Executive Summary

Accelerate software business transformation with TietoEVRY R&D tooling solutions

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R&D capabilities discover breakthroughs that set a company apart from its competitors and make it ready to take the next step accordingly. Companies that provide software products or solutions constantly need to keep up with the emerging market trends to increase their market share. Few of such emerging market trends are:

- Producing more number of features faster
- Having more frequent releases and updates
- Maintaining or reducing costs
- Maintaining high-quality deliveries

At the same time, many emerging technologies are affecting the way products and services are developed, deployed and hosted. Few of the most common market trends include Cloud, Containers and Microservices, together with agile and DevOps ways of working.

Traditionally in the past recent years, almost everything was delivered as products. On the contrary, today, more and more products are delivered as services (SaaS). This paradigm shift in the way products or services are delivered has opened ways for new deliveries along with additional revenue streams. In addition to this, this transition has introduced new potential challenge like lack of control on full solution life cycle.

As pressure increases to meet these rapid disruptive changes, companies are looking for more R&D innovations to transform their traditional way of working. Also, this has led organisations to embrace more automation and tightly-integrated tool suites. The usage of efficient tools complement R&D innovations and are thus more important than ever. The R&D tooling market is diverse and evolving fast. This makes it difficult for software companies to keep up with the advancements in the tool market.

To address and resolve these challenges, this white paper introduces TietoEVRY's R&D tooling solutions and related services, primarily applicable for software-development companies to fuel their R&D capabilities and gain a competitive edge in the market.

This white paper is the most informative for:

- CTOs
- Key personnel responsible for product development
- Architects and senior software developers

Challenges

Challenges in software product development

The world is changing at an ever-increasing pace. With the emerging new technologies, things, which were creating marks in the past, are now under constant review for a change.

For a long time, the product development cycle ranges from **12-18 months**. However, with the use of Agile and Test Automation the product development cycle is shortened to **six months** release cycle with two new versions annually. Today Internet-based companies like Google, Amazon, et al, possess the capabilities to release new versions of their services with an impressive speed of **several times per minute.**

This faster turnaround of products can only be achieved by using a combination of new ways of working (like DevOps), new deployment mechanism and principles (using Continuous Release and Deployment), new architectural principles (like Microservices), and in addition a more dynamically scalable run-time environment (using Cloud and Containers).

This is how organisations will have to transform..

To meet the requirement, both the organisation and the product itself will have to go through several transformations. For example:

- Transforming from a product delivery organisation to **service delivery** approach
- Integrating the development and operations teams to achieve **DevOps**
- Making products and solutions **cloud-native** to reduce costs

These transformations will affect the entire organisation and in many cases redefine the overall company's operational model. Many organisations have a built-in resistance to change thus resulting in a longer time to implement the required changes. These changes need to be introduced in an evolutionary approach, where the vision of the transformation is clearly understood and communicated followed by an outlined plan for the introduction. But it is often hard to find the resources in-house that can drive and lead these type of transformation projects.

Technical challenges to tackle

Besides organisational changes, there are also various technical challenges that need to be handled using a systematic approach. Today, many organisations are struggling to:

- replace monolithic applications with **Microservice** components
- move from static runtime environments to **Cloud and Container** based deliveries
- embrace **full test automation** to increase delivery turnaround time
- use **open-source** solutions and components to increase efficiency and innovation speed

These disruptive technical changes will affect the overall product development across all disciplines (product management, architecture, design, test, support, etc.). The real challenge is to introduce all these new technologies and technology stacks in an evolutionary way without overengineering at the first implementation and rather gradually learn and adapt. Evolution rather than revolution is the way forward.

The innovations in these technology areas are occurring fast. It is nearly impossible to keep track of all new frameworks, tools and processes that are constantly available in the market. The challenge is to identify new technologies that can bring market value to the product or product development. Once these technologies are identified, it is important to learn how to use them efficiently.

