TELELOGIC TAU GENERATION2

Development visualized. Productivity realized.

Telelogic
20
YEARS
of software
innovation

Tele!ogic

The industry is at the breaking point

Software permeates the world around us. Cars need it to start, airplanes need it to fly, phones need it to connect, and patients in the hospital rely on it for their well-being.

Consequently, software is fast becoming *the* competitive advantage for more and more industries. This is especially true within the telecommunications, automotive, aerospace and military sectors. Additionally, the globalization and deregulation of many markets are making the competition razor-sharp.

And as software becomes the infrastructure of the modern world, it also becomes absolutely essential that software does not fail at a critical moment.

More software. Faster. Better. This is the challenge.

At the same time, software developers are required to work miracles with manual coding techniques and skeleton staffs. As a result, the software development cycle has become too long and inflexible. Developers spin their wheels fixing bad code instead of focusing on the architecture and design of the project – and product quality and final delivery deadlines suffer the consequences.

According to the Standish Group International, Inc., in 2000, 23 percent of software development projects failed, while 49 percent were "challenged" - meaning they were late, over budget, or delivered insufficient functionality. In this situation, companies run a great risk of losing their competitive advantage, as well as market share. What the industry needs is an alternative to manual, code-centric development methods as they obviously cannot meet the cost, quality and time-to-market demands of today's market.
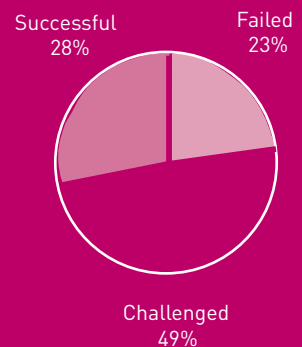
Successful
28%

Failed
23%

Challenged
49%

Figure 1. The results of software development projects in 2000, according to Standish Group International, Inc.

Telelogic TAU® Generation2
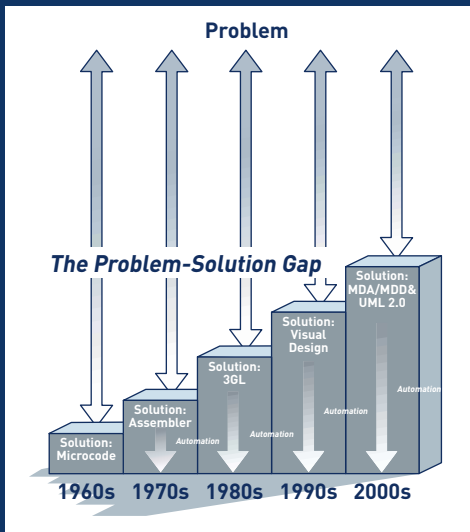# lets you take the next step

Figure 2. Developing systems and software is all about taking a problem statement – such as "I want to build a nation-wide mobile telephone system" – and examining it, stating requirements, analyzing needs, designing systems and finally building and testing a solution. Bridging this "problem-solution gap" is an intellectual exercise that requires people, time and money. Looking at the past four decades we can see that encapsulating and automating knowledge into tools and languages has allowed the industry to narrow this gap step by step.

UML 2.0 and MDA® are the latest steps in the ongoing trend to automate development and allow engineers to work at a higher level.

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Fortunately, the industry recognized years ago that the situation was becoming intolerable, and a number of industry initiatives were started with the objective to deliver new, capable and reliable technology standards that would help companies tackle the challenges of modern systems and software development.

Much awaited by the industry, these technologies have now hit the market for the first time in the shape of an integrated and flexible portfolio of tools for the development of real-time and other advanced systems and software: Telelogic TAU Generation2.

TAU Generation2 embodies three of the latest, most powerful techniques available for accelerated large-scale systems and software development and testing: the Unified Modeling Language™ (UML™) and many of the features of its latest major revision, UML 2.0, the powerful testing language TTCN-3, and the new way of building systems Model-Driven Architecture® (MDA®) approach. These three new industry-standards are incorporated into TAU's proven systems and software development platform to create a tool solution that is state-of-the-art while being robust and reliable.

