



MANAGING RISK

DNV Service and Innovations

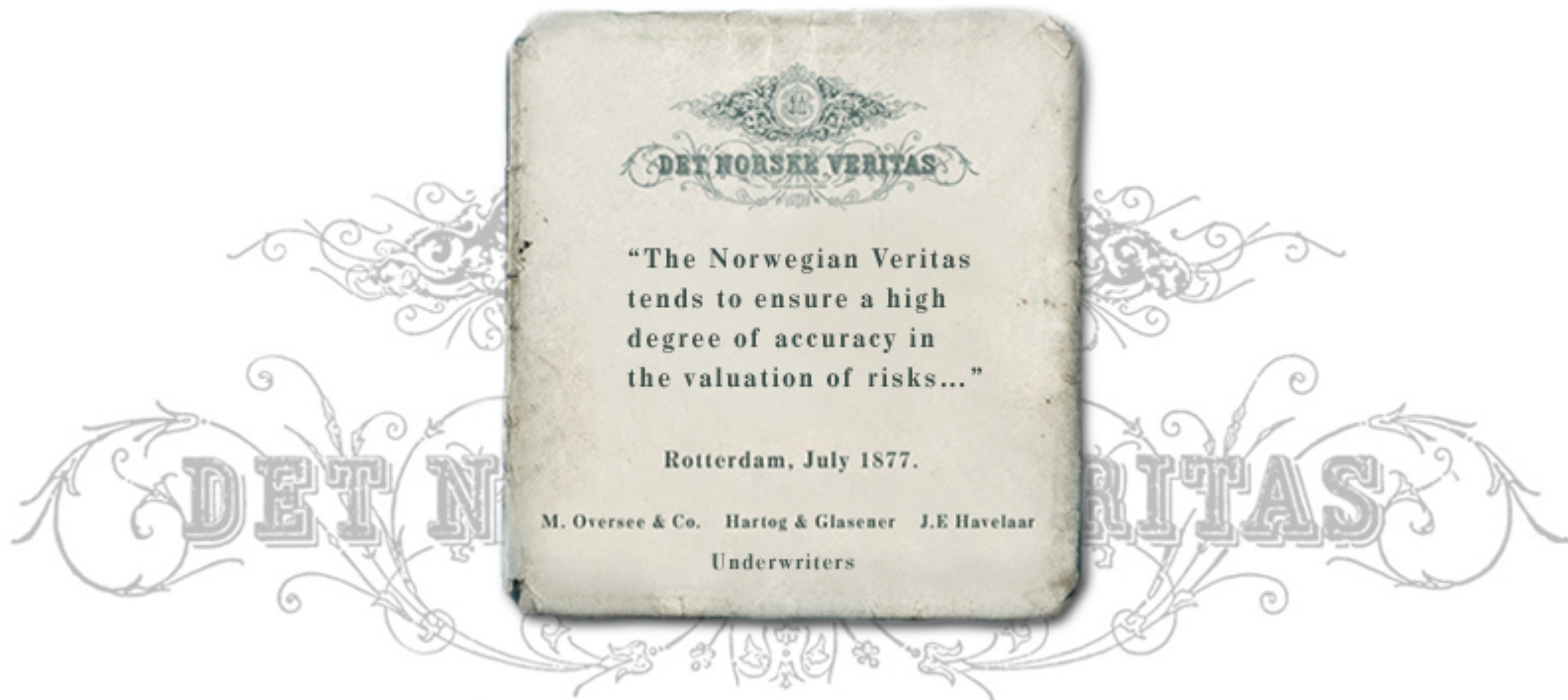


Industrial Service Business Day

Siri Moe Jensen, DNV Research
12. May 2005

- DNV Managing risk – 140 years of service delivery
- From imitator to innovator – 50 years of R&D
- DNV innovation model
- New challenges – Business Networks risk management

- Objective: To “Safeguard life, property, and the environment”
- Established in 1864 in Norway



