



Key opportunities in evolving Product Engineering Services market

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Product Engineering Services in brief

Tieto Product Engineering Services helps our customers with their product R&D through

- ✓ Strong domain-specific knowledge and competences
- ✓ World-class software R&D processes and WoW
- ✓ Global delivery model

We serve customers in 4 main product segments

- ✓ Telecom infrastructure
- ✓ Mobile devices
- ✓ Semiconductor chipsets
- ✓ High-tech electronics, e.g., automotive

We are 4500 experienced engineers with main sites in

- ✓ Sweden
- ✓ Finland
- ✓ China
- ✓ Germany
- ✓ Poland
- ✓ Philippines
- ✓ Czech Republic
- ✓ Denmark

Product Engineering Services (PES)

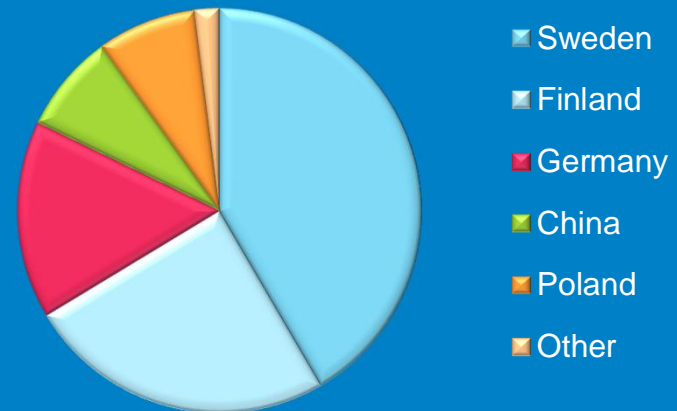
Based on the new structure effective 2013 (pro forma)

Customer sales 1–9/2012:
EUR 250 million (pro forma)

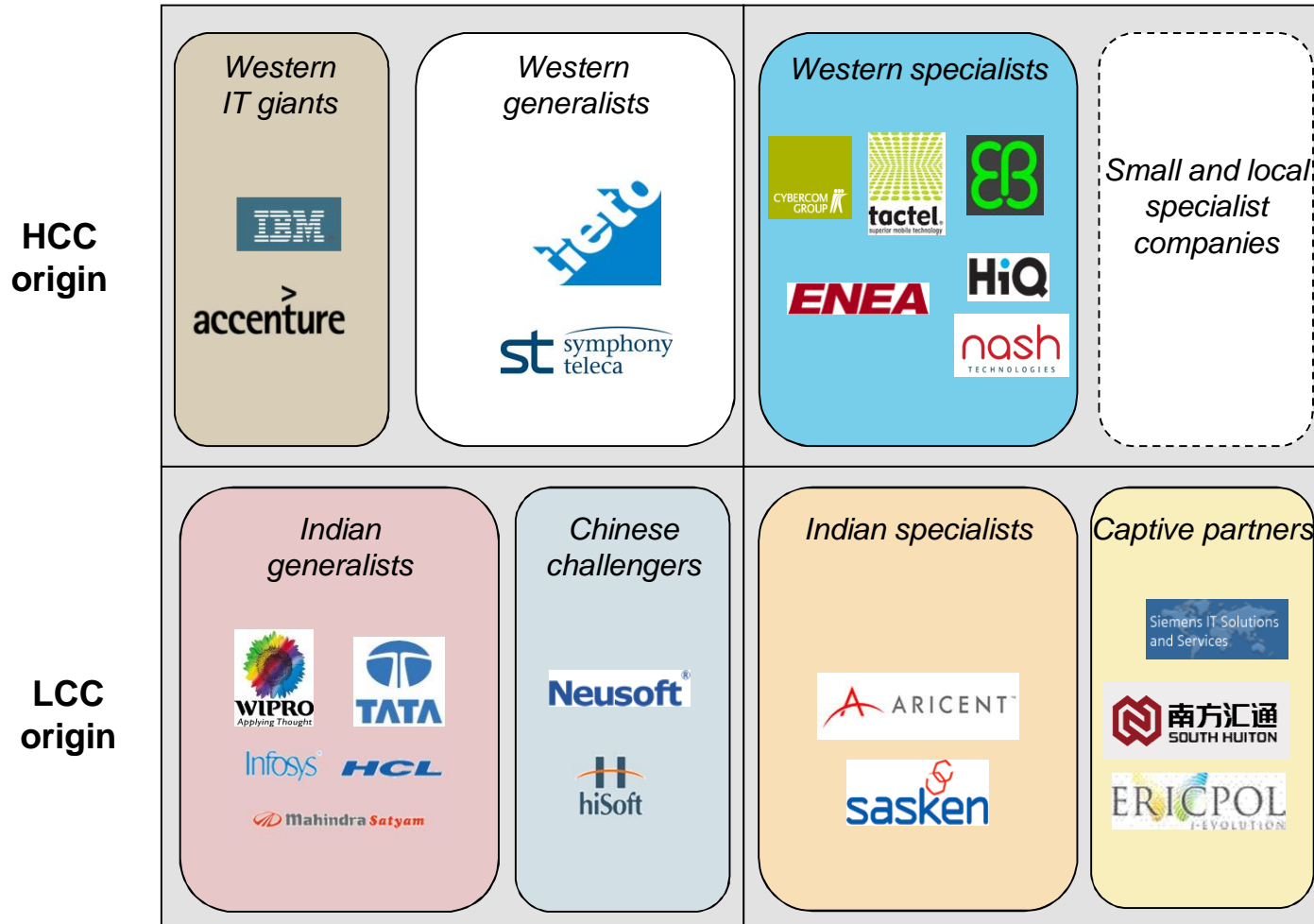
Personnel:
~ 4 500 (pro forma)