TAU Generation2 is a break-through systems engineering and software development solution that liberates the industry from the manual, error-prone, code-centric approach that has dominated for too long, and allows it to take the next logical step to a more visual, automated and reliable development methodology.

The result? Improved project predictability, enhanced quality, substantially shortened cycle times, and significant cost reductions.

Telelogic TAU Generation2 – accelerated development of advanced systems and software

TAU Generation2 is an integrated family of tools that simplify, automate and accelerate the development of advanced systems and software. What sets TAU apart is that it is focused on helping companies meet the most demanding challenges of developing complex real-time and other advanced systems.

TAU empowers project managers, analysts, system engineers, designers, developers and testers with an integrated tool platform that offers a number of unique capabilities:

One shared development environment

Modern development projects are dependent on many teams to be successful: system analysts, software designers, programmers, testers, etc. TAU Generation2 allows companies to deploy one shared tool environment for the entire development organization, which unifies teams and minimizes the risk of delays and misunderstandings during handovers.

Tailored tools for different user communities

TAU Generation2 offers a number of role-based tools, tailored to the needs of different project members. With this, project participants have access to exactly the right information at the right time, which simplifies the development environment and speeds up the daily work. Additionally, it liberates companies from having to pay for unnecessary functionality, while still providing them with full flexibility.

Advanced UML system modeling

TAU Generation2 provides an advanced visual modeling environment that allows engineers to unambiguously specify system architecture, design and behavior using the latest industry standard visual development language, the UML 2.0. This powerful new language converges the flexibility of traditional programming languages with the speed of modeling notations. It establishes one "common language" for systems engineers as well as software developers, which enhances communication and coordination.

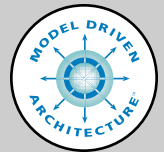## Model-based visual verification and simulation

TAU Generation2 supports model-driven development which allows users to focus on architecture and design and not implementation details. Additionally, with TAU Generation2, systems engineers and software developers can simulate the system under development at an early stage. The behavior of the system can be traced and analyzed, allowing the developers to understand and correct complex dynamic behavior and locate and removed errors when they are easiest – and cheapest – to correct.

State-of-the-art user interface

All tools in the TAU Generation2 portfolio follow the latest Microsoft Visual Studio user interface paradigm, which creates a familiar, easy-to-learn and efficient development environment. Built-in instant syntactic and semantic language checks improve quality, reduce errors and support a learn-as-you-go approach.

Automatic application generation

For advanced real-time software systems, TAU Generation2 can automatically generate compact, production-quality applications from the visual models. This includes full C application generation and extended C++ application generation, (for both general systems and small, embedded systems) which liberates engineers from tedious and error-prone hand coding and allows them to focus on what they do best: solving higher-level problems and adding new valuable functionality.

Powerful scalability and team support

Development organizations today are typically distributed, which puts high demands on tool solutions. TAU Generation2 includes powerful support for team-based development, including support for component-based methodologies, a flexible file storage structure, an advanced graphical compare and merge capability, and seamless integrations with leading configuration management systems. Additionally, in a unique way, the tool gives users access to high-level and detailed views simultaneously, with simple navigation and analysis at many levels.

An open and flexible tool solution

Telelogic TAU is an open development platform, based on standards such as UML, MDA, TTCN and XML. TAU is process-neutral and integrates smoothly with any existing development processes, whether they are internal or public. To enable a complete, flexible development environment, TAU offers tight integrations with other leading tools, including requirements management systems such as Telelogic DOORS® on the market as well as all leading change and configuration management solutions including Telelogic SYNERGY™.

Telelogic TAU Generation2 – next generation benefits delivered today

With TAU Generation2, companies can for the first time deploy across the entire enterprise an integrated, multi-user visual tool solution that supports and accelerates the entire application development lifecycle. Benefits include:

Minimized risk
Running a development project is all about managing risks: the risk of not getting your product to market fast enough; the risk of delivering a product that is not good enough; the risk of not being able to adapt to market or technology changes. TAU is a proven, reliable tool solution that creates a rapid, predictable and repeatable development process. Furthermore, as an open tool environment it comes integrated with all leading requirements and change management solutions.

