

Technology Management in Ericsson

27th of November 2007 @ TKK

Outline

- Quick overview of Ericsson
- Technology management
- Innovation management

Background – Visa Friström



- Graduated from TKK last November
 - Telecommunications management major
 - Business strategy and international business in minor
- Master's thesis for Ericsson on technology management
- Currently Global Graduate trainee in Ericsson
 - 1,5 year global managerial training program
- Hopes to become a good kite surfer (left image)

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Ericsson vision

The prime driver in all-communicating world

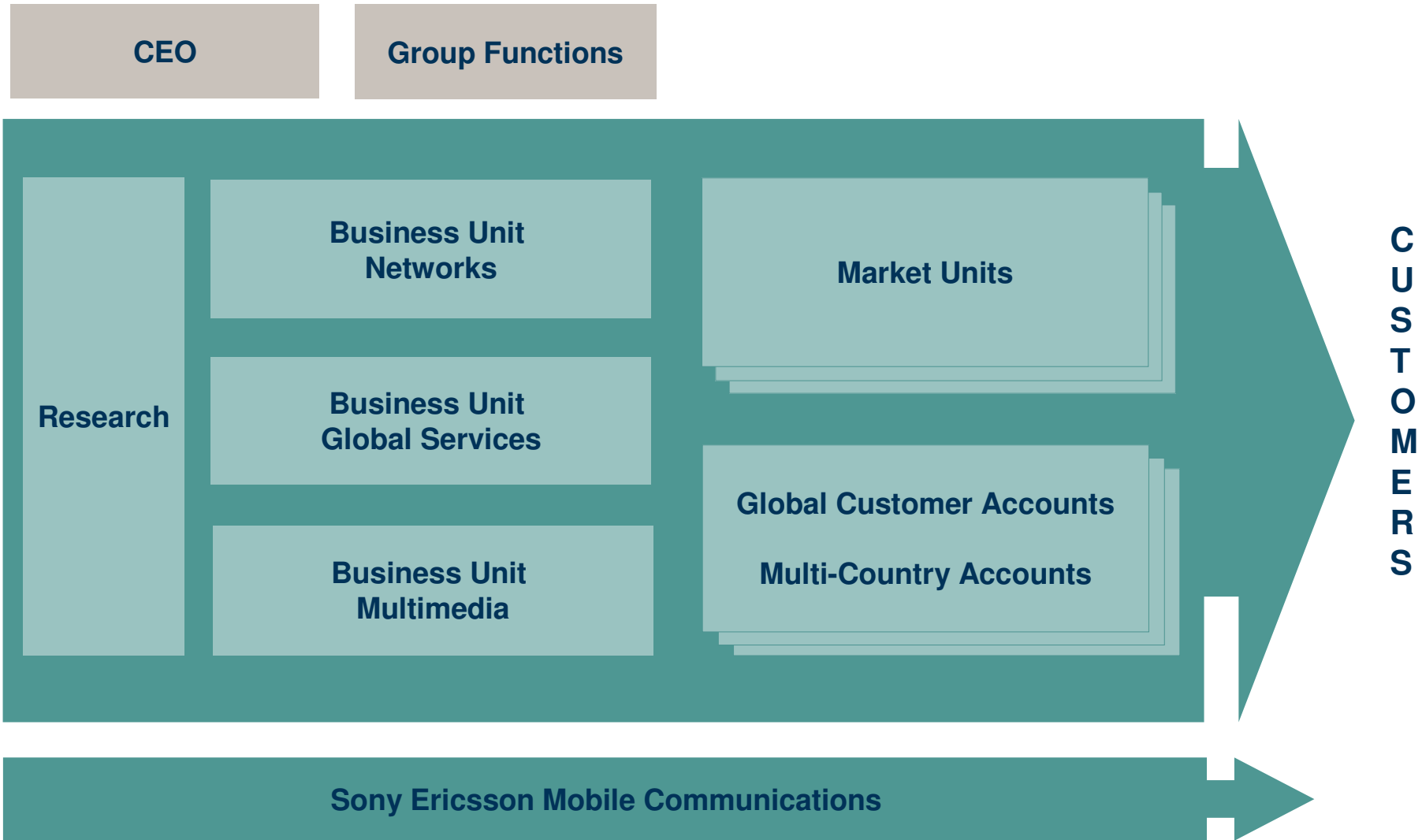
The full service broadband vision

Any service, any device, anywhere



Broadband services to a screen of your choice

The Ericsson organization



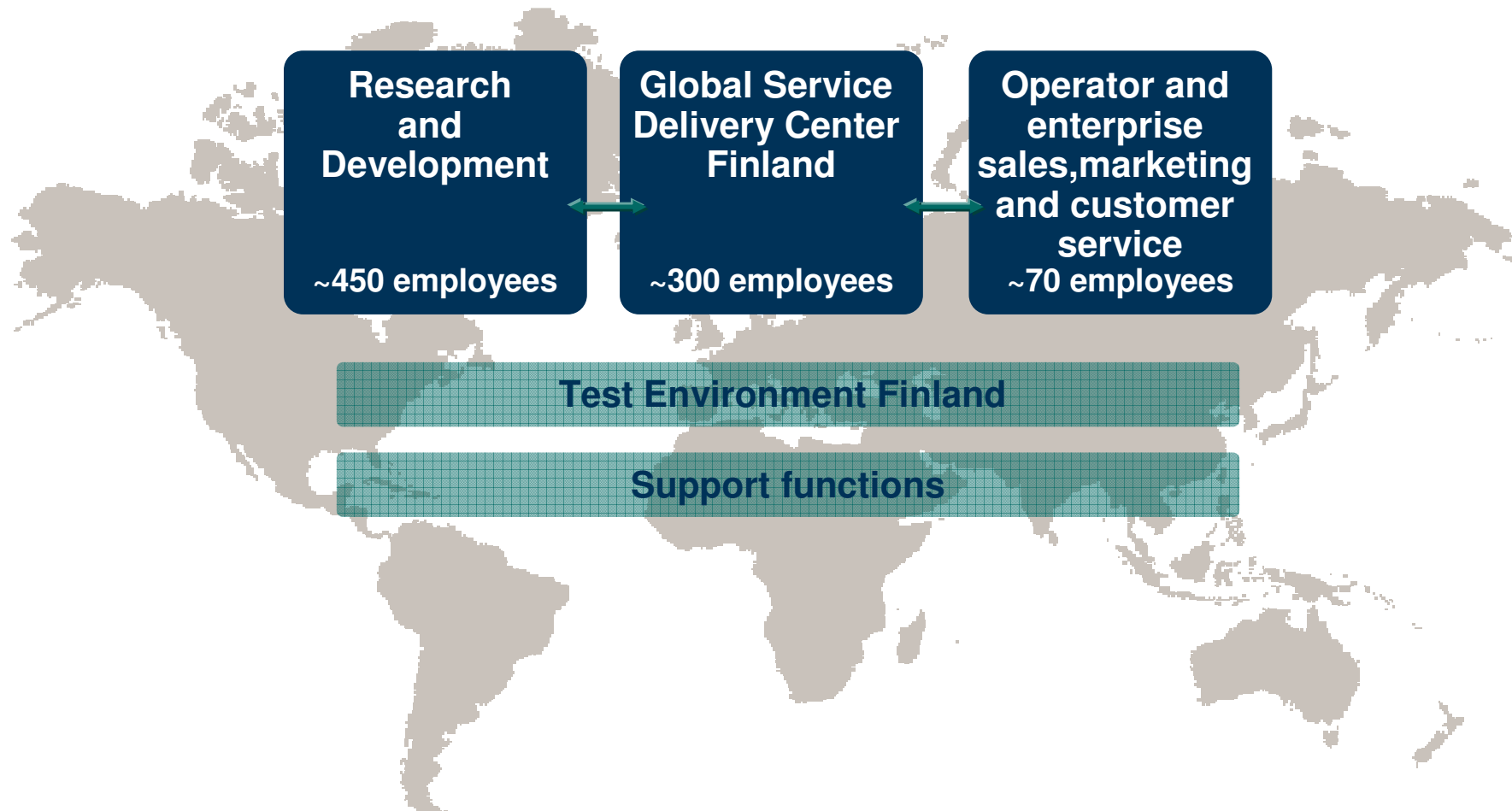
Ericsson strategy for competitive advantage