Market position:
Top 3-5 globally in its main segments
Excellent footprint for Europe and Asia based customers

Sales by country



Competition is coming from both Western and Asian companies



IT generalists w/ R&D service lines

R&D focused



**What is our
market?**

Trends driving product engineering R&D spend

Increased use of electronic components and communication technologies overall

Attention to the environment, alternative fuels and renewable energy

Convergence of technologies and crossing of device boundaries

Increasing demand from hundreds of millions of new middle class consumers in emerging markets

We are witnessing an explosive growth in data traffic and # of connected devices

Daily internet traffic in EU in 2020:

23x of 2012 traffic

UMTS Forum, 2007

20 billion connected devices by 2020 and a **300-fold increase in traffic**

Intel, 2009

50 billion internet connected devices by 2020

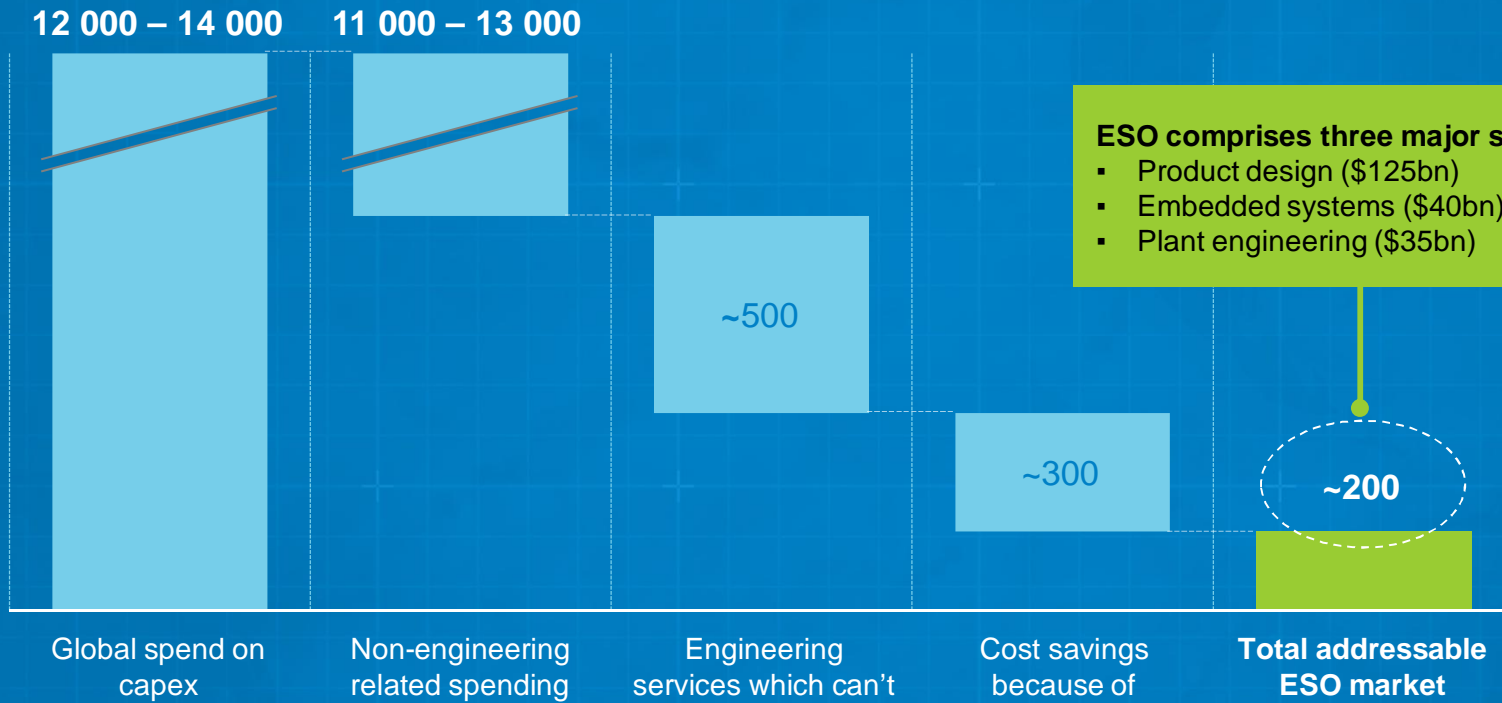
Ericsson, 2010

500% wireless penetration is possible

Verizon, 2009

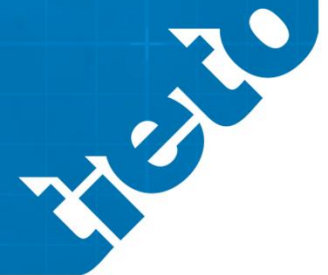
Addressable market for Engineering Services Outsourcing in 2015 will be ~\$200bn

\$ bn, 2015



- ESO comprises three major segments**
- Product design (\$125bn)
 - Embedded systems (\$40bn)
 - Plant engineering (\$35bn)

Category	Value (\$ bn, 2015)	%
Global spend on capex	12 000 – 14 000	100
Non-engineering related spending	11 000 – 13 000	92
Engineering services which can't be outsourced/offshored	~500	4
Cost savings because of outsourcing	~300	2.5