DNV's four business areas

MANAGING RISK



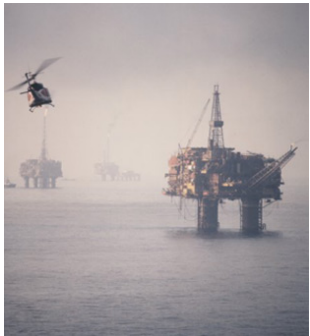
A world leading classification society

DNV Maritime



A world leading provider of certification, verification, and assessment services

DNV Certification



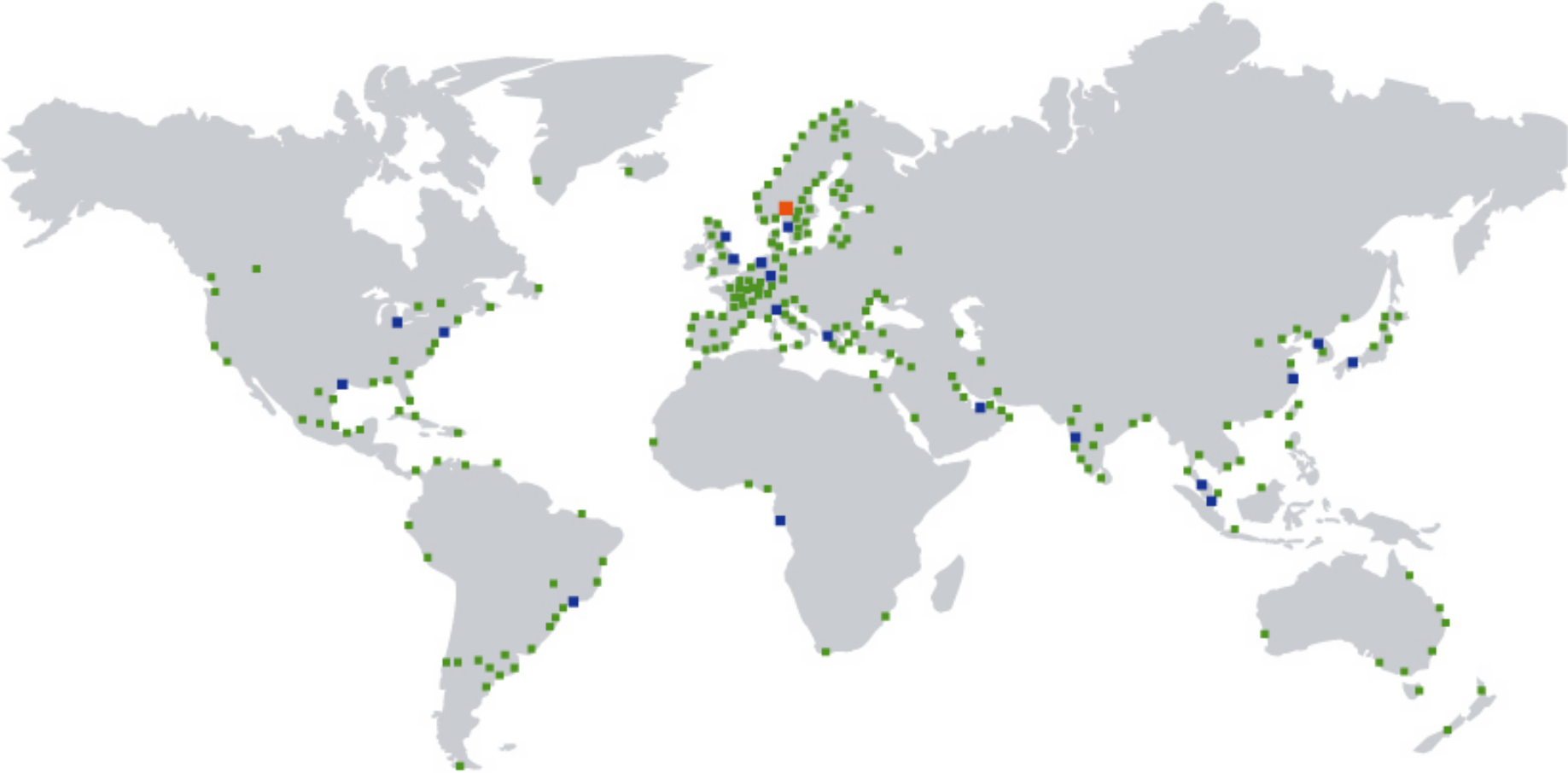
Providing safe and reliable operations to the oil, gas and process industry through cutting-edge technology

DNV Technology Services



Safely and responsibly improving business performance

DNV Consulting



■ Head office

■ Main support and service centres

■ Local offices

”A company can itself only generate 5-10 % of the knowledge it needs to develop. The remaining 90-95 % has to be harvested from external sources. <This harvesting> requires extensive knowledge and competence in order to make use of the harvest”