Global presence

Operational excellence

Technology leadership

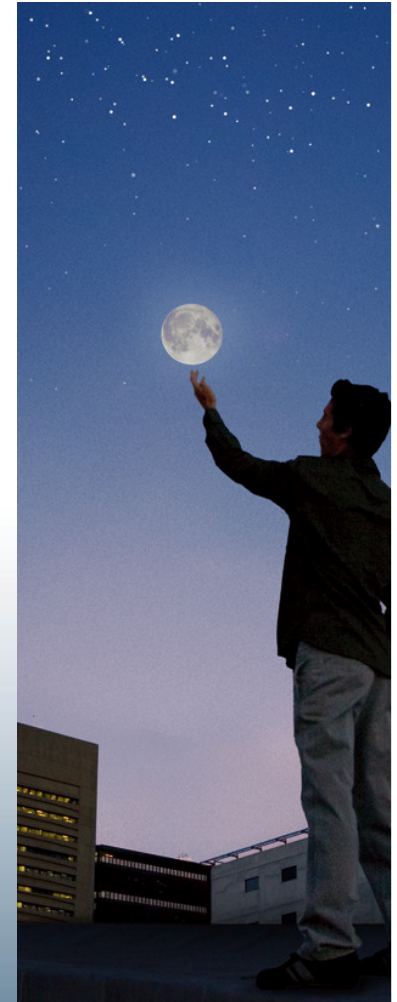
Ericsson Finland - Overview



Partner with global and domestic customers

Ericsson Finland - Expert organization, high competence

- A diverse and global company
 - 950 employees in Finland, 65.000 world wide
 - Experts from 32 different nations working in Finland.
 - Africa, America, Asia, Australia, Europe, Latin America.
 - 6% of employees from abroad
- Ericsson is the 14th biggest ICT employer offering jobs for experts
 - Most of the employees have technical education



Ericsson Finland - on the Finnish ICT market

- Long history and good track record
 - 129 years on the Finnish market – one of the key players
- Revenue 153 M€ in 2006
- Research and Development operations 3rd largest of all companies in Finland*

*Tekniikka & Talous listing, Sept. 07

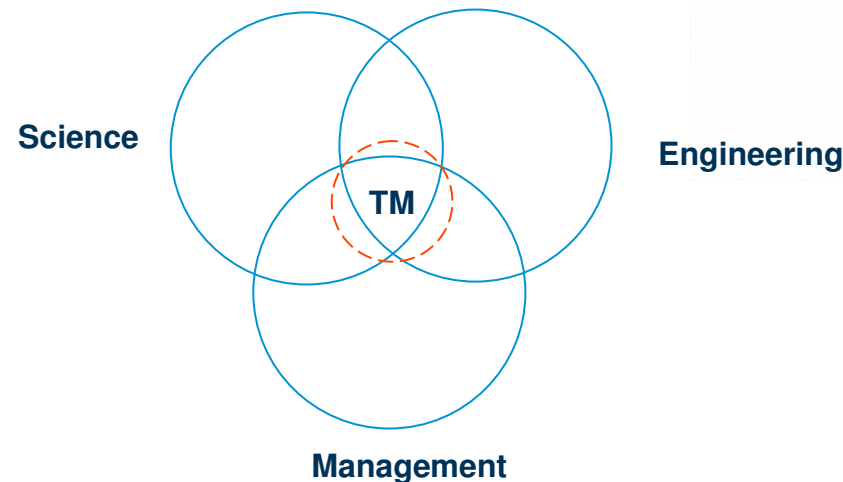


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- Quick overview of Ericsson
- **Technology management**
- Innovation management

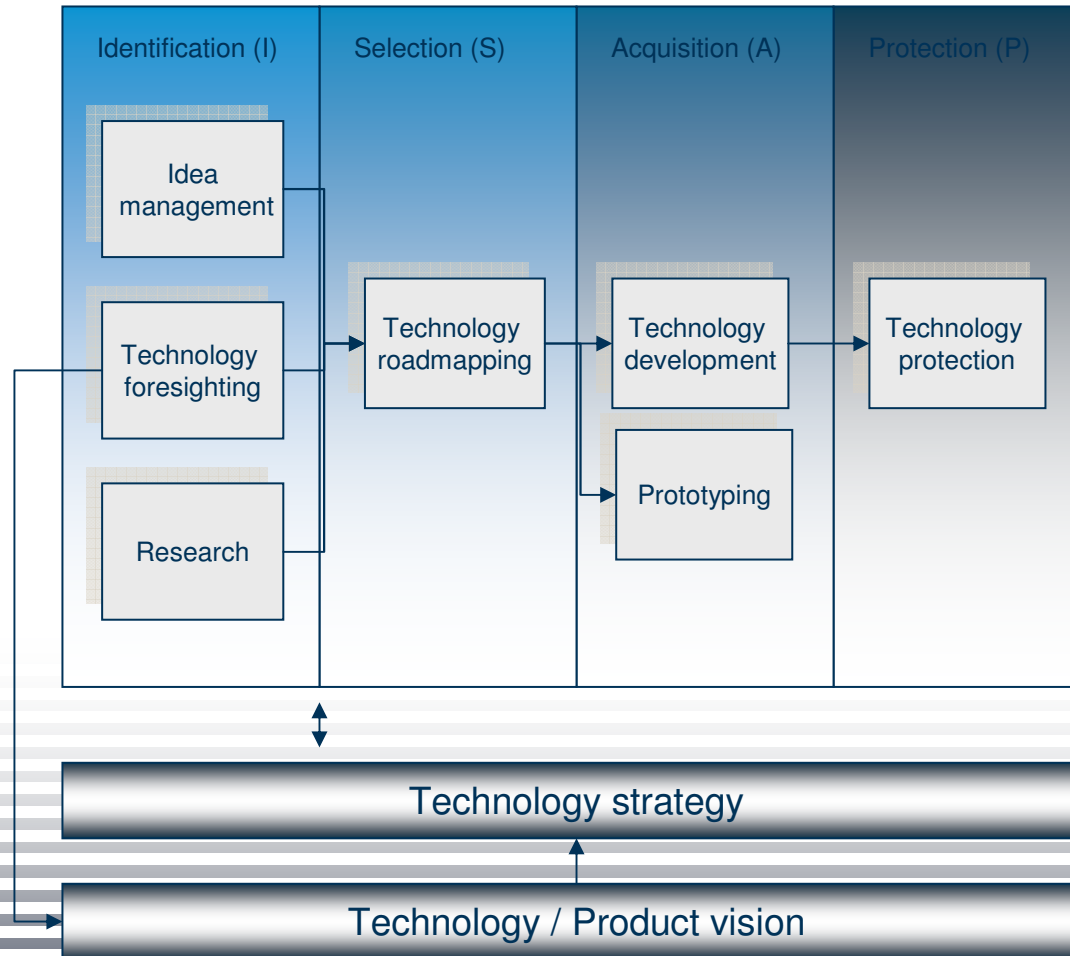
What is Technology Management?

- Generally considered as
 - Union between management, science and technological know-how
 - Managing the innovation process by integrating business and engineering thinking
- Our view:
 - *Technology management (TM) addresses the effective identification, selection, acquisition, development and protection of technologies needed to maintain a market position and business performance in accordance with company's objectives*



Technology management process

In development unit gateways



Technology foresighting

Why?

- Root on how **technological threats and opportunities** in a fast changing environment can be indentified
- **To create a vision of the future** by looking at possible future needs, opportunities and threats and deciding what should be done now to make sure that we are ready to theses challenges
- Foresightig requires good internal and external networks!

"the only certainty of a particular forecast is that it is wrong to some degree."