Total addressable ESO market	~200	1.5



Embedded systems provides the biggest near-term opportunity for Tieto



Still very low penetration of outsourcing as % of total R&D spend

Share of embedded SW increasing in many areas

Scale efficiency benefits coming from OSS, platforms, cloud, etc.

Embedded systems engineering services

Major industry verticals covered

- Communication systems – handsets and infrastructure
- Computing and storage
- Medical equipment
- Automotive electronics

Key services

- Chip design – ASIC
- Mechatronics – integration of electronic and mechanical design
- Embedded software design incl OS, middleware and application development
- Board design
- Testing and prototyping



R&D seen as core for many key players

Complex product portfolios making outsourcing of individual products difficult

Outsourcing mainly used for flexibility to cope with the cyclicity of the business

Three main trends impacting our market

Consolidation of providers

- Customers are increasingly moving away from niche providers, which are seen as **more expensive and increasing complexity while larger players gain capabilities** – focus is on consolidating to providers able to **serve a wide variety of needs**

Moving to managed services in a controlled way

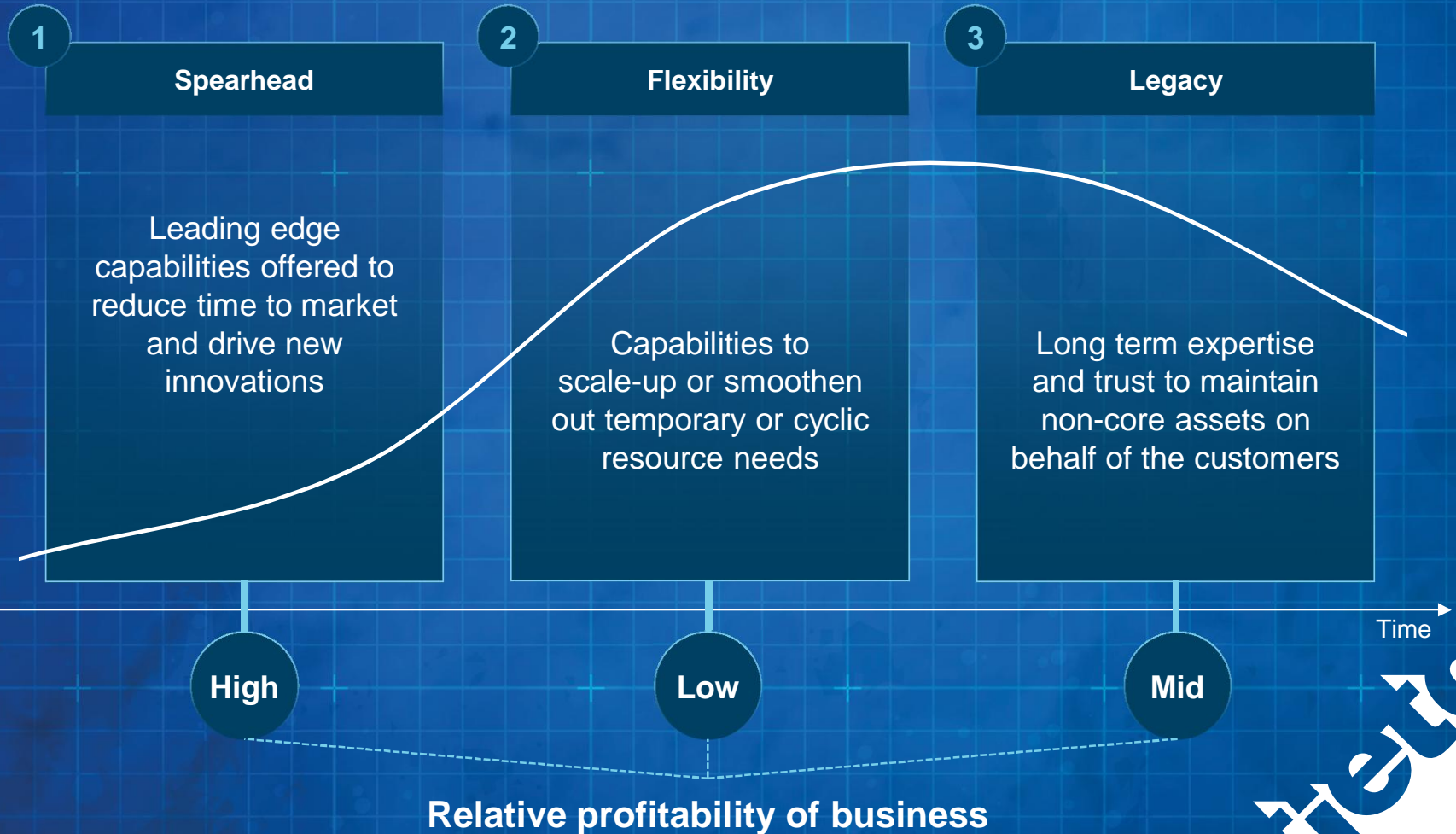
- Trend towards managed services instead of pure capacity is continuing
- Customers are outsourcing **specific processes entirely**, but maintaining more **control over coordination** between processes