Boosted productivity
Productivity is a matter of ensuring that each effort spent on a product actually goes into improving and expanding its functionality and quality. With TAU, engineers are allowed to work on a higher level and focus on solving the big problems before "getting lost" in the details. And the far-reaching automation of manual activities in the tool liberates software engineers from even having to worry about a lot of the details, in the end, dramatically reducing the cycle time.

Enhanced quality
Errors that are introduced early in the process are costly to correct if they slip into the next phase – and horrendously expensive if they make it into the final product. A common approach to this is manual code reviews, which tend to be costly, time-consuming, and incomplete. With TAU, models can be visually simulated, allowing developers to find both quality problems and design flaws at the early stages of development. Engineers can test their own parts of the system on an ongoing basis – and prioritize quality.

Improved predictability
Having a rapid development process is excellent, but even more important than that is to create a predictable process: project managers need to know what each engineer is doing, what they have completed so far, how long the next phase will take, etc. TAU lets companies deploy a single, integrated tool platform for streamlined development of advanced systems. The possibility to easily divide a system up, the focus on design and architecture, the automation of manual and error-prone activities, the seamless handover of data between project phases – all this contributes to a predictable development process.

Simplified communication
Improving communication between project participants, with management and with customers significantly reduces project risk. Since TAU is based on visual languages, it makes communication easier, and dramatically lessens the need for documentation. In fact, the visual languages of TAU are so powerful that the tool has a long history of being used to specify international standards such as 3G, 802.11 and GSM. Furthermore, the simulation capabilities of TAU allow project members to demonstrate the behavior of the system under development, and get early feedback from stake-holders.
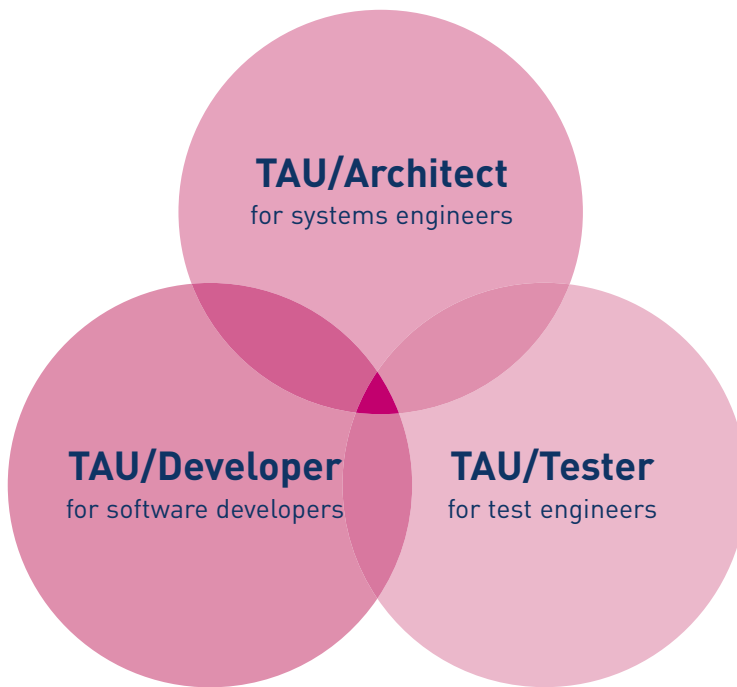
Reduced costs
Reducing costs in a project can be achieved in many ways. Improved productivity saves money since it allows the company to use human resources in the most efficient way. Just as important, but often overlooked, is reducing maintenance costs, which account for a great deal of the total lifecycle cost of a system. The fewer the errors detected after

TAU/Architect
for systems engineers

TAU/Developer
for software developers

TAU/Tester
for test engineers

release, the lower the costs. Maintenance also involves adapting the system to a changing environment. Because TAU creates visual and easy-to-understand designs, such modifications are less costly.

