supplier company before the actual project has been started and which will affect the project during its life-cycle. One part of interviews concentrated on activities performed in tendering process and another part concentrated on initiation activities performed in the project start-up phase. This study concentrates on the interviews on the project start-up phase.

The project start-up phase is the phase that succeeds the sales process and precedes the actual project. Project start-up phase starts when company has got the order from the customer or the customer has indicated some other way that it will order software development project with agreed deliverables from the supplier company. The project start-up phase has been discussed in [8], [13], [10], [9], [23], and [24]. The project start-up phase and its relationship with the sales process and the actual project are depicted in Fig. 1.

Two software engineering companies where interviews were performed made software development projects to various customers. Other two companies made embedded software projects with close cooperation with industrial companies. The main characteristic of all four companies was that they delivered unique product (software or embedded software, or in some cases specialized hardware with embedded software) to their customers. For these companies projects are their main way of doing business.

The persons interviewed were selected by the higher management of the companies. For the project start-up interview the management were asked to select project managers or other people who are responsible for project management. The interviewed people

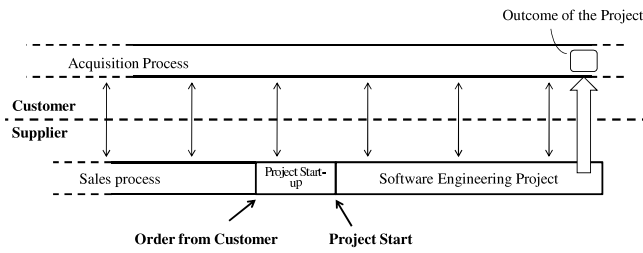


Fig. 1. The Start-up phase of a project

included eleven Project Managers, one Business Unit Manager, one Team Manager, and one Engineering Manager, altogether 14 people. Summary of the project start-up interviews is presented in Table 1.

Table 1. Summary of the project start-up interviews

Company	Project focus	Persons interviewed	Position
Company A	Software	3	Project Manager Project Manager Business Unit Manager
Company B	Software	3	Project Manager Project Manager Team Manager
Company C	Embedded Software	2	Project Manager Engineering Manager
Company D	Embedded Software	6	Project Manager Project Manager Project Manager Project Manager Project Manager

An interview instrument was developed for interviews and it consisted of main themes and a form for background data. In addition, few questions were planned to obtain definitions. The interview instrument was constructed by one researcher and validated by two other researchers. The interviews were performed as semi-structured interviews, more the forms of a discussion, using the interview instrument as a guide of discussion. Every interview was recorded and the recordings were transcribed to text. The analysis of the interviews was based on these transcribed texts.

One of the questions made for definition formulation was “When do you consider a project started?”. The question and especially answers of this question turned out to be not so straightforward than it could have been supposed to be. Analysis of the various answers and results of the analysis are described in the next section.

4 Results of the Analysis

The first step of the analysis was to extract all answers of question “When do you consider a project started?” from transcript files into one manageable file keeping data traceable. Each answer was analyzed and a simplified individual definition for project start was formulated for each interviewee. The result of this step is presented company by company in Table 2.

Table 2. Individual definitions of the project start

Company	Project focus	Individual definitions
Company A	Software	<ul style="list-style-type: none"> - There has been a kick-off meeting with the customer. - Work to achieve the goals of the project has been started. - First hours have been registered to the project.
Company B	Software	<ul style="list-style-type: none"> - We got the deal. - The project manager has taken over the project. - There has been a kick-off meeting with the customer.
Company C	Embedded Software	<ul style="list-style-type: none"> - We have got the deal. - A project number for the project has been opened.
Company D	Embedded Software	<ul style="list-style-type: none"> - The order has been got. - The order has come. - The project manager has been appointed. - There has been an official kick-off meeting with the customer. - There has been an internal kick-off meeting. - Someone is working on the project.

It can be seen that there are many quite similar definitions as “The order has been got.” and “The order has come.” These quite similar definitions were grouped together and altogether five groups were comprised of individual definitions. After analysis of each group one definition of project start was derived for each group. These definitions and the number of different definitions in each group are presented in Table 3.

Table 3. Definition and the number of individual definitions

Definition	Number of individual definitions
We got the order.	4
Project work has been started.	4
There has been a kick-off meeting with the customer.	3
The project manager has been appointed.	2
There has been an internal kick-off meeting.	1

The most common definitions were “We got the order” and “Project work has been started” but only one interviewee defined the project start via internal kick-off meeting.

This may reflect that it is not very common to have internal kick-off meetings or that a project is considered started before an internal kick-off meeting.

It is possible to place the definitions presented in Table 3 in a time-scale. The placing represent the relative ordering of the definitions and reflects the opinion of the author of this article. The ordering of the definitions is shown in Fig. 2.

