Chapter 1
Introduction

1.1 A Prediction Success

The time prediction and planning capacity of the human race is particularly evident in some of the early great constructions. An excellent example is the building of the Great Pyramid of Giza, around 4500 years ago. We do not know much about the methods they used to predict the time needed and how they managed to finish the pyramid before the pharaoh’s death. Most likely, their time and resource predictions were influenced by experience from building previous pyramids. However, even if they could use previous experience, they would have to adjust the predictions for differences in the pyramid’s size and location and the availability of resources. This is not an easy task, even for today’s construction planners, with better tools and more historical data.

The achievements of the pyramid planners are even more impressive given that the coordination of building activities required accurate time predictions of work done by thousands of people. The building productivity of the Great Pyramid of Giza has been estimated at about one block per minute during the 10 years of the pyramid’s actual construction [1]. The blocks had an average weight of 2.5 tons and had to be put in place with millimetre precision. There may have been as many as 15,000 pyramid workers and 45,000 people to support their work with catering, administration, and transport, which means that up to 4% of the population of Egypt was occupied with pyramid building. Without accurate time predictions of the activities involved, it would have been impossible to coordinate and ensure the efficient use of resources.

The project manager in charge was Hemineu, a relative of the pharaoh. Hemineu must have been a truly skilled project leader and also good at selecting people around him able to provide accurate predictions of time usage and create realistic plans for the work. Much of what is considered today to be good project time prediction and planning practices was already in place at that time: the decomposition of large projects into smaller tasks that can be better analysed and managed, inspections and the quality assurance of plans and time predictions, early feedback to improve the accuracy of time predictions, and, when needed, replanning [2].
1.2 Prediction Disasters

While there are great successes in the history of time predictions, there is no shortage of time prediction disasters. In contrast to the successful construction of the Great Pyramid of Giza, several Egyptian pyramids did not finish in time, cost much more than predicted, and were left unfinished.

The early occurrence of overoptimistic time predictions is nicely illustrated by the following contract on a house repair dating back to 487 BC in Mesopotamia: ‘In case the house is unfinished by Iskhuya after the first day of Tebet, Shamash-iddin shall receive four shekels of money in cash into his possession at the hands of Iskhuya’ [3]. Clearly, people in Mesopotamia, one of the first civilizations, were familiar with contractors not delivering at the promised time.

Much later, large, innovative construction projects such as the medieval Basilica di San Lorenzo in Florence, the Sagrada Familia cathedral in Barcelona, and the Suez Canal experienced huge time and cost overruns. The cost predictions of the Olympic Games, have had an average cost overrun of 252% for the Summer Olympics and 135% for the Winter Olympics, and no cost prediction for any Olympic Games so far has ever been on the pessimistic side [4]. The then mayor of Montreal, Jean Drapeau, is infamous for predicting that the Winter Olympics in Montreal in 1976 could ‘no more lose money than a man can have a baby’ [5]. The Olympics in Montreal resulted in a debt of over $1 billion, which took the Montreal citizens more than 30 years to pay back.

Sometimes, unrealistic time predictions lead to deadly disasters. When Napoleon invaded Russia in 1812, he predicted that the war would be won in 20–30 days. Consequently, he brought food for his soldiers and horses for only about 30 days. When returning not 30 days but five months later, hundreds of thousands of his soldiers and most of his horses had died as a direct or indirect consequence of a shortage of food. This unrealistic time prediction resulting in a lack of food may have been a major reason for Napoleon losing the war. It led to lack of discipline and riots by hungry soldiers and slowed the troops’ movements [6]. More than 100 years later, Hitler made a similar overoptimistic time prediction when invading Russia, with a similar outcome. More recently, other superpowers have made overoptimistic time predictions about how soon they would be able to complete their military invasions and start the withdrawal. Learning from history is hard. Huge, disastrous time prediction mistakes do not seem to prevent new failures.

The large number of time prediction failures throughout history may give the impression that our time prediction ability is very poor and that failures are much more common than the few successes that come to mind. This is, we think, an unfair evaluation. The human ability to predict time usage is generally highly impressive. It has enabled us to succeed with a variety of important goals, from controlling complex construction work to coordinating family parties. There is no doubt that the human capacity for time prediction is amazingly good and extremely useful. Unfortunately, it sometimes fails us.
References


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