Developing and delivering service in the new way

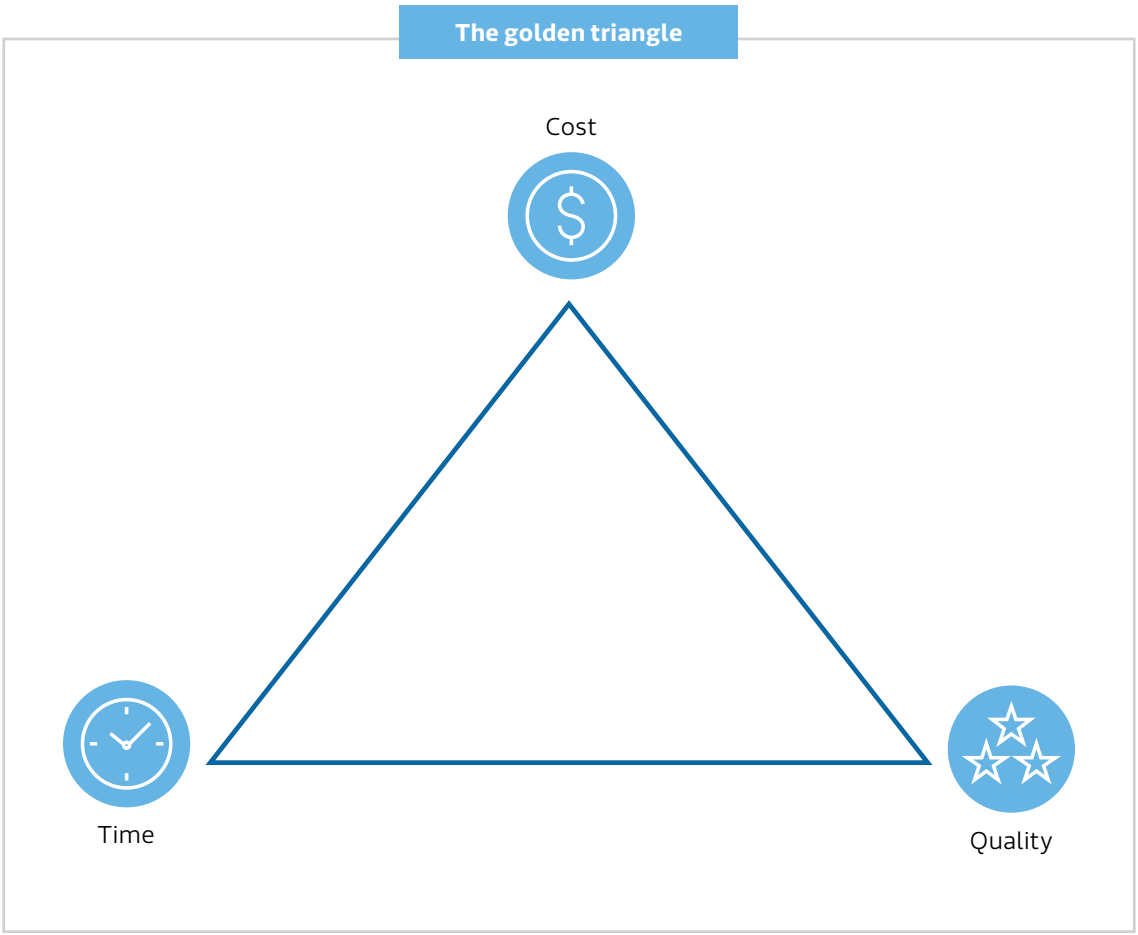
New ways of creating and delivering a service also require changes in other areas like:

- Extending Continuous Integration Pipelines with **Continuous Deployment and Release capabilities**
- Achieving **high perceived quality** with the usage of fast forward deployments
- Making products cloud-native to enable capabilities to deploy to **any cloud-provider**

This not only challenges the test process and the overall release process when it comes to technical aspects but also the administrative tasks (like management and change management). The quality assurance and test processes will have to adapt to new ways of handling potential defects. In the past, a lot of effort has gone into identifying and fixing defects before having a new release. With new ways of thinking, it is more important to achieve perceived quality and instead have the capability to quickly fix any problem and have a new release.

Maintaining a status quo let any company's competition pass by. Continuous improvement is the key to remain efficient and profitable.

Market pressure aims at keeping the focus on cost all the time. The challenge is to strike the right trade-off balance between adopting changes and having cost control.



What is next? Artificial Intelligence, Machine Learning and Big Data analytics are emerging technologies in almost all business areas. For a product development company, the next steps is to deploy these technologies in various solutions, like **predictive maintenance** and **automatic decisions making.**

All these changes introduce specific challenges at various levels. One common requirement for all these transformations is to introduce the need to have more advanced tooling support.

TietoEVRY R&D tooling

Keep the focus on core business

Providing world-class products and services is a challenge in the global economy. Competition landscape and cost pressure are hard to handle. All development resources of a company and their capabilities must, therefore, focus on developing something that generates revenue.

