

Chapter IX

The Value of Flexibility

Rodrigo Castelo

OutSystems, Portugal

Miguel Mira da Silva

Instituto Superior Técnico, Portugal

ABSTRACT

Though IT investments are risky by nature, most of the traditional investment valuation models do not have risk in account, leading to erroneous choices. This chapter bases itself in the dogma that flexibility is the key to handle the uncertainty and risk of the future, and therefore is also a philosophy that must be in the very foundations of IT investments, since IT is the basic foundation of so many businesses. How do we value a risky IT investment is the underlying subject of this chapter. Having the previous dogma as a basis, the authors state that flexibility is a vaccine against risk. As such, this flexibility must have a value. The problem they attempt to solve in this chapter is the quantification of such value. To achieve this goal, the authors propose a real options-based framework to value IT investments, having risk in account.

INTRODUCTION

The pure Taylorism saw its end on October 24, 1929—the Black Thursday—when the Wall Street Stock Market crashed yet again, this time with violence (Henin, 1986).

Years later, in the 80's, Michael Porter popularized the ideas of the value chain, focused on maximizing value creation and minimizing costs (Porter, 1985) which, in the end, were exactly the same goals of Taylor.

As an example, the Ford Motor Company applied Taylor's methodology and was able to

implement a Just-In-Time production, so called “Dock to Factory Floor” since it demanded an almost inexistent warehouse stock.

Now what is wrong with Taylorism or Porter’s value chain? Nothing. The problem is not with the models, but rather on how Ford and others applied them. Among other problems, Ford failed to create a value chain starting at the customer and ending at the suppliers, culminating in a super production crisis.

Japan understood this chain issue back in the 50’s, and met an astonishing growth in the 60’s, known as the Japanese Miracle.

As an example, by the middle of the past century, the Toyota Motor Company implemented a new methodology for building cars also with smaller economic lot sizes but, more important, targeted for flexible factories capable of shifting production in a matter of days.

More recently, we have other success examples, such as Zara, which was able to create a flexible production, parameterized by its costumers’ demand, collected on a daily basis.

As odd it might seem, usually only marketing disciplines have this market or customer-oriented value chain as a basic pillar. Only with this view, a competitive advantage can be sustained.

Even odder, we are constantly assisting a dummy first mover’s dictatorship. For instance, take the example of the third generation (3G) mobile communications. As soon as the first communications operator introduced 3G services, all the others followed, investing heavily on the infrastructure. However, there is still no market demand for 3G (Hearts, 2002; 3G.co.uk., 2004).

Bottom line, companies need to be flexible to provide customers with products that meet their ever changing needs. Unfortunately, mankind doesn’t deal well with flexibility, or it wouldn’t have only started accentuating its evolution 10,000 years ago, when it got sedentary, and thus more stable, in Neolithic.

Context

In the context of the Information Technology (IT) world, we have now been creating applications for over 50 years.

In that time, we have evolved our processes and tools, creating a broad range of methodologies, nevertheless almost all of them seem to have high rates of failure.

In 1995, the Standish Group published a survey, called “The Chaos Report”, showing that, on average, only 16% of the IT projects succeeded, ending on budget, on time, and with all the requirements implemented. If we only account for large companies, this rate dropped to 9%.

One might think that from 1995 to nowadays some evolution was achieved, and it was. The Standish Group updated this report on 2001, publishing the “Extreme CHAOS Report”. This latter report showed that, on average, 28% of the projects were then succeeding. Therefore, in 6 years, with all the great advances in processes and tools, we were not even able to double the success rate of IT projects.

When compared to other engineering fields, IT won’t even qualify as a wannabe. For instance, the first documented civil engineer dates from 2550 BC and contains the schemas for the Imhotep stepped pyramid of King Zoser, located at Saqqarah, which still stands today (Penwell et al., 1995). The Unified Modeling Language (UML) development, if you like, only started in the 90’s.

This is why it is so tempting to compare IT with civil engineering and why we hear it so often. Nonetheless, is quite an erroneously comparison. Imagine that when building a bridge, the stakeholders change, on a daily basis, the number of cars the bridge must support, or even the river it must be built on. No bridge will come on budget and on time under such scenario.

However, even if the comparison with civil engineering is wrong, this is no excuse for the

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