

# **The Business Case for Software Reuse: Reuse Metrics, Economic Models, Organizational Issues, and Case Studies**

Jeffrey S. Poulin

Lockheed Martin Distribution Technologies  
Owego, NY 13827  
Jeffrey.Poulin@lmco.com  
<http://home.stny.rr.com/jeffreypoulin>

Successfully introducing a reuse program into an organization requires many things, such as proven processes, an organization for reuse, and management support. However, management needs to understand the value of reuse before they will allocate resources. Key to showing this value is a business case based on consistent, realistic, and easy to understand metrics. I have found that combining realistic assumptions with simple, easy-to-understand metrics often provides the incentive needed to “sell” reuse to management.

The business case for reuse has two parts. First, consider how much effort you save by reusing something rather than writing it yourself. Based on a lot of data, I have found that development savings range from 50-100% of new development (depending on the situation), with “typical” savings right around 80%. Reuse also avoids on-going maintenance costs, which further adds to this savings.

Second, consider how much it costs to write a component for reuse. Although it might cost from 0%-300% more to develop reusable components (again, depending on the situation), data shows that the “typical” additional investment lies around 50%.

In short, the business case for reuse consists of avoiding 80% of the development costs for reusing components (plus some additional maintenance savings) minus the 50% extra it cost to build the components in the first place. Using these simple metrics, it is easy to show that if you have two related projects, it will pay to base both of them on the same foundation of reusable components.

Even with conservative assumptions, the business case for reuse is overwhelming. Combined with proven “best practices” such as for organizing your team and for component management, metrics are critical to successfully rolling out reuse in any organization.

## **Reference**

Poulin, Jeffrey S. Measuring Software Reuse: Principles, Practices, and Economic Models. Addison-Wesley (ISBN 0-201-63413-9), Reading, MA, 1997.