Changing demands due to more intertwined product portfolios

- More focus on **co-operation between the customer and service provider** (e.g. in cases where ESP is handling a mature product family and company itself the latest generation)

**What is our
business
model?**

Product engineering services market has consisted of three kinds of business models



New success factors for engineering services providers

**From
outsourcing
to services
and solutions**

From **generalist** to **domain specialist**

From **low-cost provider** to **productivity driver**

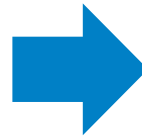
From **body shopping** to **ecosystem partner**

**How does
Tieto plan to
differentiate?**

First new generation service offerings launched

R&D Excellence

A holistic way to improve R&D efficiency by optimizing process, methods and tools /technology integration



Tieto Product Engineering R&D Excellency offering

Time-to-Market

- Integration lead times reduced by 20-50%, test lead times reduced up to 70% with advanced agile tooling contracts
- Maximizing Agile processes via streamlining with development environment
- Minimize dependencies to hardware development cycles with emulated test environment

Quality

- Defect slip-through to later development phases can be reduced by 60% due to pre-configured quality gates in delivery chain
- Centralized real-time view of software status via product health dashboards, easy follow-up of area-specific risks
- Transparent and clear linkage of delivery chain benefits to business processes (decrease of maintenance costs, avoidance of penalties, increase of release schedule accuracy)

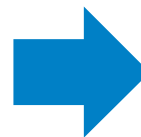
Efficiency

- Feature implementation productivity can increase up to 400% with high-quality delivery chain
- CAPEX savings of up to 60% from less maintenance, HW/platform resource optimization, virtualization and emulated test environments
- Cost reduction up to 40% via centralized tool portfolio governance and economies of scale

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Carrier cloud

Thought leadership, R&D services and solution accelerators to implement carrier cloud in core networks



Tieto Product Engineering Carrier Cloud offering

Solution Accelerators

- Intel® Dpdk
- Tieto IP-stack
- Turnkey Migration projects
- Expert consulting

Services

- open source components / 3rd party components
- Joint go-to-market
- Scalable R&D project capability
- Strategic R&D Capability
- Legacy systems Responsibilities

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Tieto targets growth with PES and better profitability through scale and solutions



Size of the bubble represents revenue in 2012 and 2016 (M€)

PES focus

- Domain knowledge and solution offering
- World-class scale, quality & processes and customer intimacy
- Global delivery model

Tieto Product Engineering Services pursues global growth opportunities as part of Tieto Group

Internet of things, billions of smart connected devices and explosive data growth through cloud and SaaS drives the demand for product engineering services

- Tieto Product Engineering Services is well positioned through strong domain knowledge, world-class software R&D competences and global delivery model
- We maintain strong operational focus to execute our plans with current customers and expand to new customers for whom we have a strong offering
- Tieto's strategy and plans for PES will be revisited during 2013 to formulate an implementable growth plan

**Knowledge.
Passion.
Results.**