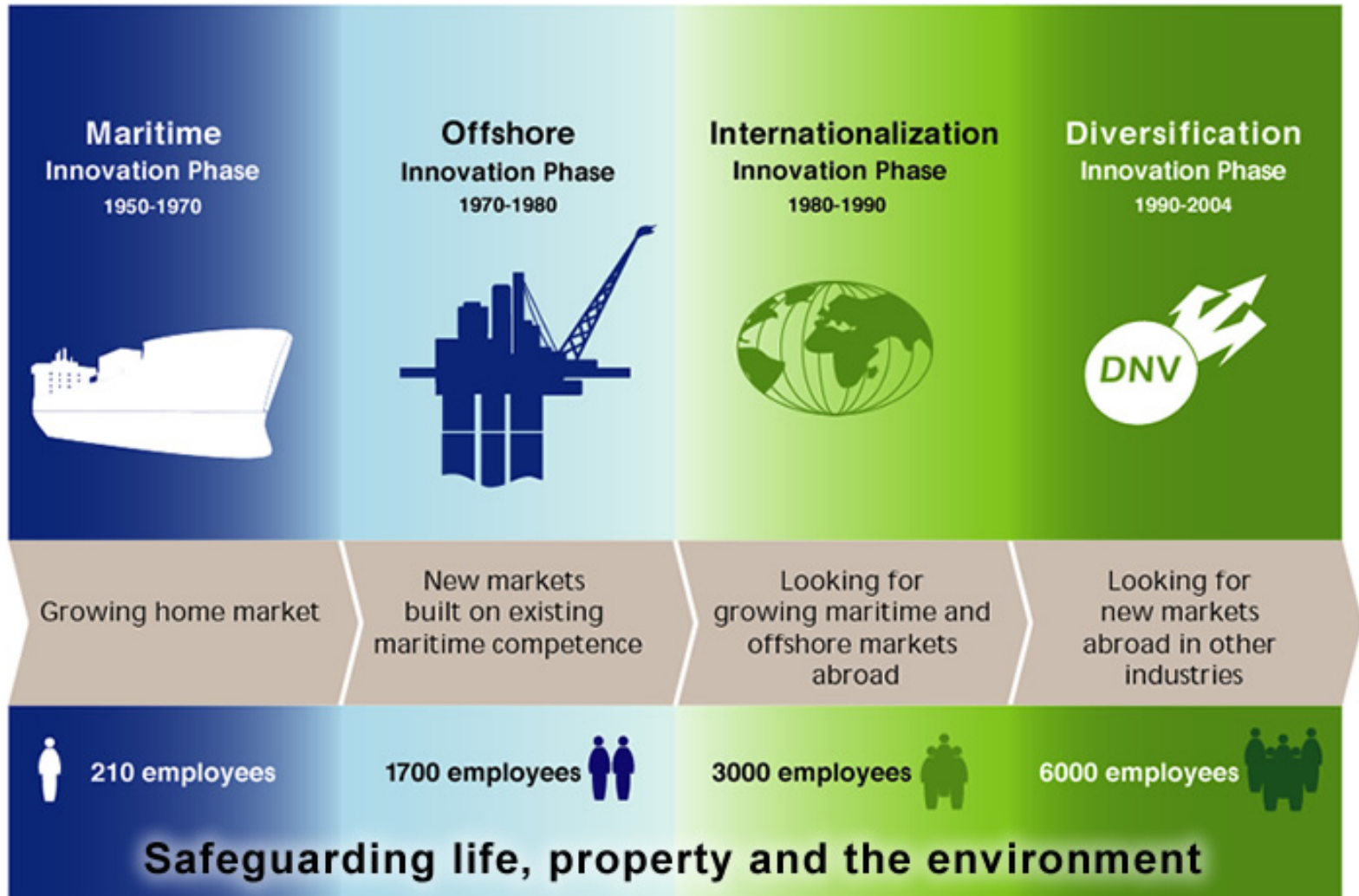
Egil Abrahamsen

Head of DNV Research 1954-1966

CEO DNV 1966-1985

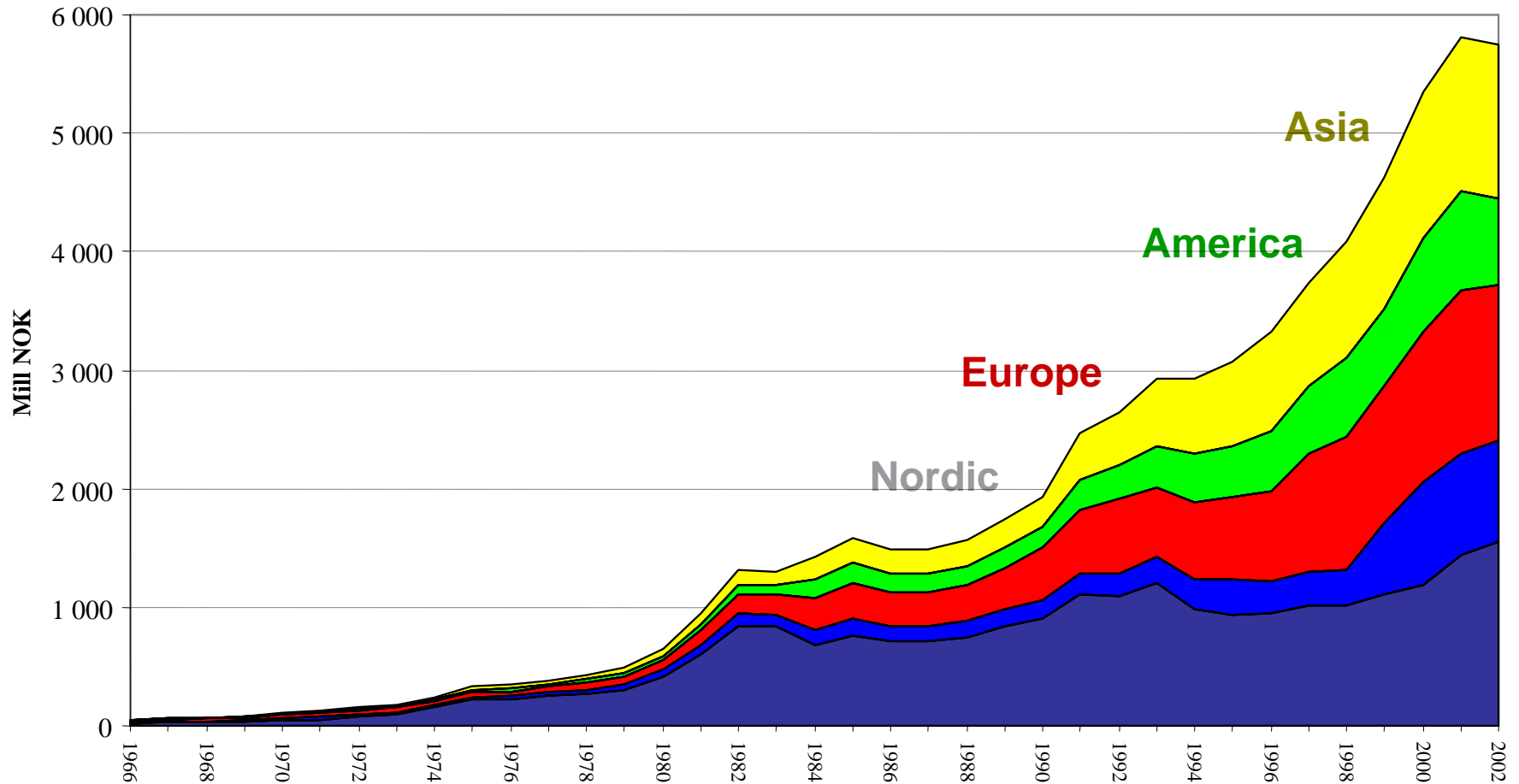
For cooperation to be worthwhile from universities and other institutions' viewpoint, DNV needs to bring forward competence and technology of relevance, thus demanding depth and relevance of DNV's own research activities.

