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ROI CASE STUDY MICROSOFT VISUAL STUDIO TEAM SYSTEM GLOBAL MANUFACTURER

THE BOTTOM LINE

A global manufacturer deployed Microsoft Visual Studio Team System to improve the consistency and efficiency of internal software development, enabling it to support adoption of the widely recognized Capability Maturity Model for software development. This enabled the company to increase developer, project manager, and tester productivity while improving software quality.

ROI: 203%

Payback: 6 months

THE COMPANY

The company is a manufacturer of complex and large-scale capital equipment with a global customer base and a number of ongoing software development teams working on various software development projects.

THE CHALLENGE

The company had adopted Capability Maturity Model Integration (CMMI), a methodology used to improve an organization's software development process, to improve both the efficiency of its software development and the quality of results. Given the rigor of CMM and the need for consistent techniques and tools, in 2006 the company began to look for a system to support CMM on a tactical and strategic basis.

The company also had more than 200 software development projects underway that could potentially impact Sarbanes-Oxley compliance. It also wanted a solution that would enable it to improve source code tracking so that managers ensuring compliance could more efficiently track, locate, repair, and manage related code.

THE STRATEGY

The company evaluated a number of potential solutions including Microsoft Visual Studio Team System, IBM ClearCase, and IBM ClearQuest. It selected Microsoft Visual Studio Team System for a number of reasons including:

- It found IBM ClearCase was strong in software configuration but had less process management capabilities, would have been difficult to centrally manage, and would require additional add-on software to support its requirements.

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- It found a number of other tools were too narrow in focus and functionality to support its complex development environment.
- Microsoft Visual Studio Team System had the breadth, scalability, CMM support, and source code management tools to meet its needs — at a reasonable cost.

The solution was deployed in one day and is now used by 20 developers, eight testers, and seven project managers. Although the deployment, which began in early 2006, is currently accessed by a targeted group of development teams, the company is considering expanding the use of the solution to the company's entire development environment to deliver even greater benefit.

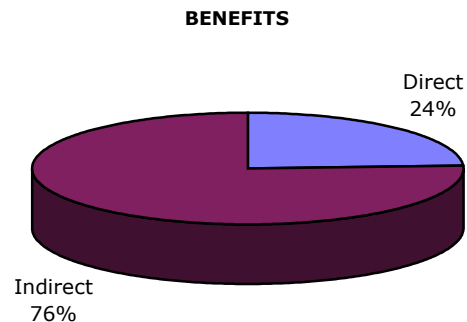
KEY BENEFIT AREAS

Microsoft Visual Studio Team System has enabled project managers, developers, and testers to collaborate more effectively, produce more bug-free software, and complete projects more quickly. Additionally, because projects can be completed faster, the company has been able to complete more projects without hiring additional staff. Key benefits from the deployment include:

- Improved project manager productivity. Microsoft Visual Studio Team System has enabled the company's five project managers to spend less time on tactical tasks and they now manage two to three projects at a time rather than just one. This has enabled the company to avoid hiring at least two more project managers, which is a direct benefit. The solution has improved project manager productivity in three areas:
 - > Source code management. At any time, the company has an average of 200 projects underway that impact Sarbanes-Oxley compliance. Microsoft Visual Studio Team System's merging and branching capabilities enable managers to audit the source code of their projects and identify all edits, changes, or additions that can impact compliance. The company found project managers have been able to use these features to both make their projects more compliant and spend far less time locating and repairing compliance-related code. The source code management features also enable managers to more rapidly recover lost and overwritten files.
 - > Staff meetings. Microsoft Visual Studio Team Foundation server — a component of Team System — has a Web-based collaboration portal and work-item tracking features that enables managers to spend less time in staff meetings and getting task updates. The company estimates that project managers have eliminated at least two hours a week spent in meetings.
 - > Reporting. Before the deployment, managers spent time building weekly Excel-based time sheets in order to allocate developer time to tasks and projects. Microsoft Visual Studio Team Foundation's work-item tracking collects this data and enables managers to save time by automating report generation by developer, task, or project.
- Improved developer productivity. Before the deployment, developers were distracted from new development work because they were supporting bug fixes in existing applications. Now the company's 20 developers use Visual Studio Team System's unit testing feature — which tests the functionality of a component within a program — to improve the quality of applications before

they are deployed. As a result, fewer fixes are required after deployments. Like their managers, developers also now spend less time in meetings and exchanging project update information as a result of Microsoft Visual Studio Team Foundation's collaboration portal and work-item tracking features. These are indirect benefits that enabled developers to become 25 percent more productive, complete projects more quickly, and complete more projects per year.