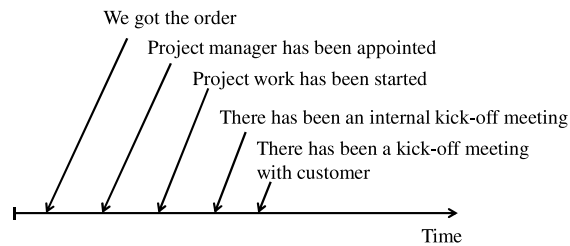


Fig. 2. The definitions of the project start in a timeline

After the supplier has got the deal, it takes some time to appoint the project manager. When the project manager has been appointed, he/she will start getting familiar with the project. That time can be considered to represent the first moments when some work has been done to the project. The project resources are selected by the project manager or the resources are given to the project manager. In many cases the project manager may have some influence on the decisions regarding the project team, but that influence can be very limited. After the project team has been selected it is possible to have an internal kick-off meeting. Before or after the internal kick-off meeting the members of the project team have familiarized themselves with the project. The formal project kick-off meeting requires that the supplier's project team and the customer's relevant personnel are known. Both sides should have familiarized themselves with the project and be ready for the meeting. It may, however, be the case that it will take some time before the formal project kick-off meeting can be held.

The time between the order and the kick-off meeting with the customer may be several weeks. During that time there may have been a considerable amount of effort spent in addition to the effort directly related to start-up activities. Hence, it is not easy to compare the effort, the duration, and the schedule of individual projects even inside a single company. This problem is clearly seen in Table 4 where different definitions are presented company by company. Each definition is presented once and number of interviewed persons per company is also presented.

It is quite amazing how many different meanings project start can have amongst professionals. There is no common understanding inside any company. If we look at the Company B one of the interviewees define project start as "The order has been got." and another as "There has been a kick-off meeting with the customer." If their process follows author's own experience there is a huge difference between project managers how they manage project start and project timetable, and how they manage hours spent for the project.

Table 4. Different definitions and the number of interviews for each company

Company	Project focus	Definitions	Number of interviewed persons
Company A	Software	- Project work has been started. - There has been a kick-off meeting with the customer.	3
Company B	Software	- The order has been got - The project manager has been appointed - There has been a kick-off meeting with the customer	3
Company C	Embedded Software	- The order has been got - Project work has been started	2
Company D	Embedded Software	- The order has been got - The project manager has been appointed - Project work has been started - There has been an internal kick-off meeting - There has been a kick-off meeting with the customer	6

After collecting and analyzing the definitions the actual transcribed interviews were re-read. That made the vagueness of the project start much easier to understand. The ambiguity of the project start is described by one manager, who was not able to make up his/her mind. He/she finally conceded that the project start is a fuzzy concept and difficult to define.

Now, we usually have a kick-off meeting with a customer. It can be considered a starting point of the project... But how it goes, when the project starts, anyway, what is pre-planning of the project then... So, yes, the kick-off meeting can be before the pre-planning, that we have agreed that we get our finger out. But we, of course, discuss it with the customer as early as possible, what have to be done, and so on. That it is a basis for the planning, case-specifically, maybe... This is such a gray area.

All interviewed managers worked for companies which make various software projects to different customers. The difficulties to manage project starts and how to define the project start after delays is clearly seen from the quotation of one manager:

I don't know... Well, I, for one, think it's when someone has started to work for the project. It's common that we have some timetable. We have offered a project, we made a tender today, the project will start 1st January 2009 and end 30th May 2009. Some time passes, we'll get the order, perhaps in the mid January, we won't update the schedule. We'll start the ball rolling, we'll get maybe one guy for the project and another maybe in the mid February. Now, we've failed the start and schedule, it doesn't matter as such, but what is actually the project start. In my opinion, it's when there is someone working for the project.

His/her answer included some further insight in addition to the definition of the project start. He/she illuminated one of the problems that are inherently present in contractual software projects. The timetable, i.e. schedule, has been outlined in a binding tender, but the order comes much later than expected. The project is already late, the schedule is presumably not updated, the resources are not available at once (it has to be remembered that the order comes much later than expected) and the project is delayed even more. The actual project start and the start date defined in the original project plan have nothing to do with each other anymore.

Ambiguity with a moving project start and the activities performed during start-up create difficulties for the supplier because the supplier has to cope not only with the already late project but with several other projects at the same time. It is likely that at least some of the other projects use the same resources than the original project. The other projects may be delayed or disrupted by the timetable changes of the original project.