DNV innovation and growth



Result: Revenue 1966 - 2002

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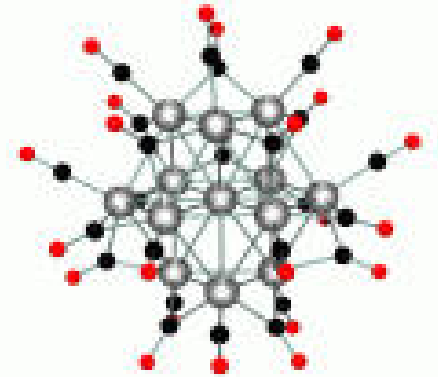
- Customers
 - Development of concepts
 - Business enabler & supporter
 - Development of competence and markets

- Maritime & Offshore:
 - Standards, **cluster strength**, pressure for renewal, learning
 - ca. 1000 internal DNV-reports since 1984
 - ca. 320 public papers & presentations since 2000.
 - Competence centre:
 - DNV considered as “Norwegian graduate school of technology”.
 - Spin-offs:
 - ScanPower, Computas, Underwater Institute (NUI), Fjerndata, Geco etc.

- Society
 - Reduction of injuries and deaths
 - Protecting environment
 - Supporting the Norwegian welfare state
 - Knowledge generation and distribution
 - Supporting Norwegian technological reputation

■ Stimulating and supporting arenas for cooperation

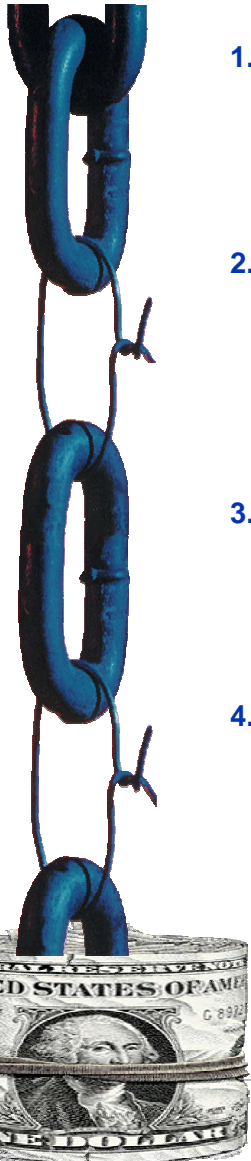
- Industry organisations and projects
- Cross-industry, neutral meeting ground for customers, competitors, academics and authorities
- Breeding ground for ideas
- Development and agreement on standards



■ Contributing to, strengthening and exploiting important clusters:

- The Norwegian maritime cluster
- The Korean maritime cluster
- The Norwegian oil and gas cluster
- The Italian food cluster
- The Danish wind energy cluster

Value creation from R&D depends on:



1. Quality, quantity and diversity

- Highly educated staff
- Critical mass of diverse projects and people
- Free funding (not only allocated funds)

2. Organizational interplay

- High intra-organizational cooperation
- High customer interaction
- High degree of R&D personnel transfer (ca. 20%/yr)
- Academic cooperation

3. Leadership commitment

- Long-term perspective of leadership (R&D results + 10yrs, patience)
- Personal interest in and understanding of R&D
- Willingness to take risks (only 1 of 10 of R&D succeeds, R&D time horizon 5-10 yrs)

4. Active government participation

- Since society benefit most from R&D, and industry under-invests \Rightarrow government must bridge the gap
- Co-financing
- support industry clusters

“Everything that can be invented has been invented”

The commissioner, US Patent Office 1899



(Illustration by John Howe)

*“The Road goes ever on and on
Down from the door where it began.
..”*

J.R.R. Tolkien

What now? Some challenges...

- "It's not a question of what we can afford, but what we can absorb"

CEO Miklos Konkoly-Thege

- Business Area <-> Research
- Approach depending on business unit
- Local - Central



- How do we predict and evaluate future outcome?