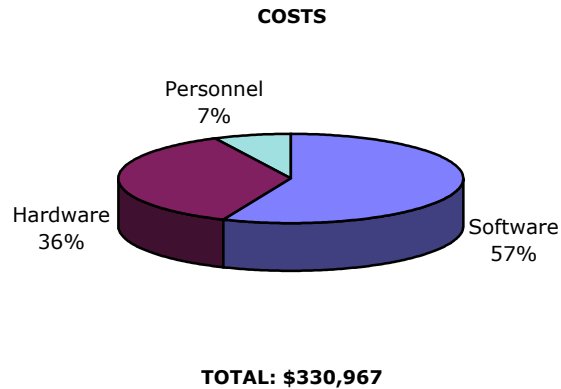
- Improved tester productivity. Before deploying Visual Studio Team System, the company's 10 testers spent hours manually testing an application by pretending to interact with it as an end user. Now that Visual Studio Team System has been deployed, testers use the testing automation tools — which rapidly simulate end-user interaction with an application or feature — to make testing far less labor intensive. As a result, they have increased testing productivity by more than 12 percent.
- Improved methodology adoption. Because Microsoft Visual Studio Team System is built to support CMMI-compliant development teams, the company was able to broaden adoption and use of its standards. As a result, there is more consistency in the way code is built and projects are managed. This has improved software quality, shortened project cycle times, and raised the morale of managers, developers, and testers while increasing their productivity.



TOTAL: \$2,840,063

KEY COST AREAS

Key cost areas for the deployment are software, hardware and personnel. Software costs consisted of Microsoft Visual Studio Team Suite licenses for its 35 users, Microsoft Visual Studio Team Foundation Server licenses, and annual maintenance. Hardware consisted of eight servers that are used for storing source code, data, and other artifacts related to project development. Personnel consisted of time spent by six IT staff members who each spend less than an hour a week making sure that the solution is properly configured for supporting the company. The company said the solution is extremely stable and has required very little maintenance and no fixes. Training costs were avoided because users received on the job training from internal staff familiar with the product.



LESSONS LEARNED

One reason the company's deployment of Microsoft Visual Studio Team System has been successful is because Microsoft is regularly adding functionality to the solution. For example, continuous integration — which enables the various portions of source code in a project to be integrated on a real-time rather than ad-hoc basis — was added after the deployment and this has increased the productivity benefits from the deployment.

CALCULATING THE ROI

Nucleus calculated the costs of software, hardware, and personnel over a 3-year period to quantify the company's total investment in Microsoft Visual Studio Team System.

Direct benefits consisted of avoided new hires of project managers that would have been necessary if the company had not deployed Microsoft Visual Studio Team System. Indirect benefits consisted of the improved productivity of developers and testers.

Not quantified was the benefit of extending the deployment to the rest of the company's development environment. The company is considering broadening the deployment to include 500 project managers, 2,000 developers, and 500 testers, which would significantly increase the ROI on the deployment.

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DETAILED FINANCIAL ANALYSIS

GLOBAL MANUFACTURER

SUMMARY

Project:	Visual Studio Team System
Annual return on investment (ROI)	203%
Payback period (years)	0.49
Net present value (NPV)	862,235
Average yearly cost of ownership	110,322

ANNUAL BENEFITS	Pre-start	Year 1	Year 2	Year 3
Direct	0	229,500	229,500	229,500
Indirect	0	717,188	717,188	717,188
Total Benefits Per Period	0	946,688	946,688	946,688

DEPRECIATED ASSETS	Pre-start	Year 1	Year 2	Year 3
Software	116,667	0	0	0
Hardware	120,000	0	0	0
Total Per Period	236,667	0	0	0

DEPRECIATION SCHEDULE	Pre-start	Year 1	Year 2	Year 3
Software	0	23,333	23,333	23,333
Hardware	0	24,000	24,000	24,000
Total Per Period	0	47,333	47,333	47,333

EXPENSED COSTS	Pre-start	Year 1	Year 2	Year 3
Software	0	23,333	23,333	23,333
Hardware	0	0	0	0
Consulting	0	0	0	0
Personnel	0	8,100	8,100	8,100
Training	0	0	0	0
Other	0	0	0	0
Total Per Period	0	31,433	31,433	31,433

FINANCIAL ANALYSIS	Year 1	Year 2	Year 3
Net cash flow before taxes	915,254	915,254	915,254
Net cash flow after taxes	481,294	481,294	481,294
Annual ROI - direct and indirect benefits			203%
Net cash flow after taxes (direct only)	122,700	122,700	122,700
Annual ROI - direct benefits only			52%
Net present value (NPV)			862,235
Payback (years)			0.49
Average annual cost of ownership			110,322
3-year IRR			195%

FINANCIAL ASSUMPTIONS

All government taxes	50%
Discount rate	15%