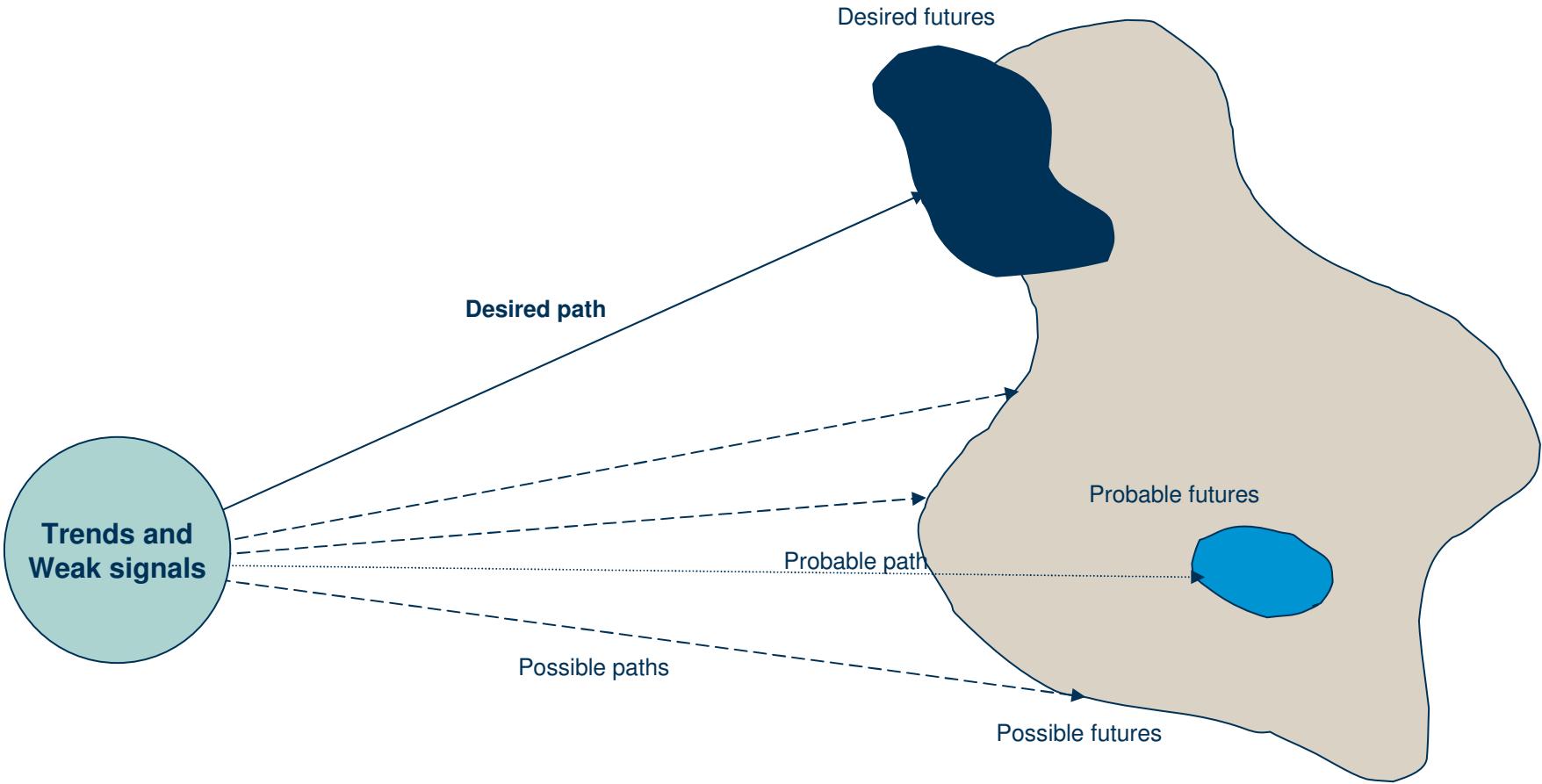
Technology foresighting

Tools and methods

- Tools and methods
 - Scenario planning
 - Create alternative technology scenarios
 - S-curve analysis
 - Status of technology maturity
 - Consensus / Delphi method
 - Ask experts, on possibility of different scenarios

Technology foresighting

Tools & Methods: scenario planning



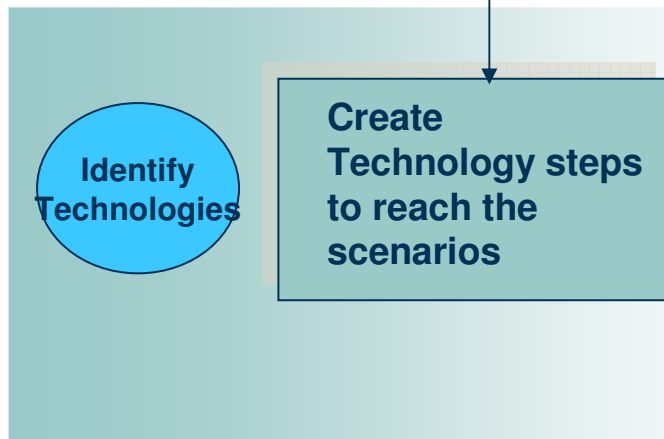
Technology foresighting

Our foresighting process

Scenario planning



Technology mapping



- What is missing in scenario?
- What is missing in technology steps?
- Based on technology steps, is scenario valid?



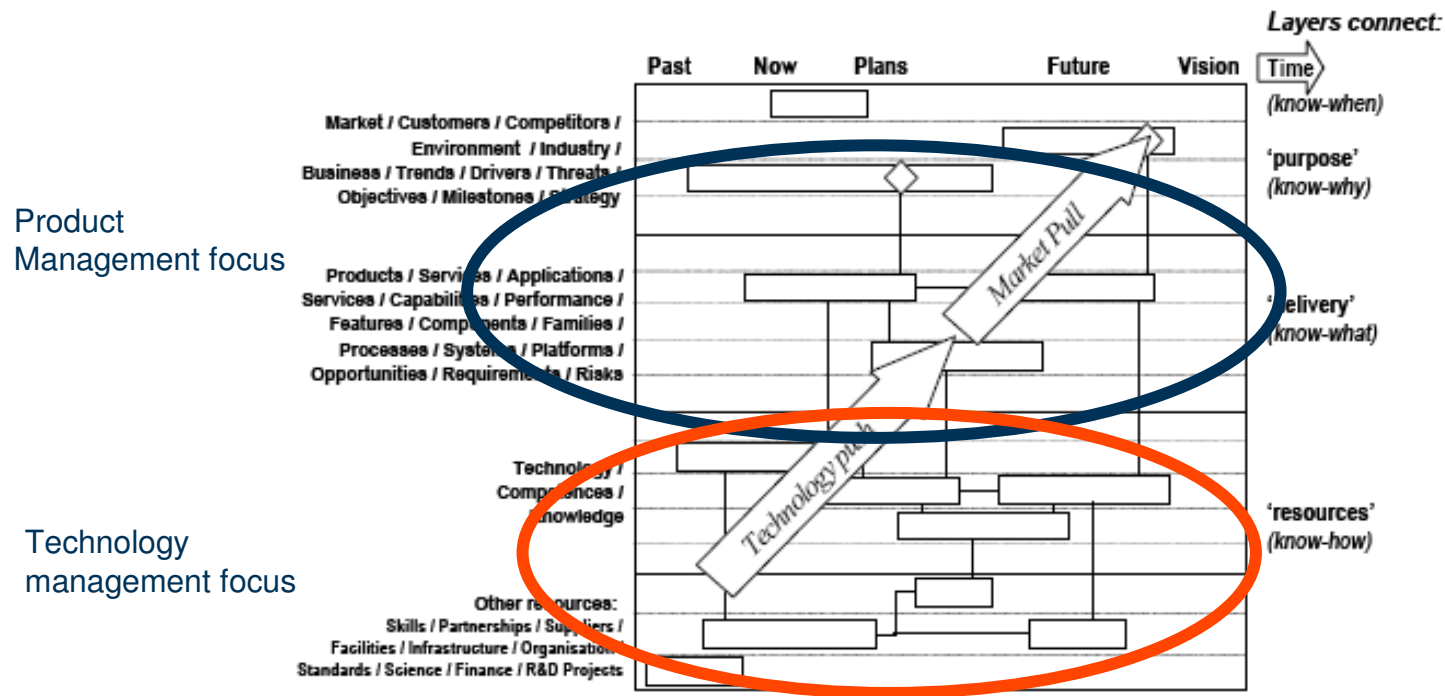
Technology studies

- Manage and handle technology studies that relate to technologies prior their attachment to any project.
- Technology studies give first indications on issues such as
 - Technical solution
 - Alternative technological solutions
 - Make vs. Buy
 - Required competence
 - Technical hour estimation



Technology roadmapping

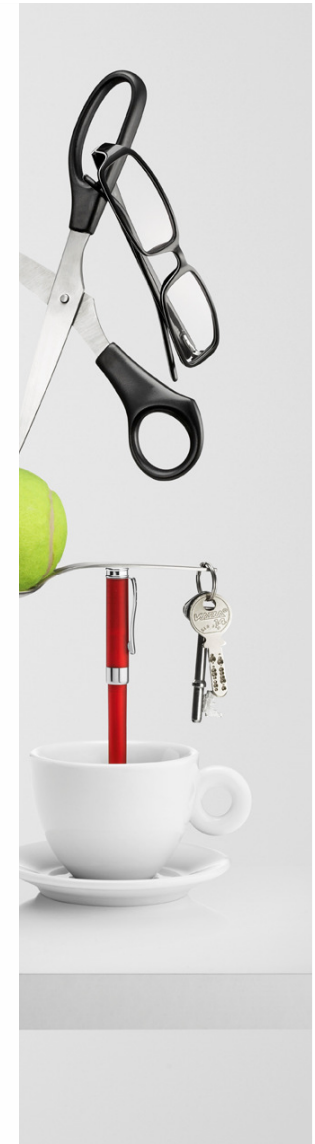
- Communication tool across functions
- Technology Management creates a technology roadmap on basis of foresighting.
- Roadmap created with Product Management



Technology prototyping

Why technology prototyping?