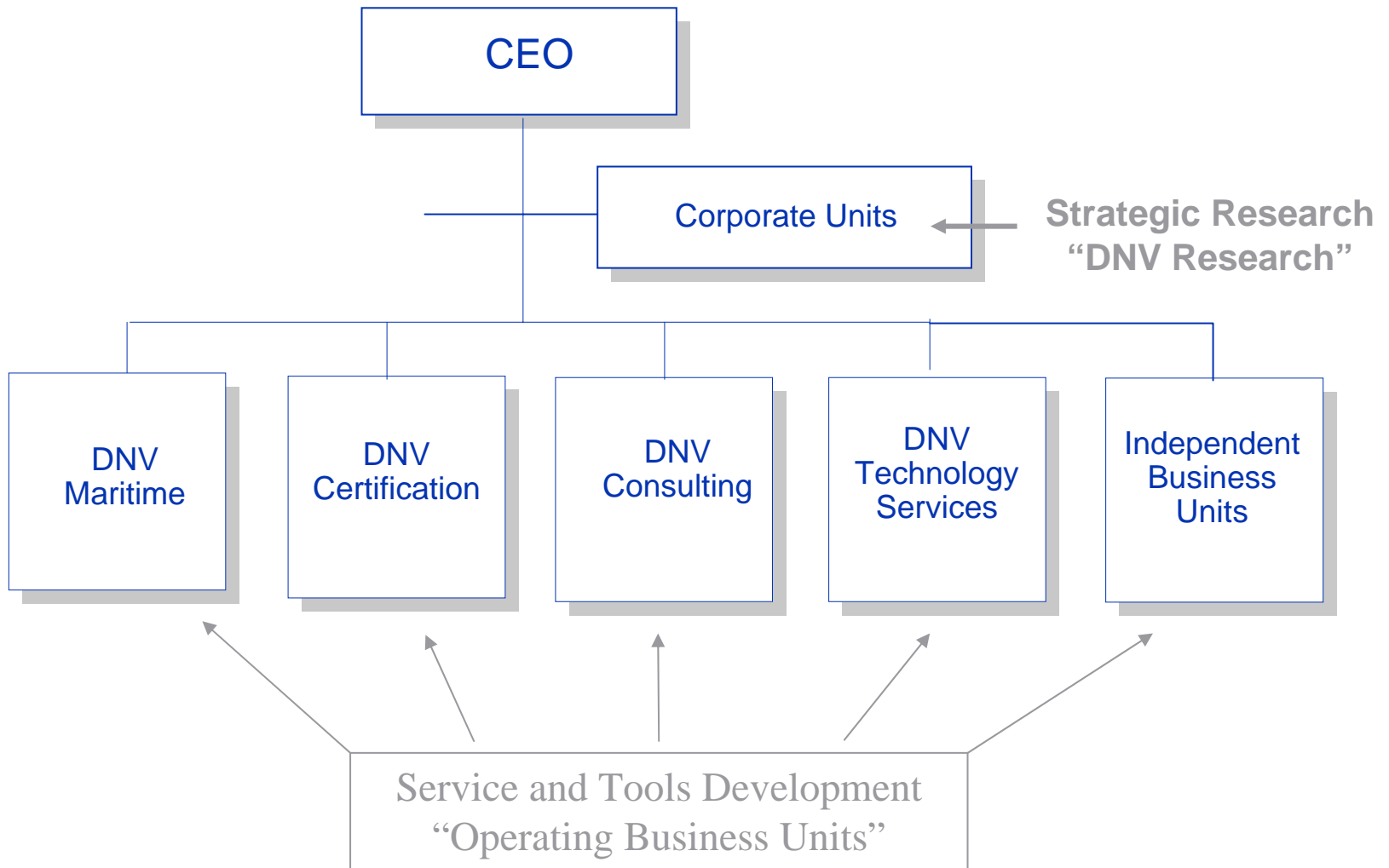
- DNV objective
- Customer value
- Future revenue