Protected investments

Installing a new development environment and getting people up and running with it can be a challenge. TAU is built on an open architecture that integrates smoothly with other parts of your development environment, such as quality processes, requirements management systems and change management solutions. Furthermore, TAU is completely based on internationally standardized languages, which ensures that there will be a steady supply of skilled engineers ready to use the tool, and that it will continue to evolve as the industry advances further.

Telelogic TAU Generation2 – a tool portfolio that covers all your development needs

Advanced systems and software development is a complicated process that involves many different types of expertise and one tool does not meet everyone's exact needs. Consequently, the TAU Generation2 products are role-based and include different levels of functionality targeted to different user groups. At the same time, they are all built on the same platform and offer identical user interfaces, which minimizes the learning curve and accelerates deployment of the system.
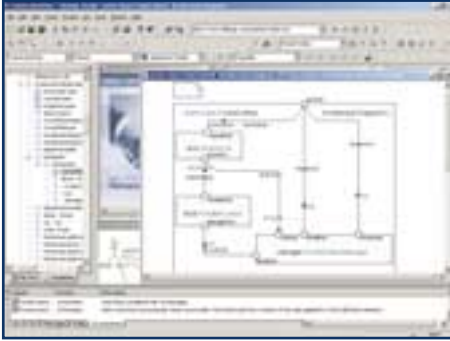
TAU/Architect

Telelogic TAU/Architect is a modern, model-based system engineering tool for the analysis and specification of advanced systems. TAU/Architect supports comprehensive modeling of large and complex systems using the non-proprietary visual notation of UML, resulting in precise, easy-to-understand and unambiguous specifications. Uniquely, with TAU/Architect, system engineers can specify not only the structure, but also the behavior of the system under development. In addition, the specifications can be simulated to verify and validate the system and demonstrate its behavior to end-users and other stake-holders at an early stage.

For software projects, the value of having a common notation – UML – for specification and development improves communication between teams and increases organizational efficiency.

An integration with Telelogic DOORS ensures that system specifications can be easily traced to the requirements, and an integration with Telelogic DocExpress ensures complete, updated documentation of the system under development. Integrations with leading change and configuration management solutions, including Telelogic SYNERGY, enable work in large and distributed teams.

TAU/Developer

Telelogic TAU/Developer is a state-of-the-art UML-based tool for developing robust advanced real-time software applications. TAU/Developer's model-driven approach delivers significant productivity gains compared to traditional programming as it allows teams to rapidly develop large-scale and complex real-time software systems. Its intelligent automation of manual, error-prone activities improves quality and reduces development time and required resources, and efficiency is enhanced since users can focus their efforts on the architecture, analysis and design of software.

The tool's unique technology allows visual simulation and verification of real-time behavior, which eliminates errors as early as possible. It also allows 100% automated generation of application software which removes the need for round-trip engineering and ensures top quality code.

Requirements compliance is ensured through an integration with Telelogic DOORS and the documentation is always up-to-date based on a built-in integration with Doc-Express. TAU/Developer comes with integrations with the market's leading change and configuration management products, including Telelogic SYNERGY.

TAU/Tester

Telelogic TAU/Tester is a powerful tool for automated systems and integration testing based on the general-purpose test language TTCN-3. TAU/Tester brings automated testing up to speed with today's state-of the-art development tools, providing the highest levels of functionality and supporting the full test cycle. TAU/Tester allows sharpened focus on test development since the TTCN-3 language is abstract and portable and independent of the development language or test equipment.

With TAU/Tester a company can drastically simplify its test environment removing the need to support many tools or costly in-house solutions. TAU/Tester ensures increased productivity based on full automation that eliminates manual, non-repeatable and ad hoc processes. TAU/Tester enables companies to leverage off-the-shelf test suites, allowing them to more quickly focus on business-critical functionality.

TAU/Tester simplifies team-based test development because it is integrated with Telelogic SYNERGY and other leading change and configuration management solutions.

Telelogic – a complete life-cycle solution for advanced systems and software development

Developing advanced systems and software is an increasingly difficult challenge. Development cycles are shrinking and market expectations are growing. Competition is sharpening, and companies are under pressure to deliver increasingly sophisticated products at an ever-accelerating rate – with no room for mistakes. At the same time, projects are becoming larger and more complex.

