



# METRI Market Analysis

*Software project estimation  
and Benchmarking*



**METRI**  
FACT BASED ADVISORY

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# Trends in software project estimation and benchmarking



## Introduction

Software metrics are important for decision making in many disciplines of the IT industry. METRI is experiencing an increased interest in the use of software metrics as the industry is starting to measure more relevant metrics and is actually trying to use the measurements and metrics to understand, control and improve software development projects.

For instance, more and more organizations start to understand that saving costs by renegotiating supplier's rate cards won't bring the expected cost savings when the supplier reacts by spending more hours to do the same work. Productivity rates are just as important as hour rates and therefore many organizations have started to measure the productivity of their suppliers and to benchmark these suppliers against the industry.

In this Market analysis, we are looking at a few trends in the use of software metrics in software project estimation and benchmarking.

**“ Many organizations have started to measure the productivity of their suppliers and to benchmark these suppliers against the industry ”**

# Benchmarking Agile or DevOps teams

In 2014, the Object Management Group published version 1.0 of the Automated Function Point (AFP) specification. This specification enables standardized automated functional size measurement of source code by industry tools conforming to the IFPUG (and Nesma) method.

The potential of AFP is huge, as it overcomes a few of the most obvious challenges of manual function point measurement, e.g. low documentation quality, high effort intensity and (un)availability of certified specialists. In fact, these drawbacks are major reasons why many organizations did not want to start measuring functional size, although many understand the advantages of using functional size as it is still the best way to measure the output of a software project in an objective, repeatable and defensible way.

**Using metrics based on functional size will enable management to use industry data to carry out meaningful analysis in order to make informed decisions.** It now becomes relatively easy and cost efficient to measure the size of sprints, releases, projects, applications, or entire application portfolios. A few examples of management activities that become easier to do:

- Measuring the performance of agile and DevOps teams;
- Measuring the performance of software suppliers and benchmark them;
- Analyzing the cost efficiency of development and/or maintenance teams;
- Determining the landing zone for outsourcing (parts of) development and/or maintenance;
- Proving market average performance.

Manual functional size measurement based on requirements documents is still necessary for all activities where the source code is not ready yet, like for project estimation. However, AFP has the potential to really shift the industry towards more meaningful measurement and better informed decisions, resulting in less waste and more business value!

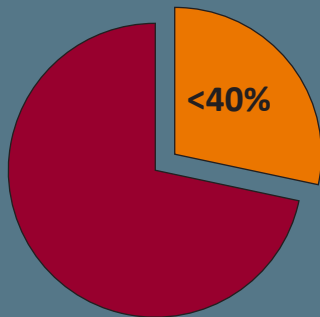
## The cheapest offer does not always win the project

Organizations that adopt professional sourcing strategies for software development projects, selecting suppliers that are mature in their estimation processes as well as in their delivery skills, are more likely to gain a competitive advantage by developing valuable software against reasonable cost, but also with the desired quality!

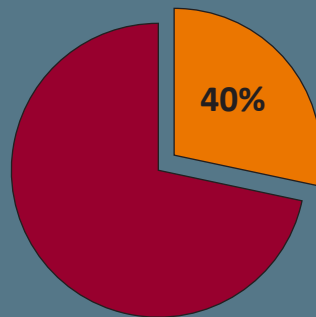
Many RFPs however still focus on price, awarding loads of points to the cheapest price quoted. However, starting with a low estimate usually results in a lot of trouble when it turns out the planning can't be met, which is usually quite late in the project. **Although price is still important, it is even more important that the price offered is realistic and reflects the true capabilities of the supplier in terms of productivity and quality.**

There is a trend in the industry in which contracts are not necessarily awarded to the cheapest supplier, all other things being equal. Some organizations actually learned from the past and understand there is no such thing as a 'free lunch'. In the end the payment for a cheap offer may be much higher than anticipated. **There are organizations out there that first consider the landing zone for a software project, before actually starting the sourcing activity. Determining the landing zone for a project not only enables these organizations to support the business case, it also enables them to assess which suppliers underbid the project and which suppliers are realistic in their offer.** By constructing the right scoring model for the RFP, realistic proposals should always be chosen over optimistic ones to avoid additional costs.

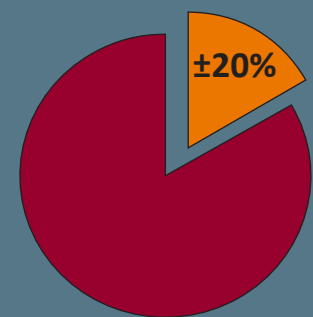
# Political attention for failing IT projects



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Of projects that fail completely is around 20%

Already back in 2004, the first Chaos report was issued by the Standish group. That report, and all later editions of that report, showed the poor success rate of software projects in the industry. The percentage of successful projects usually stays below the 40% and the percentage of projects that fail completely is around 20%. The remaining 40% of the projects were challenged in some way, experiencing schedule or budget overruns or delivered less functionality than requested, but were not considered a failure.

Project cancellations and project overruns are extremely damaging for any organization, as this basically implies that money that could have been spent on something more useful is washed down the drain. The same holds up for the staff that was involved in the cancelled project. Especially the failures of IT projects for the government are discussed widely in the press and among the general public, as the money wasted is actually tax payers' money. In the Netherlands, the government started an investigation ('Commission Elias') with the goal of understanding the reasons why so many government IT-projects fail and to come up with 34 recommendations to avoid failures in the future. The most important recommendation is the advice to install a 'Bureau ICT Toetsing (BIT)' that will be responsible to assess the reality value of IT project proposals with a value of over 5 million Euro.

***This political attention in the Netherlands helps maturing the industry in software cost estimation practices.*** For the BIT to be able to assess the realism of a program or project, the proposal should comply with certain guidelines with regard to structure and content. ***To facilitate the industry (all companies, not only the ones bidding for government contracts), The Dutch Nesma association, together with the American Association of Cost Engineering (AACE), have developed a framework for baselining a software estimate : 'Basis of Estimate for Software Services (BoE)'*** . This free document provides guidelines for the structure and content of a cost estimate specific to the software services industries (i.e. software project development, application maintenance & support, infrastructure, etc.). Adopting this document as a mandatory requirement for any project to be assessed would help the BIT enormously to structure the estimate and to assess it properly and to common

# Software Cost Engineering is becoming an acknowledged profession

Software Cost Engineering is a profession! However, in many organizations even large projects are estimated by just asking the engineers, architects, testers, project managers and other experts to come up with the estimate, based on their experience. In the Software Cost Engineering community, this is often referred to as 'Estimation maturity level 0'. Although these expert estimates are sometimes quite accurate, they are also subjective, not repeatable, not backed up by data, not verifiable and therefore not defensible. ***The problem is that humans (experts) systematically underestimate software projects and that starting software projects with unrealistically optimistic expectations usually results in huge overruns in the end.*** When the customer asks on what ground the estimate is based, you really don't wish to answer: "our engineers just think so".

The International Cost Estimation and Analysis Association (ICEAA), the International Function Point User Group (IFPUG) and the Dutch Nesma (formerly known as Netherlands Software Metrics Association) are forming a consortium to develop a Software Cost Engineering Body of Knowledge (SCEBoK) and a certification program for Certified Software Cost Engineer. Although this initiative just started, already a lot of enthusiastic reactions were received from the industry and many well-known software metrics gurus offered their support. The SCEBoK and associated certification have a huge potential in an industry that is struggling to come up with accurate software project estimations, for sure resulting in more successful projects and less waste.



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