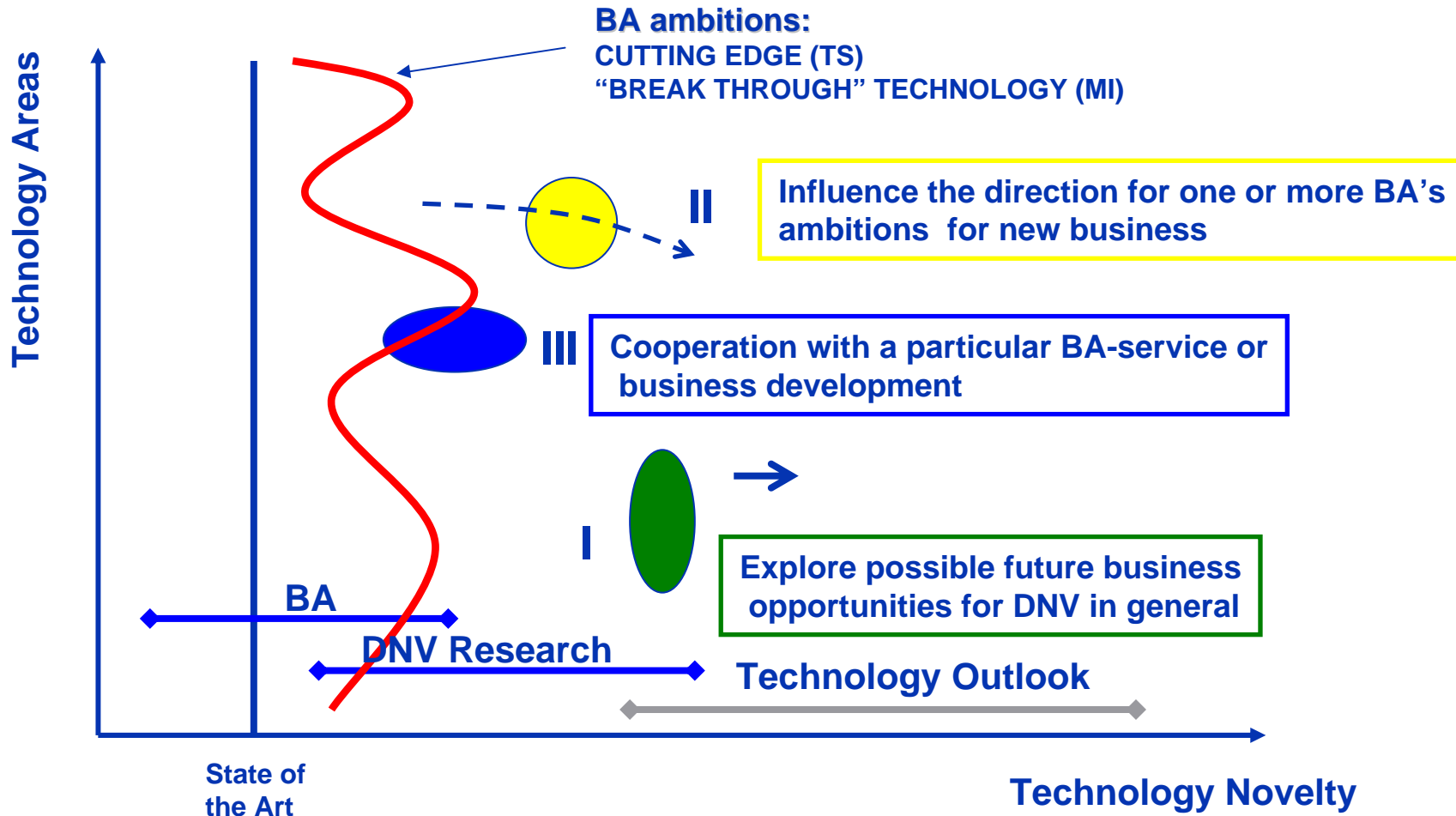
- Innovation

- Intellectual Property Rights management
- Nurturing an innovative culture

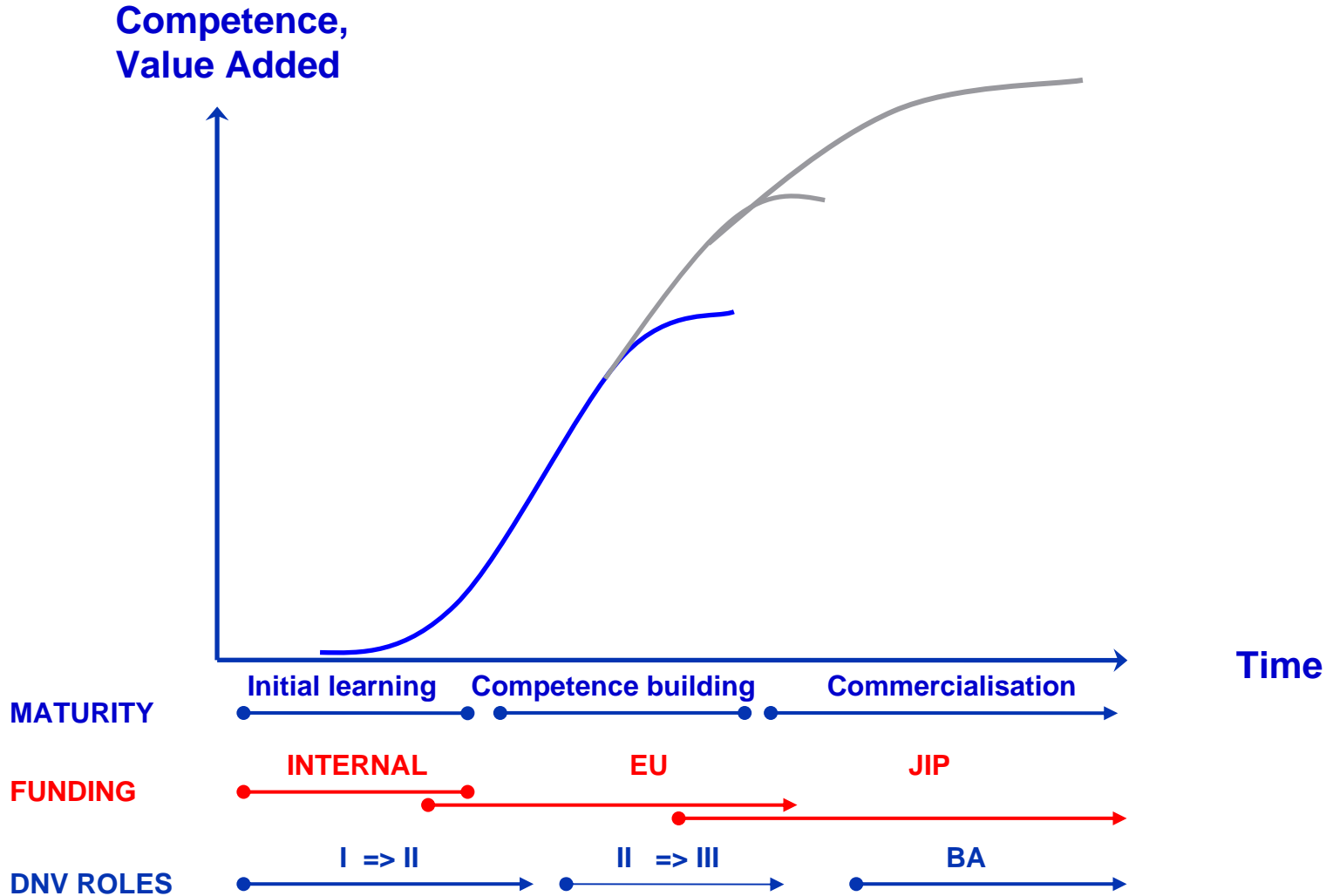
DNV R&D: Organisation



Balance among Strategic Roles



Match funding sources to maturity



Screening phase:

- Support DNV's Objective and Values and DNVR's vision and purpose
- Potential for business or Societal impact that justifies the investment.