Spending valuable development hours on maintaining and operating the software production pipeline is not the optimal resource utilisation. Outsourcing the R&D tools and solutions increase efficiency thereby controlling overhead costs of the software production system.

TietoEVRY R&D tooling services focus on Application Lifecycle Management (ALM) solutions. These solutions provide the full life cycle support for an application or a system, like:

- Requirements management
- Issue and defect handling
- Collaboration
- Configuration and version management
- Continuous integration, delivery and deployment

ALM solutions provide means to implement full traceability—from requirements through to the design, testing, and ultimately deployment. It also provides a standardised environment to achieve high-speed release cycles with maintained control. A typical ALM stack includes tools like **Atlassian JIRA** and **Confluence**. However, a pre-integrated tool suite like **GitLab** is a common set up. Tools in an ALM suite define the overall life cycle mechanism of a software and integrates with industry and domain-specific tools (like compilers).

TietoEVRY R&D tooling services are vendor and tool agnostic, covering:

- Commercial solutions
- Open source solutions
- Propitiatory custom-specific solutions

TietoEVRY R&D tooling service is not restricted to any specific set up, but rather provides optimal set up for a specific customer. TietoEVRY R&D tooling services are divided into 3 areas.

Consultation services

We offer support to clients by giving advice around development efficiency, tools and related technologies, and lead the transformation. Often the service begins from facilitating a kick-off workshop (like value stream mapping) with a purpose to define a vision and outlining a roadmap to achieve the overall objective.

Tool teams

To offload tasks in a product development organisation, TietoEVRY offers teams that that can handle the entire toolchains and delivery pipelines. Typically, service is delivered using remote connections and in a global delivery set up. The commonly included services are:

- Maintenance
- Operation and support

However, for any further development of solution, the teams possess software development competencies. The primary focus of the team is the ALM and supporting tools than customer-business-specific tools.

Outsourcing of individual tools or toolchains

There is a shift in the focus with the introduction of new ways of working and new tools. Still, the currently used tools and toolchains must be in use and operational for several years. TietoEVRY service accommodates handling a single tool or an entire tool suite. It includes:

- Development
- Maintenance
- Operation and support
- Requirement management
- System management (architects)

The service offering also includes managing other aspects of the tool life cycle, like:

- Licenses management
- Open source management

The operational model is often achieved with a partnership approach rather than the traditional vendor and supplier set up. This way of working is the result of long-term engagements achieved by gaining mutual trust.

Customer Reference

Customer reference example:

Cost-efficient tool portfolio management for a large network equipment provider

A large network equipment provider aimed for reduced cost of ownership of their tool portfolio covering Issue Handling, Engineering Integration Framework and Atlassian tools. TietoEVRY took over the lifecycle management of the portfolio supporting more than **40,000 users.**

Challenge

- The high cost of current service
- The need of faster and more flexible way of delivering new functionality
- The solution shall not influence high availability, performance and quality

How we helped

- DevOps team offers lifecycle management services ranging from application development, operations, 24/7 on-call assistance, and maintenance of technical product management
- DevOps team provides flexibility in ways to deliver software using one backlog covering various applications and tools in the portfolio

Customer value

- The reduced total cost of ownership up to 75% for applications and tools
- Faster delivery with new functionalities—from 3 months to 5 weeks
- Improved service performance by 40% and reached 99.95% availability
- Outstanding customer satisfaction scores 96%

Customer testimonial

“For several years, TietoEVRY has taken responsibility for the development and operation of parts of our tool environment. The commitment was developed from several smaller orders to a fixed-price order where we jointly discussed what would be prioritized for the next period. It has given both operational stability and at the same time flexibility to prioritize the most urgent improvements in the tool environment at a fixed cost. With delivery both from Sweden and the Czech Republic, TietoEVRY has managed to provide an attractive price, while the proximity in Sweden has meant a simple interface with TietoEVRY as a supplier.”

Torbjörn Nyman
Product Area Manager

TietoEVRY creates digital advantage for businesses and society. We are a leading digital services and software company with local presence and global capabilities. Our Nordic values and heritage steer our success.

Headquartered in Finland, TietoEVRY employs around 24 000 experts globally. The company serves thousands of enterprise and public sector customers in more than 90 countries. TietoEVRY's annual turnover is approximately EUR 3 billion and its shares are listed on the NASDAQ in Helsinki and Stockholm as well as on the Oslo Børs. **www.tietoevry.com**

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