The industry is at a crossroads. Success is a matter of choosing the right path.

Telelogic provides industry-proven tools and services for advanced systems and software development that will help you achieve your business objectives. Our automated and open lifecycle solution includes integrated best-in-class software and professional services for requirements management, change and configuration management, visual systems and software development, testing, and documentation.

The Telelogic difference

The Telelogic tools are built on an open architecture that ensures interoperability with other leading third-party solutions and integrates smoothly with in-house tools and processes, thus protecting investments in existing development environments. The tools are augmented by a comprehensive professional services offering. Our teams are focused on supporting complex development initiatives in the most demanding of industries, including telecommunications, defense, aerospace, automotive, financial services, and medical equipment manufactures.

Requirements management – Telelogic DOORS

Telelogic DOORS® is the market leader for requirements management. With DOORS, users can compile, trace and manage all requirements established for a project, ensuring that the resulting product meets all defined customer needs.

Change and configuration management – Telelogic Synergy

Telelogic SYNERGY™, named the most advanced change and configuration management system on the market by Yphise in its 2003 report, is a project tool that tracks changes and ensures configuration integrity during a software product's lifecycle, enabling parallel and distributed teams to improve productivity and quality.

Visual software development – Telelogic TAU

Telelogic Tau® is a visual development tool platform, based on UML. TAU ensures fast start-up and future-proof investments, and through the automated simulation and complete application generation, significant cost and time-to-market benefits are achieved.

Testing – Telelogic TAU

Tau® is also a test solution that leverages the latest, standardized test language, TTCN-3. This facilitates efficient testing of systems and software in large, distributed organizations, for increased quality and reliability.

Documentation – Telelogic DocExpress

Telelogic DocExpress™ is the industry's most widely integrated automated documentation product that provides automated documentation through combining data from multiple tools into a single concise view, maintaining up-to-date project documentation and standardizing style and formatting of reports.

Partners and alliances

In this rapidly changing industry, it is clear that no single company can solve everything, for everyone, all the time. Throughout the project lifecycle, customers look to address their particular needs with various software tools and services. The Telelogic's Alliance Partner Program (TAPP) is designed to extend our reach to customers, while strengthening our solutions with best-in-class complementary products and services from today's industry leaders. Together with more than 50 leading partners, Telelogic gives our customers globally supported, flexible solutions to their development challenges.

Telelogic – putting you ahead in development

By providing an automated, integrated and open portfolio of software tools, Telelogic improves productivity for individuals as well as organizations, ensuring that advanced systems and software are developed:

- Faster
- More cost-efficiently
- With better quality
- Using a predictable and reliable process

About Telelogic

Telelogic® is the leading global provider of solutions for advanced systems and software development.

The company's automated lifecycle solution includes integrated best-in-class software and professional services for requirements management, change and configuration management, development, testing, and documentation. Telelogic enables organizations to dramatically improve quality and predictability, while significantly reducing time-to-market and overall costs in systems and software development.

Telelogic DOORS®, Telelogic SYNERGY™ and Telelogic TAU® cover all key aspects of advanced systems and software development: requirements management, change management and visual software engineering. Telelogic's products are built on an open architecture that ensures interoperability with other leading third-party solutions.

To help ensure customer success with our products as rapidly as possible, our Professional Services team provides knowledge and expertise in training and implementation, project management, prototyping and application development.

A key part of Telelogic's strategy is the support of international standards. Where possible, Telelogic's products are built on standardized languages and notations. Telelogic also participates in standards and industry bodies such as ITU/T, ETSI, INCOSE and OMG, to monitor and help create future systems and software development/testing standards.

Telelogic is a public company headquartered in Sweden. Customers include Alcatel, BAE SYSTEMS, BMW, Boeing, DaimlerChrysler, Deutsche Bank, Ericsson, General Motors, Lockheed Martin, Motorola, NEC, Nokia, Philips, Siemens and Thales.

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