

Title / Titel

## **Coding Effort: Taking Software Development Process Improvement to the Next Level**

---

Speaker(s) / Referent(s)

Rolls, Jason Raymond / BlueOptima, United Kingdom (UK)

---

To whom is the presentation addressed? / An wen richtet sich der Beitrag?

Those with overall software development delivery accountability, particularly where financial accountability and demonstrating value for money for a software development function is concerned. This may include test managers (depending on the organisation).

---

Keywords / Stichwörter

Risk Based Testing, KPI, Efficiency, Process Improvement, Delivery Capability Improvement

---

Abstract / Zusammenfassung

The cost of maintaining software applications now accounts for about half of the average IT budget and continues to rise[1]. Labour costs make up more than 80 percent of software development. Yet, labour is also the most difficult resource to optimize.

The key factors in taking control of software development costs are: The transparency of the end-to-end development process to help identify waste and inefficiency, and a clear view of software development resource utilization.

A central tenant of any engineering process is that of being able to reliably measure the output of the production process. Measures of quality are of course crucial however the value of quality metrics can only be realised when evaluated within the context of the overall coding effort or change within which defects were introduced. Metrics around coding effort are remarkably absent from most software development organisations which is surprising given the constant drive to improve the software development process by increasing efficiency and improving quality.

This paper presents different approaches that can be taken to quantifying developer effort and how it can be used to improve the efficiency of the software development process and to enable other initiatives such as risk based testing.

**EFFORT IS THE MISSING INGREDIENT**

Any of the production engineering processes that have caught the attention of the software development community have the concept of output at their core. For example, recently the concept of "Lean Manufacturing" has garnered some interest from the software development community. Lean Manufacturing inherently has the concept of minimising wastage at its core. Central to understanding waste is understanding where effort is invested - coding effort is clearly one of the major components of the software development process and this is the activity that generates the vast majority of defects that are encountered in the testing phases of most projects.

---

Obtaining objective and reliable measures of coding effort enables many process improvement initiatives such as:

- Phase Containment: Ensuring that coding effort stays in the coding phase.
- Risk Based Testing: Focusing the testing team's efforts into areas of significant coding effort.
- Application Portfolio Analysis: Consistent measures of coding effort enabling a consistent software development process review across the organisation-wide application portfolio.

## HOW DO WE MEASURE CODING EFFORT?

There are a number of ways of measuring coding effort; this paper will cover a range of these measures and evaluate their pros and cons. Examples include:

- 1) Function Points
- 2) Static Analysis Metrics
  - a) SLOC
  - b) Halstead's Complexity
  - c) McCabe's Complexity
  - d) Fan-In, Fan-Out
- 3) Time Based Measures

## CODING EFFORT IN ACTION

This paper will provide real-world case studies of how coding effort metrics have been used to deliver tangible software development process improvements.

[1] Applying Lean to Application Development and Maintenance. Noah B. Kindler, Vasantha Krishnakanthan, and Ranjit Tinaikar, McKinsey on IT, Spring 2007

---

### Biography / Biografie

Jason is the founder and Managing director of BlueOptima, a provider of analytics technology enabling businesses to measure, monitor, and manage the performance of software development teams. BlueOptima gives organisations the capability to objectively and independently evaluate the value for money they are getting from their software development resources be those resources in-house, local, outsourced, or offshore. Having this information allows organisations to achieve the most cost effective blend of on-shore or off-shore software development resources across an entire software application portfolio.

Jason is an experienced manager in the technology arena, he has over 10 years experience in programme management in software development and as a technical lead and project manager including a successful track record in the management of off-shore software development. Jason also has substantial business analysis and project management experience in front office investment bank trading applications such as Structured Derivative trading platforms within global investment banks such as JP Morgan, Merrill Lynch and UBS. Jason also has general business and technology consultancy experience with global consultancies such as Accenture and IBM Global Services.

Jason is still writing up his PhD at Cambridge University in the management of off-shore software

---

development while commercialising the technology arising from the PhD through BlueOptima. Originally from Australia, Jason currently lives in London with his German wife and two sons. Jason can't help but think that he really finds it rather difficult to know exactly what to write when asked to provide one of these bio thingys.

---

**Contact information / Kontaktinformationen**

Rolles, Jason Raymond  
BlueOptima

47 Fleet Street

EC4Y 1BJ London  
United Kingdom

---