- To LEARN!
- Reveals big mistakes sooner.
- Proof of concept
- Cost effective (Development costs reduced)
- Increases system development speed
- Test out ideas / technologies
- Support in choosing between alternatives
- Design by doing
- Stakeholders can see, hold, and interact
- Gather early user feedback
- Team members can communicate effectively
- Show feasibility for buy-in



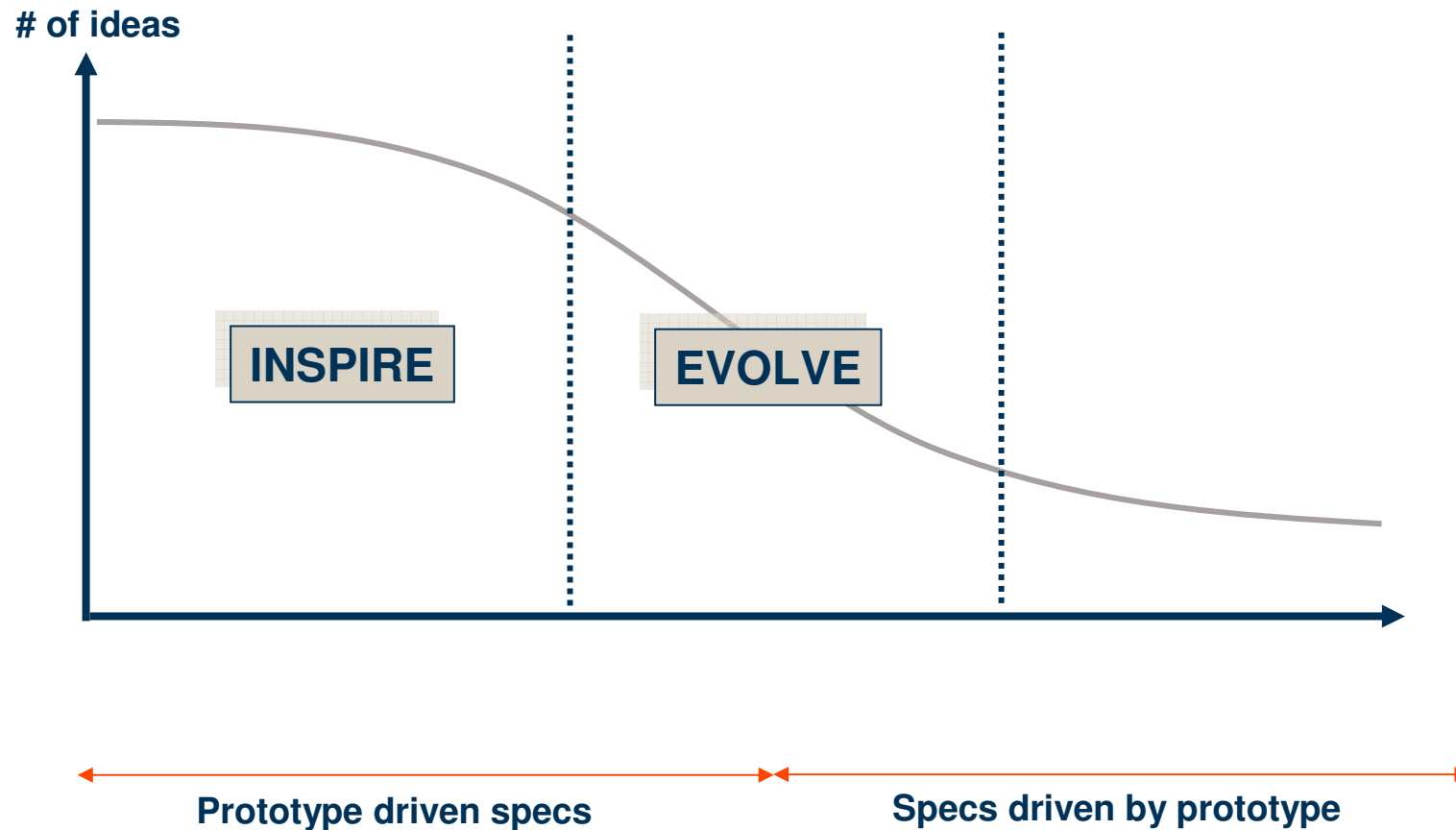
Technology prototyping

What to prototype?

- Risky parts
- Most important open design questions
- Alternative technology solutions

Technology prototyping

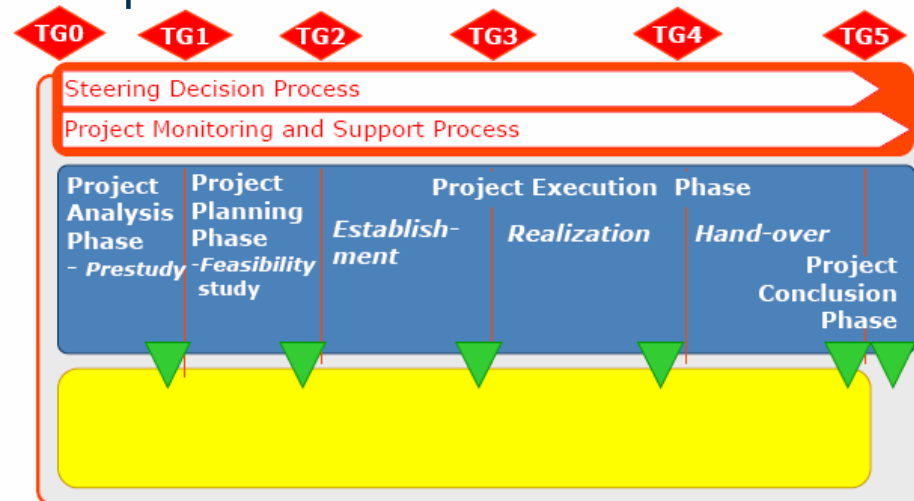
Types of Prototyping



Technology development

Development process

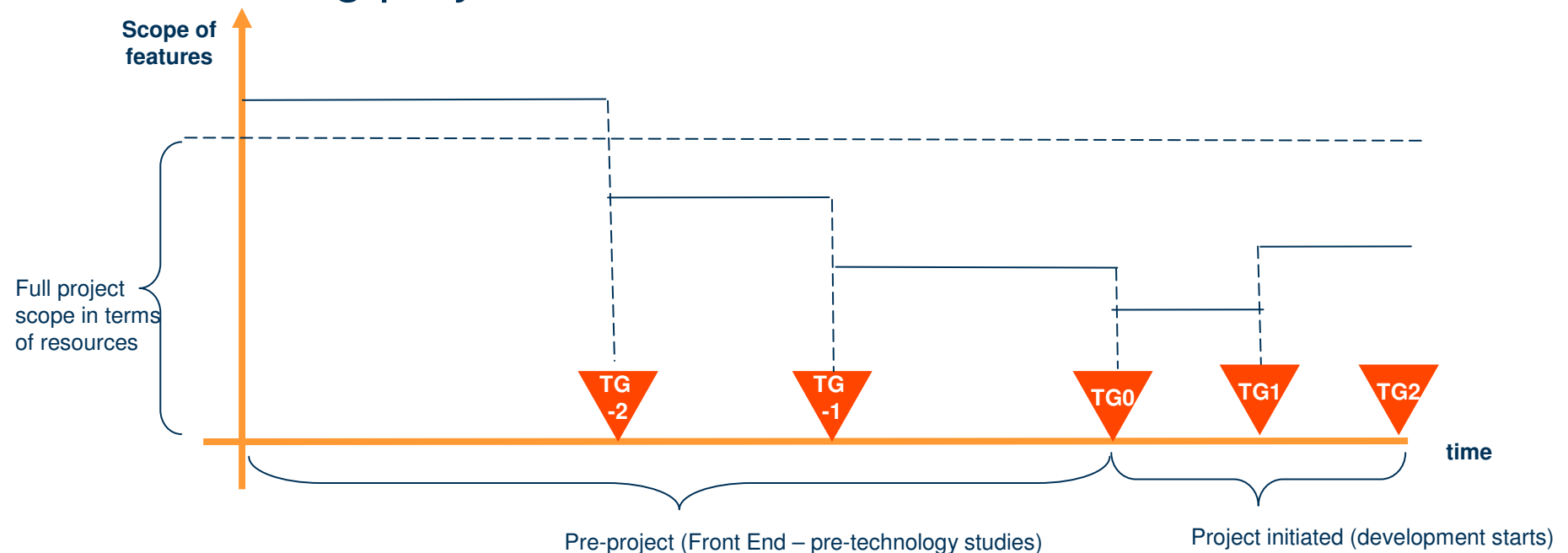
- Currently same process for technology and product development projects.
- High-tech projects are dealt with greater flexibility.
- Pre-project activities more demanding and complex in technology than product development.