Priority phase

- Willingness to pursue the idea until one or more BAs have taken the ownership of it- and then continue to record its impact on our Objective and business
- ..but also be willing to change direction or stop if expected results can not be achieved
- Potential to ensure leadership by Business Areas
- Will create ownership and commitment in the organization
- Will generate prioritised knowledge
- Avoid the "suicide corner"
- Be able to acquire the right people
- Ability to be accomplished within reasonable timeframe and have a sound degree of project risk
- Have a degree of novelty- generate a wow effect in the organisation
- Founded on relevant state of the art
- Partnering and networking effect on preferred target groups

- Increased attention through 50 years anniversary activities
- New DNV strategy with emphasis on innovation
- New DNV Research profile encouraging innovation
- Revision of incentive scheme for inventors
- IPR (Intellectual Property Rights) training schemes in corporate and DNV Research
- New IPR Policy
- Executive Board and Research Board in key roles regarding what to patent
- Legal and financial support apparatus strengthened
- Over last three years 12 patents from DNV Research approved or in application stage (+ 4 more elsewhere in DNV)

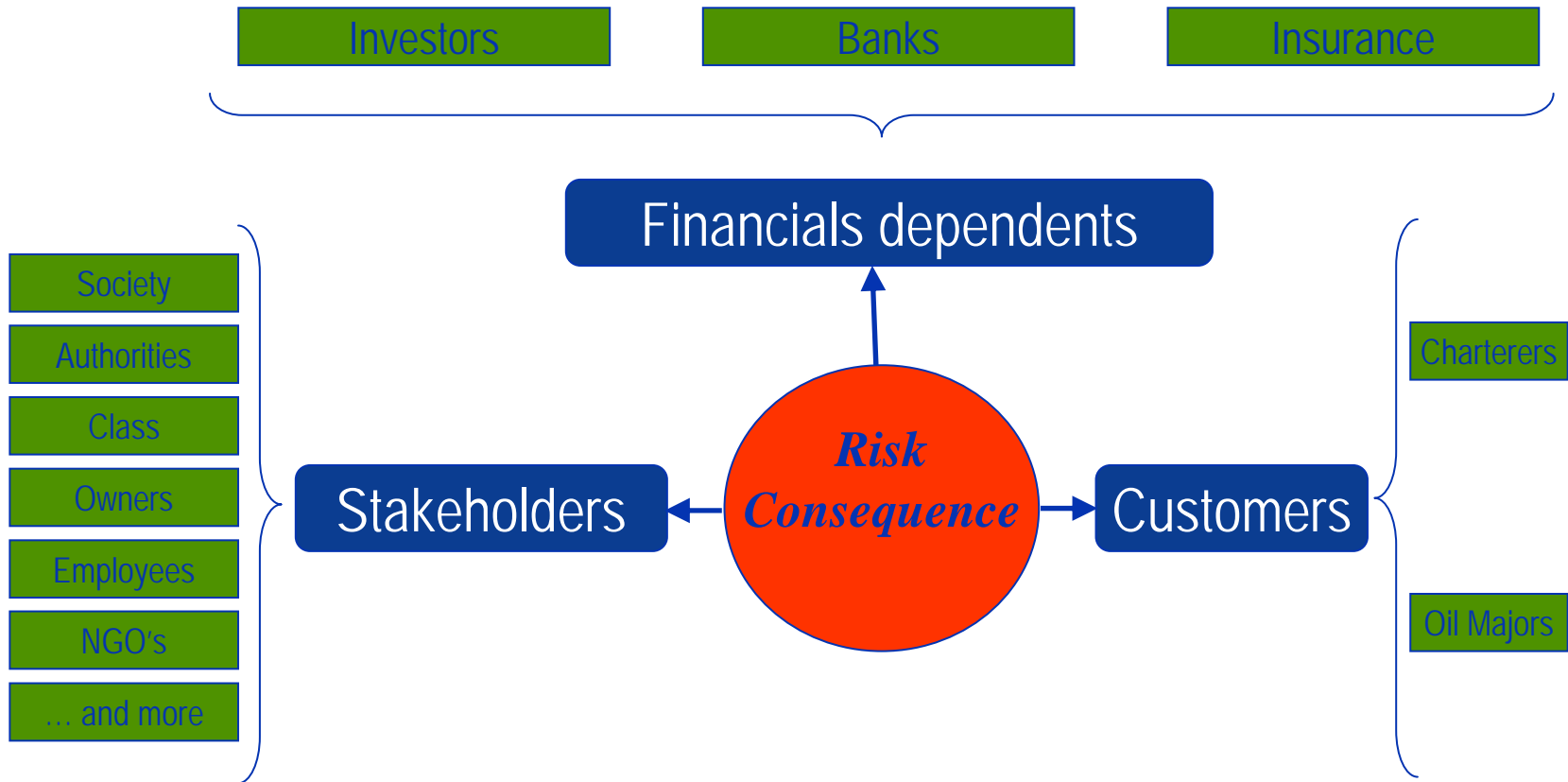


Current Research Programs & Themes

Transport Systems	Energy and Resources	Organisations of the Future	Bio Risk management	Multifunctional Materials and Surfaces
<ul style="list-style-type: none"> • Effective transportation • Risk based innovative ship design 	<ul style="list-style-type: none"> ▪ Sustainable Development ▪ Energising the Future ▪ Asset Operations 	<ul style="list-style-type: none"> • Managing Risk of Systems & Software • Business Networks • Risk based Rating of Organisations 	<ul style="list-style-type: none"> ▪ Food Safety and Quality ▪ Bio Risk Systems ▪ Bio Risk Perception 	<ul style="list-style-type: none"> • Multifunctional materials • Surfaces

