# The impact of project management on behalf of the contractor on project outcomes

# 1. Abstract

The quest for finding and understanding the main factors for successful construction projects has continued for several decades of research, with the goal of improving the efficiency, profitability and growth of firms, as well as creating and maintaining a competitive advantage in a robust industry.

As part of that attempt, the research literature has attempted to identify the main variables that determine the success of projects, including the impact of the construction project manager on the overall success of a project. One of the questions that arise from the research findings is whether there is a connection between the presence and involvement of a project manager on behalf of the contractor in construction projects and project performance, in terms of timetable, budget and quality.

As part of this research conducted in Israel, data was collected from 124 construction and infrastructure projects of different sizes, examining the impact of project managers on behalf of the contractors on project outcomes. The study found that in 72% of the projects, a measurable saving was reported as a result of the direct intervention of the project manager, as well as a measurable saving in the timetable, which was reported in 78% of the projects, and a saving of non-quality expenses reported in 76% of the projects.

Another finding of the research is that an entrepreneur who manages an organic project management mechanism in the firm achieves significantly better results in project performance. When the contractor does not manage an organic project management mechanism, project budget overruns are twice as high as in cases where such a mechanism does exist, and timetable overruns are 50% higher.

The comprehensive and unique knowledge that arises from this study contributes to understanding the main factors for project success, and provides various parties in the construction industry with tools to improve their efficiency and increase the success prospects of the projects in which they are engaged.

**2. Introduction**

The Israeli manufacturing branches doubled their productivity and efficiency in the last two decades, but it appears that that progress eluded the construction industry, which is standing in place and is not informed by innovative trends affecting other branches of the economy. The construction industry is known for its conservatism and the great difficulties of introducing technological innovations and adopting efficiency processes that were adopted by other industries (Woetzel et. al., 2017). This phenomenon is not unique to Israel and is familiar in the global construction industry. Furthermore, the working environment has become competitive and complex, the uncertainty in projects has grown (Wind and Main, 1998), and requirements increase by the day. Under these conditions, it is hard to see how the construction industry will be able to supply the projected increase in the coming years without a significant improvement of its efficiency. This necessary improvement will require the decision-makers to discuss and find solutions that will help achieve those objectives without undermining construction quality.

The quest in the professional literature for the main factors for successful construction projects has continued for several decades of research (Dvir, Sadeh and Pines, 2006, Manches and Hana, 2006), with the goal of improving efficiency, profitability and growth of firms, as well as creating and maintaining a competitive advantage for contracting firms.

To date, better project management methods have been and continue to be developed, and organizations which lead in implementing those methods consistently show better performance than their industry competitors. In order to enhance the productivity of the construction industry, to lead projects to success and thereby to be able to meet the projected growth rates, **it is essential to have a clearly defined project management function, and in particular to define the certification, knowledge and skills required from a project manager.**

**Success in projects**

The success of projects has frequently been discussed in the research literature, but there is still no consensus between the researchers as to its definition (Davis, 2014). A project is usually defined as successful when its tasks are performed according to the plan and without surprises (Tuman, 2006). In a successful project the goals are well defined, work proceeds according to schedule, and resources are used efficiently. Furthermore, client satisfaction with the final result, and the fact that the process was completed without significant disputes or lawsuits, may supposedly indicate project success. This approach focuses on the project process and not necessarily on the final results. According to this approach, a successful project is one in which minimum conflicts between stakeholders occurred.

Conversely, Dvir, Sadeh, and Pines (2006) offer a results-oriented approach to project success. According to them, most projects are created out of a business approach, and are usually focused on the goals of achieving profit and growth objectives. This systemic approach is reflected by the professional project management literature, which traditionally refers to time, budget and performance as the main indices of project success (Wandberg et al., 2013). They also offer final customer satisfaction as another index of project success. The researchers Dvir, Lipovetskey, Shenhar, and Tishler (1997) argue that customer satisfaction is the most important index for examining project success. Researchers Baker, Murphy, and Fisher (1997) concluded that from a long-term perspective, the most important thing is whether the parties participating in the process and affected by it were satisfied.

Construction industry projects are among the most complex projects that exist (Wintch, 1987). This complexity increases over time. Construction companies invest massive resources to improve their performance in four main areas: project costs, project duration, quality, and safety (Wandberg et al., 2013). Yet, budget and time overruns have become an inseparable part of construction projects in Israel and the world, and the question today is not whether there will be overruns but how serious (Pressoir, 1992). Furthermore, one of the factors that directly impact most of the project success indices is the cost of non-quality. This factor directly impacts profit, growth, meeting deadlines, and customer satisfaction. In many cases it was found that the cost of repeated work exceeds project profit (Brandon, 1984). Economically, the cost of repeated work intended to correct performance deficiencies reaches 4% of project cost (Josephson & Hammarlund, 1999).

Another main challenge concerns improving worker safety at construction sites (Wandberg et al., 2013), whch also has to do with building quality. In the examination of the empirical connection between construction quality and construction safety, the latest research shows that low project performance is highly correlated with bodily injury. In fact, there is a clear correlation between the quality approach and the safety approach in a project. This study was based on researching the causes of construction site accidents, and among other things interviews with construction project managers who testified that the strong positive correlation between repeated work and bodily injuries is the result of demolition work, tight schedules, and incorrect work procedures. The research also finds that on the strategic level both of these indices, quality and safety, can be improved by implementing project leadership, suitable administrative decision-making, and responsibility taking.