Technology development

Improving the Front End of development projects

- Earlier project started with over committed scope and later reduced (bulldozer effect)
- Goal to start project with half scope enabling more flexible changes and reducing unnecessary work prior and during project.



Technology development

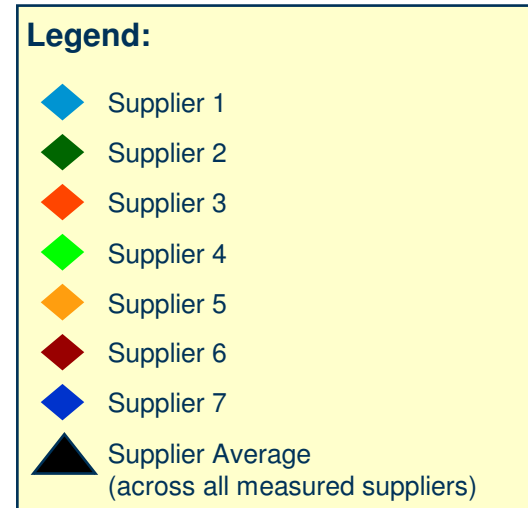
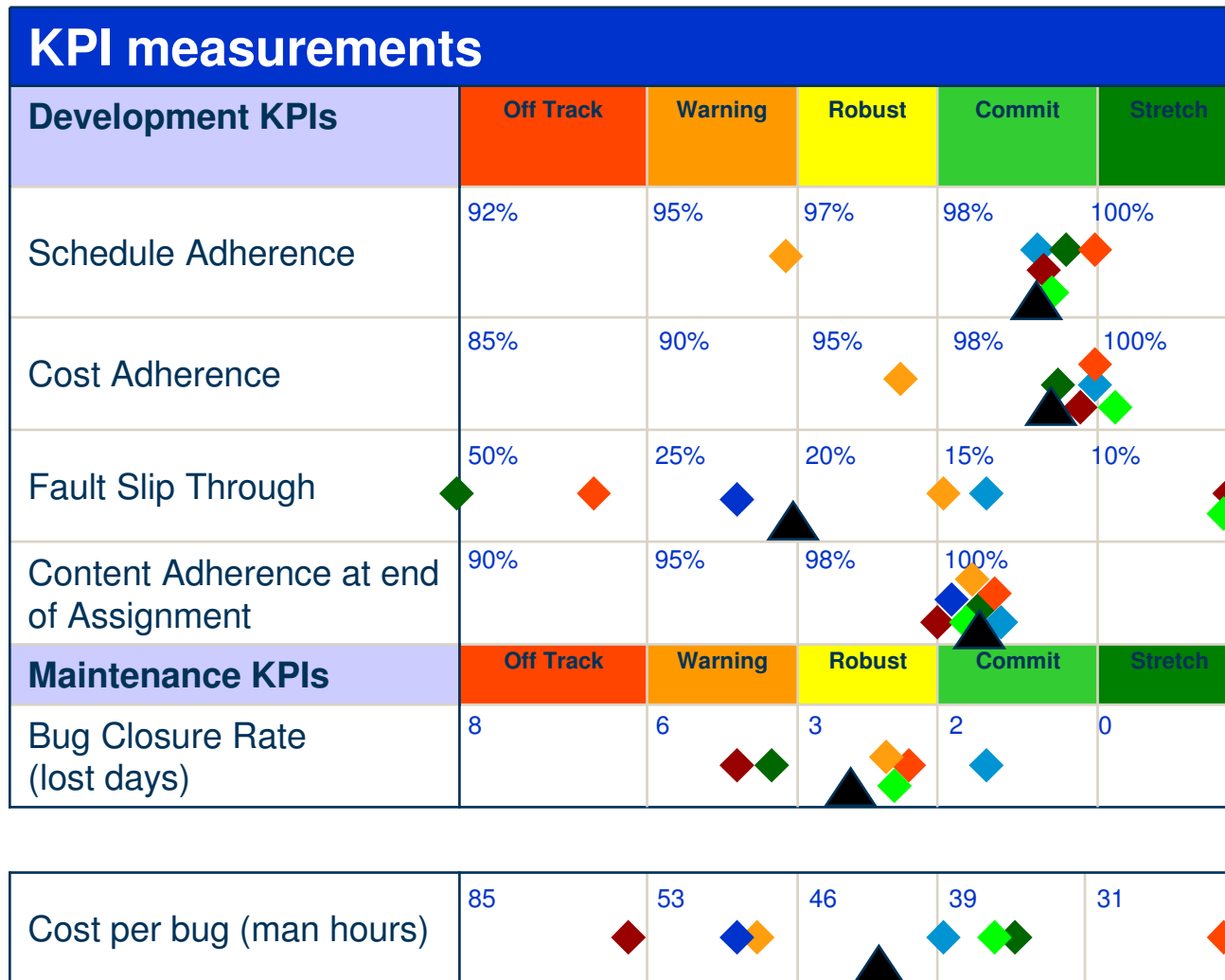
Metrics for efficiency

- “What you measure is what you become”

| Group | Category | # | Metric |
|------------------------|---------------|----|---------------------------------|
| Project metrics | Time | 1 | Average Time to Market |
| | | 2 | Average Time to Market slippage |
| | Cost | 3 | Project development cost |
| | | 4 | Cost variance |
| | Functionality | 5 | Technical hours |
| | | 6 | # External Change Request |
| | | 7 | # dropped features |
| Line / product metrics | Quality | 9 | Fault Slip Through |
| | Line / cost | 10 | Cost of suppliers |
| | | 11 | R&D Cost (per hour & head) |
| | | 12 | R&D Time Allocation |