The fact that the managers interviewed work for companies which operate in project business makes the managers to pay special attention to anything that incurs difficulties to the supplier. Therefore some experienced managers may select a more or less arbitrary date and present it as the start date of the project. By using such a date he/she strengthens his/her bargaining position with the customer because he/she can always refer to that date and negotiate a new schedule. That is clearly expressed by one manager who said:

I personally write it always in the project plan. I'll try to keep it easy for me, it's quite difficult to define when the project has been started and therefore it's always written in my project plans. There can be delays for different reasons but we have to have readiness to start the project. And when we are able to show the project start date and the project has been started we are stronger to negotiate with the customer for the changes of timetable.

Differences between various definitions for the project start can be interpreted to mean that the concept of the project start was at least partly ambiguous in every company. The ambiguity is expressed in a clear way by one experienced manager who said:

My strong opinion is that it is when project manager is appointed. The order has come, is forwarded to project manager, and that's it.

The emphasis is used in the quotation in order to point out that the definition provided by the interviewee is his/her personal opinion, not a fact nor a company level definition.

To summarize the results of the analysis of the interviews we can conclude that the definition of the project start has obviously been accepted to be very difficult to create. Moreover, it is an ambiguous issue and the definition of the project start date is at least partly arbitrary and may have no real connection to the real start of the project. In the world of contract based — or outsourced — software projects the relationship between the project start and the project start date written into the schedule is not always a reality. The ambiguity of the project start definition may make it difficult for software companies to define and show if a project has been profitable or not. If a part of the project work has been done without including that work in the official project, then that work has been done outside the official agreement and the situation is not tenable considering project success and a prosperous long-time partnership.

In order to make the situation clearer and both the customer benefits and the supplier benefits easier to achieve the relationship between project start and the project start date should be clarified and the term defined. In the following section such definitions are proposed and the some impacts of the current ambiguous situation discussed.

5 Definitions

It seems to be the case that the state of the practice is as fuzzy as the almost non-existent literature definition. The start date of the project has to be defined somehow,

but every project manager seems to have his/her own definition for the project start and therefore he/she has his/her own definition also for the start date of the project. This type of ambiguity may result in a situation in which the supplier performs work that is necessary for the project but not included in the agreement.

This kind of situation is not beneficial for the supplier because there is a risk to lose not only the profitability of one project but also the profitability of other projects if there are many project managers who may act alike. Therefore the project start, project start date and the work included in a project work should be defined. These definitions were made by the author, and the definitions and their relationships are presented in the Fig. 3.

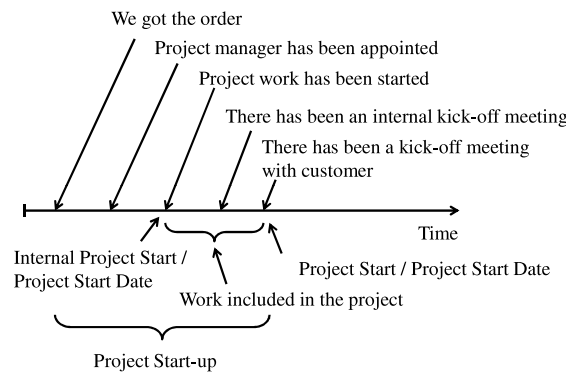


Fig. 3. The definitions of the project start and other relevant times

The most obvious moment for having the project start is the day when the supplier and the customer have the project kick-off meeting. This moment is defined also as the project start date. The customer may expect the supplier to have the project team up and running immediately after that meeting. The project start-up activities that are required should be performed before the project start.

For the supplier the project start-up activities are a necessary part of the project [11][24][10] and actually a part of the project effort. The start-up activities should be included in the project work from moment when the project work has been started (internal project start / project start date) to moment when the kick-off meeting has been performed with the customer. In that span a remarkable amount of work has been done and that effort should be included into the project despite the fact that the work is invisible to the customer.

6 Conclusion

When discussing successful software development project, we should consider all three success criteria, which are: 1) time, cost, and scope, 2) customer benefits, and 3) supplier benefits. In order to achieve those criteria and create a prosperous relationship

between the customer and the supplier there has to be a common understanding of several issues. One of the issues is the definition of the project start and the role of project start-up activities discussed in [10], and [24].

Although the amount of effort spent in the start-up activities may be remarkable — at least there is a minimum amount of effort that a project start-up requires [11] — the relationship between those activities and the project start has not been clearly defined in literature. The relationship is vague in practice also and an interview of practitioners provided five different definitions, all of which have a clearly different meaning considering the project start and the type of work that belongs to a project.

Without proper understanding which start-up activities are needed, which start-up activities are included in project work, when project starts, and what is actual start date of the project, there is a risk that proper planning and design are not carried out thoroughly enough, effort estimations made before and after project start are faulty, project planned delivery date has been missed before project start, and overall resource usage planning of the company becomes more challenging. All these difficulties minimize possibility to achieve successful project from supplier's point of view: to have commercial success of the project and potential for future revenue. Moreover, basic project management metrics such effort, duration and timetable are misleading from the beginning the project and comparing different projects is unreliable.

