

First Annual CAST Application Software Quality Study Reveals over \$1 Million of Hidden Costs in an Average Business Application

Largest study of software quality to date also shows these costs to be higher in government than private sector

September 28, 2010, New York, NY – In the largest study to date of the [structural quality](#) of IT applications, CAST, Inc., reported that the cost to fix a conservative number of problems that remain in an application once it is operational exceeds \$1 million for the average [business application](#). The cost of fixing these problems, often referred to as technical debt, is a primary contributor to an application's cost of ownership, and a well known driver of the high cost of IT.

Dr. Bill Curtis, CAST's chief scientist and senior vice president of the CAST Research Labs (CRL) and Director of the Consortium for IT [Software Quality](#) formed by SEI and OMG, explained, "The purpose of The CAST Worldwide Application Software Quality Study is to provide an objective, empirical foundation for discussing the structural quality of IT applications; that is, the extent to which IT applications are free from structural flaws that cause problems such as outages, performance degradation, security breaches, and data corruption."

CAST developed the study by first performing an [automated analysis](#) to measure the structural quality of 288 IT applications from 75 companies throughout a variety of industries. The study comprised a total of 108 million lines of code. Using the data drawn from the automated analysis, CAST made a conservative estimate of which problems would be fixed and how much it would cost to fix them, revealing an average cost of nearly \$2.82 per line of code. The average-sized application in the survey had 374,000 lines of code, translating into technical debt of over \$1,055,000 per application.

"We've long had the ability to benchmark applications at the project and process level. What's been missing is an industry look at the underlying technical quality of applications, a key driver of those higher-level productivity, cost and risk factors," said Matt Hotle, vice president distinguished analyst at Gartner. "In addition, data of this nature should prove valuable to organizations looking at issues such as application portfolio management and vendor lock-in."

Among its other findings, the CAST study showed that applications in government agencies scored lowest in changeability, an attribute that makes an application easier to modify or to transfer to another team. Low changeability scores indicate an application is more difficult to maintain, a condition that magnifies its technical debt. In CAST's sample, 75% of the government applications were outsourced compared to 51% of applications in the private sector. While maintenance costs for the government sector were not part of the study, the findings were consistent with Gartner's IT Spending and Staffing Report, 2010*, which stated the public sector spends 73% of its budget on maintenance, higher than in almost any other sector.

"There are many plausible explanations for these results," said Curtis, "multiple contractors working on different parts of an application, contractual disincentives for delivering high quality software, and the need for better software acquisition practices and management." Interestingly, the IT Consulting sector had some of the highest changeability scores for the applications they build for their own internal use.

"The study showed that software quality scores tended to be highest where there was a business mandate, such as higher security scores for the core business applications that run financial services;

CAST Headquarters
North America : +1 212-871-8330
Corporate & Europe: +33 1 46 90 21 00

Contact:
Jon Bloom or Gary Thompson
Clarity Communications for CAST
Web site: Claritycommunications.us
Twitter: Twitter.com/Perfect_Clarity
Email: cast@claritycommunications.us
Direct: +1-415-963-4082 x104

More Information about CAST:
Web site: castsoftware.com
Blog: blog.castsoftware.com
Twitter: Twitter.com/OnQuality

addressing technical debt is really a risk decision for IT executives,” said Curtis. “I can invest in fixing some of the structural quality problems now, or risk that they result in outages, breaches, or other problems that can cost far more than addressing the underlying technical problems. In any event, technical debt represents waste, resources I could have invested in developing new competitive functionality rather than reacting to emergent problems.”

Vincent Delaroche, CAST CEO, explained that, “The CAST Worldwide Application Software Quality Study is part of CAST’s commitment to provide IT executives with the information they need to manage the cost and risk of their mission critical portfolio. It is impossible to manage IT risk to business without transparent, quantified information about the structural quality of core application assets.” To obtain the Executive Summary of CAST’s 2010 Annual Application Quality Study, contact the CAST Information Center at +1 (212) 871-8330 or visit CRL at <http://research.castsoftware.com>.

*Gartner, Inc. , IT Metrics: IT Spending and Staffing Report, 2010, Kurt Potter et al, January 22, 2010.

About CAST

CAST is a pioneer and world leader in Software Analysis and Measurement, with unique technology resulting from more than \$80 million in R&D investment. CAST provides IT and business executives with precise analytics and automated software measurement to transform application development into a management discipline. More than 650 companies across all industry sectors and geographies rely on CAST to prevent business disruption while reducing hard IT costs. CAST is an integral part of software delivery and maintenance at the world’s leading IT service providers such as IBM and Capgemini.

Founded in 1990, CAST is listed on NYSE-Euronext (Euronext: CAS) and serves IT intensive enterprises worldwide with a network of offices in North America, Europe and India. For more information, visit: www.castsoftware.com.

CAST Headquarters
North America : +1 212-871-8330
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Email: cast@claritycommunications.us
Direct: +1-415-963-4082 x104

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Blog: blog.castsoftware.com
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