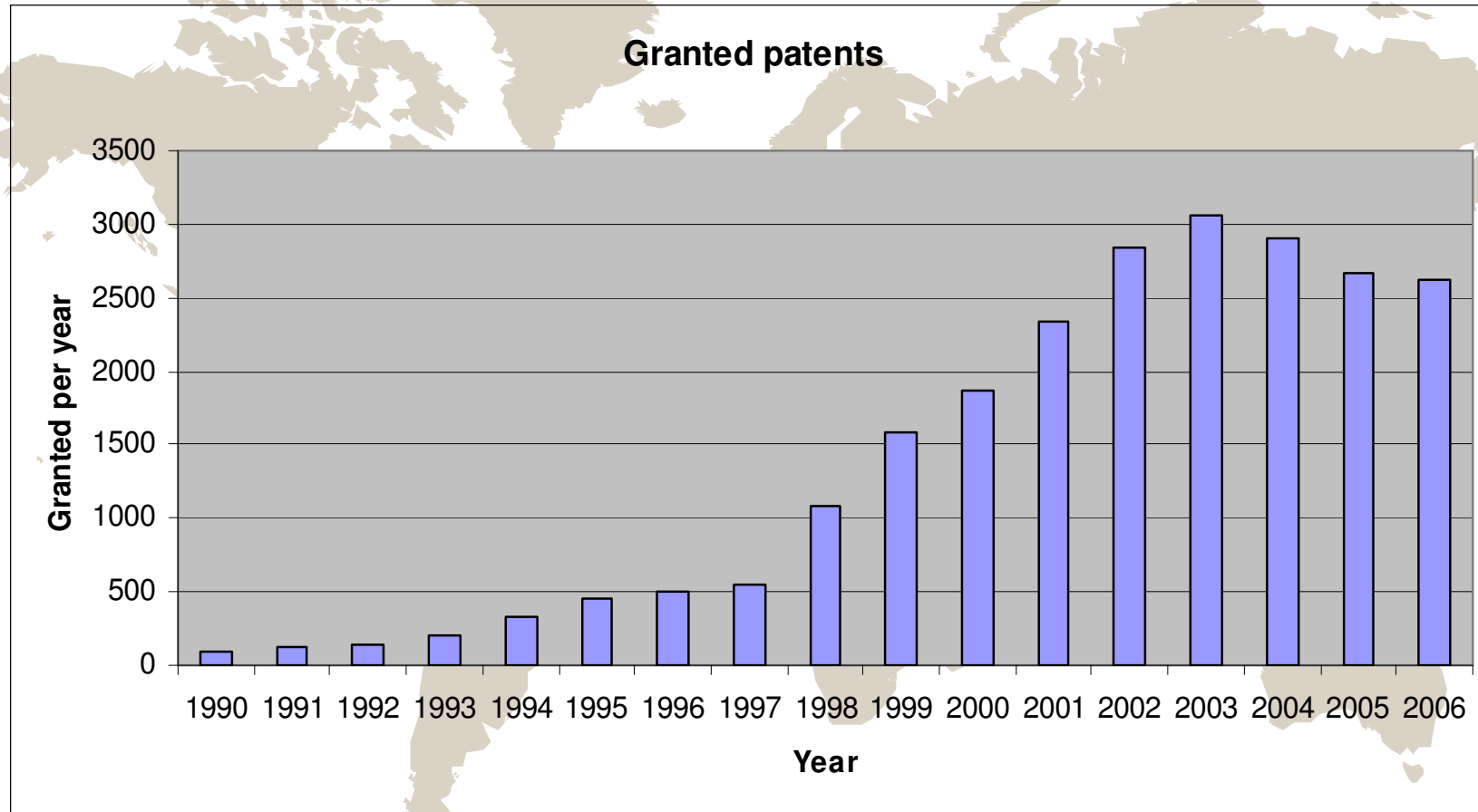
Technology development

Supplier Benchmark (e.g. for Make vs.Buy)



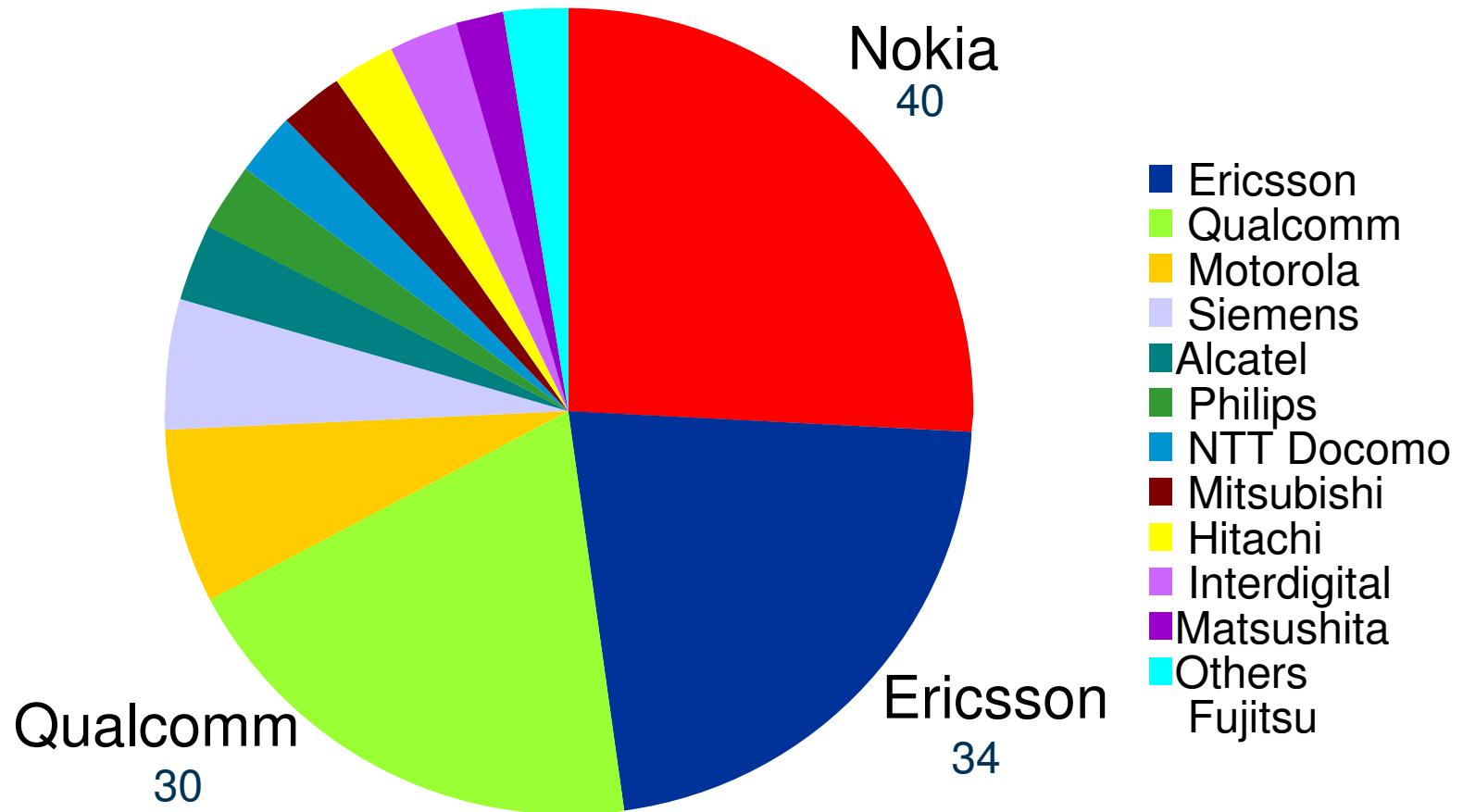
Technology protection

Granted patents



Technology protection

3GPP Patents *Considered Essential*



Source: Goodman/Myers "Analysis of Intellectual Property for Third Generation Cellular Technology", Infocom, March 17, 2005

Technology protection

Strongest portfolio of essential patents

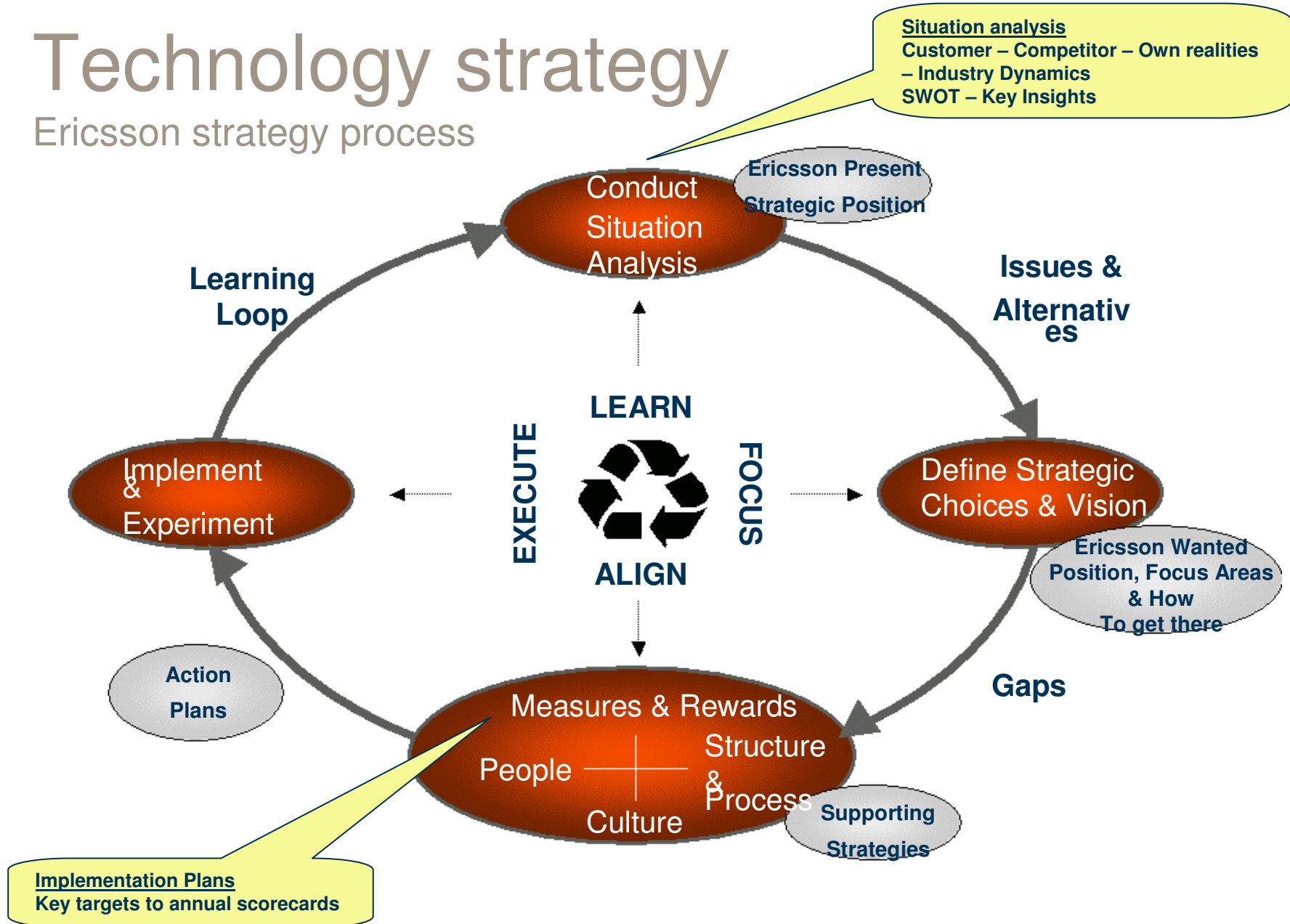
- Ericsson holds the worlds strongest 2G, 2,5G and 3G essential IPR* portfolio
- 20,000 granted patents worldwide
- Business Driven Patent Portfolio Management