The understanding may be based on the definition proposed in this article. The definition is that the project start and also the project start date is the moment when the supplier and the customer have a kick-off meeting, but the internal project start / project start date is the moment when the supplier performs the first project start-up efforts. The project work that should be agreed includes the start-up effort required by the project. The customer and the supplier should agree on the inclusion of the start-up effort to the official agreement.

Although the reported study is based on a fairly limited number of interviews its results can be considered valid because similar problematic have been reported earlier [24]. The actual usability of the proposed definition in the business environment and the detailed steps present in the start-up phase are left for further research.

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References

1. Dvir, D., Raz, T., Shenhar, A.J.: An empirical analysis of the relationship between project planning and project success. *International Journal of Project Management* **21** (2003) 89–95
2. Atkinson, R.: Project management: cost, time and quality, two best guesses and a phenomenon, it's time to accept other success criteria. *International Journal of Project Management* **17** (1999) 337–342

3. ISO/IEC, ed.: ISO/IEC 12207-2008: Systems and software engineering — Software life cycle processes. ISO/IEC, Geneva, Switzerland (2008)
4. Cooke-Davies, T.: The “real” success factors on projects. *International Journal of Project Management* **20** (2002) 185–190
5. Munns, A.K., Bjeirmi, B.F.: The role of project management in achieving project success. *International Journal of Project Management* **14** (1996) 81–87
6. Haried, P., Ramamurthy, K.: Evaluating the success in international sourcing of information technology projects: The need for a relational client-vendor approach. *Project Management Journal* **40** (2009) 56–71
7. Cooper, M.J., Budd, C.S.: Tying the pieces together: A normative framework for integrating sales and project operations. *Industrial Marketing Management* **36** (2007) 173–182
8. Fangel, M.: Planning project start-up. *International Journal of Project Management* **2** (1984) 242–245
9. Egginton, B.: The project start-up process — getting it to work better. *Engineering Management Journal* **6** (1996) 88–92
10. Turner, J.R., Cochrane, R.A.: Goals-and-methods matrix: coping with projects with ill defined goals and/or methods of achieving them. *International Journal of Project Management* **11** (1993) 93–102
11. Barry, E.J., Mukhopadhyay, T., Slaughter, S.A.: Software project duration and effort: An empirical study. *Information Technology and Management* **3** (2002) 113–136
12. Atkinson, R., Crawford, L., Ward, S.: Fundamental uncertainties in projects and the scope of project management. *International Journal of Project Management* **24** (2006) 687–698
13. Fangel, M.: To start or to start-up?: That is the key question of project initiation. *International Journal of Project Management* **9** (1991) 5–9
14. ISO/IEC, ed.: ISO/IEC 15288-2008: Systems and software engineering — System life cycle processes. ISO/IEC, Geneva, Switzerland (2008)
15. ISO/IEC, ed.: ISO/IEC 15504: Information Technology — Process Assessment. ISO/IEC, Geneva, Switzerland (2004)
16. ISO/IEC, ed.: ISO/IEC 16085: Systems and software engineering — Life cycle processes — Risk management. ISO/IEC, Geneva, Switzerland (2006)
17. ISO/IEC, ed.: ISO/IEC 16326: Systems and software engineering — Life cycle processes — Project management. ISO/IEC, Geneva, Switzerland (2009) Final Draft.
18. Project Management Institute, ed.: A Guide to the Project Management Body of Knowledge. 3rd edn. Project Management Institute, Pennsylvania, USA (2004) ANSI/PMI 99-001-2004.
19. Sommerville, I.: *Software Engineering*. 8th edn. Person Education Limited (2007)
20. Pressman, R.S.: *Software Engineering: A Practitioner’s Approach*. 6th edn. McGraw-Hill (2005)
21. Royce, W.: *Software project management: a unified framework*. Addison-Wesley Longman, Inc. (1998)
22. Torp, O.: Efficient project start-up. http://www.concept.ntnu.no/attachments/058_2004_johanesen_nordnett_efficient_project_start_up_torp.pdf (2003) Unpublished paper. Accessed 4th January 2010.
23. Halman, J.I.M., Burger, G.T.N.: Evaluating effectiveness of project start-ups: an exploratory study. *International Journal of Project Management* **20** (2002) 81–89
24. Haapio, T., Ahonen, J.J.: A case study on the success of introducing general non-construction activities for project management and planning improvement. In: *Proceedings of PROFES 2006*. Volume 4034 of LNCS., Springer-Verlag (2006) 151–165