* Intellectual Property Rights



Technology strategy

Ericsson strategy process

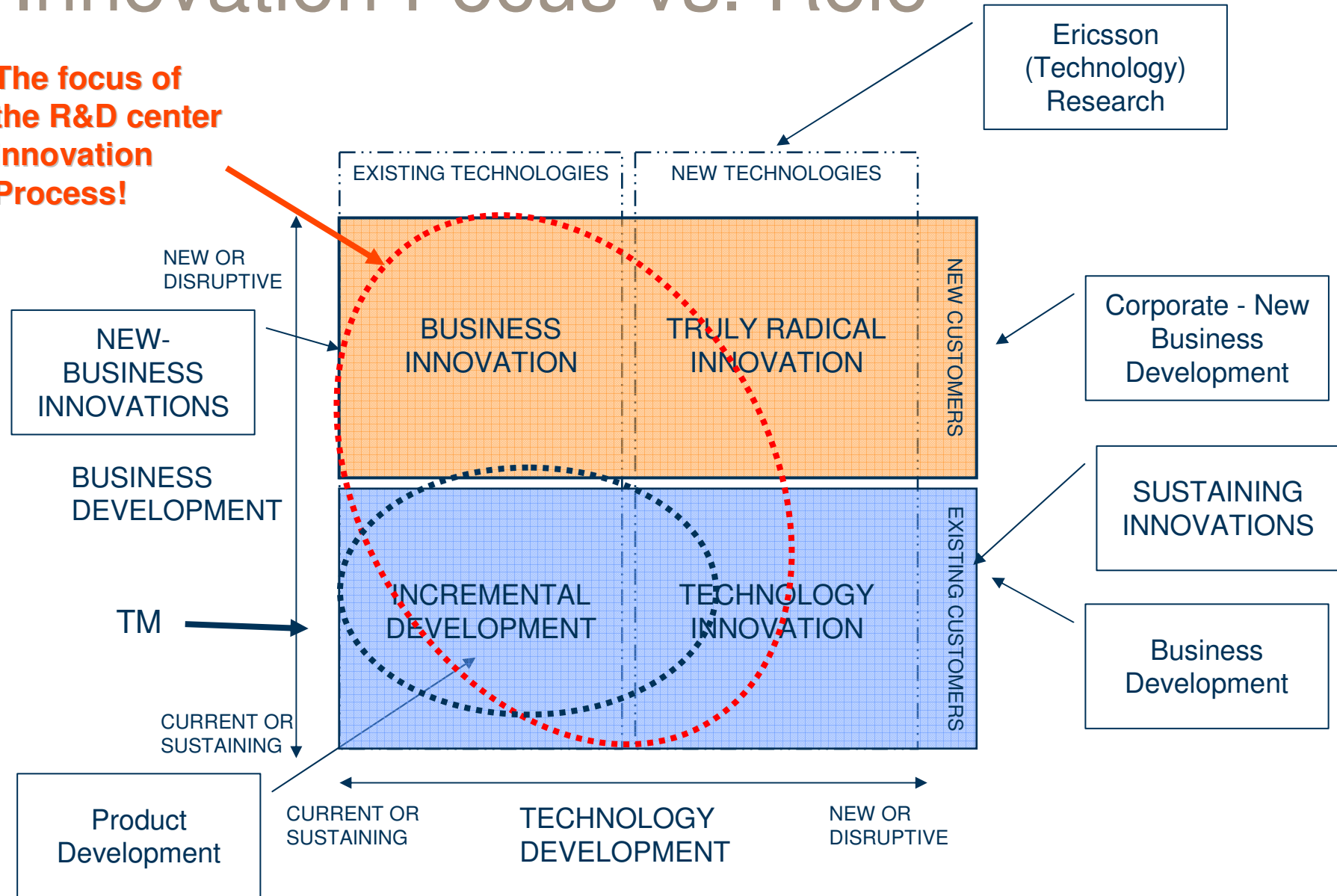


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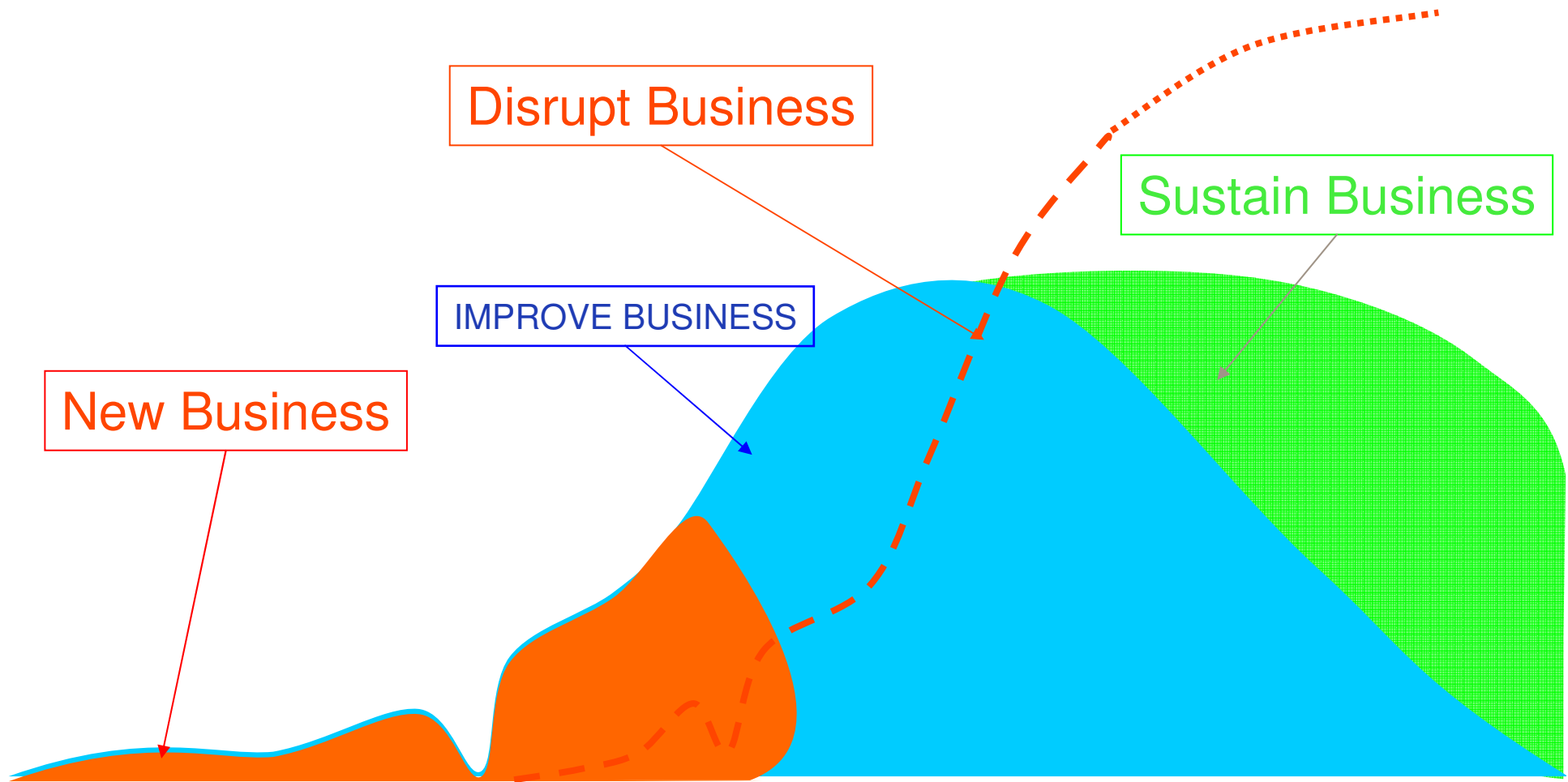
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Innovation Focus vs. Role

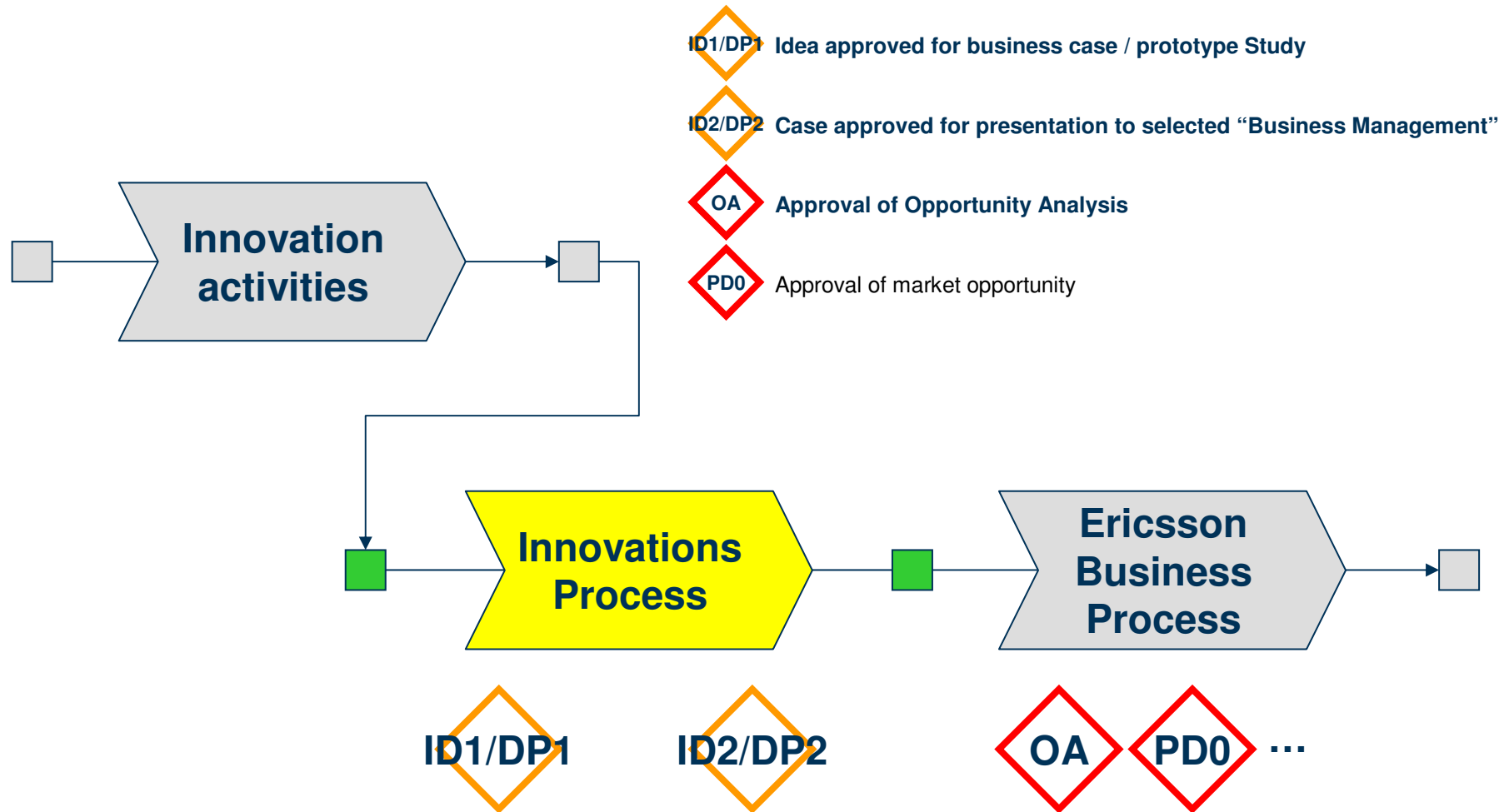
The focus of the R&D center innovation Process!



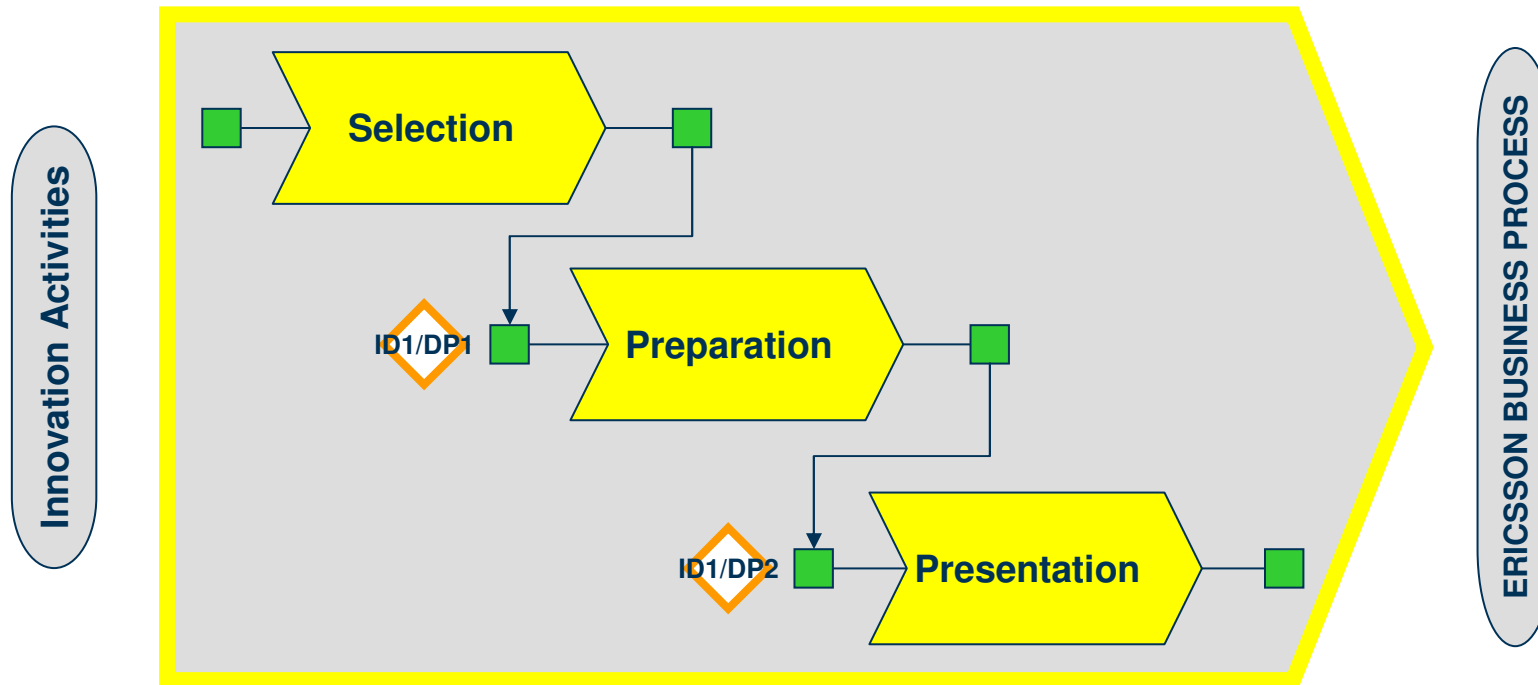
Scope of innovation management



Innovation process



Innovations Process



Questions?



ERICSSON 

TAKING YOU FORWARD