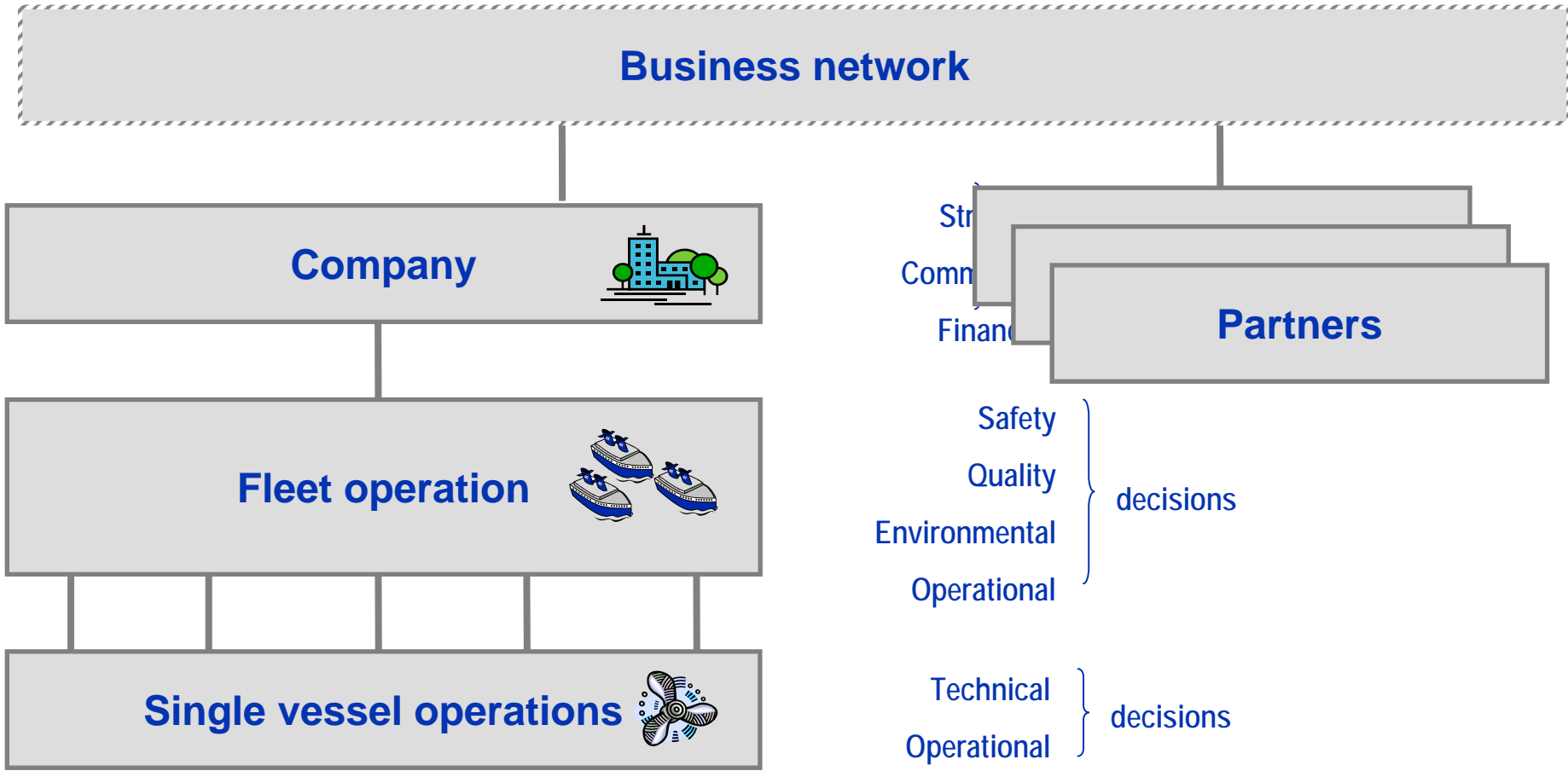
- 35 researchers, contribution from 100 additional employees in 2004
- 30-40 ongoing research projects (excluding smaller ones)
- Majority of projects involve customers, partners, competitors, ..
- Many with additional funding (EU (36 in DNV total), Research Council, ..)

“Zero tolerance” is starting to emerge as a rule among “all” involved bodies



The Consequences has increased in the modern business world

Extending the scope of risk management



Trends

- Globalization
- competition and specialization
- technology development and penetration
- general speed of change

- Enterprise relations are growing in
 - number
 - complexity
 - importance

Goal:

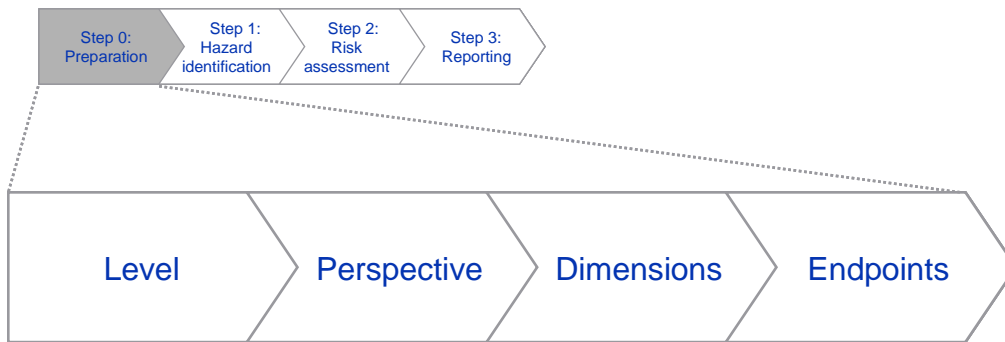
- New services and improved practice for DNV through
 - multi-disciplinary business network knowledge
 - risk management methods and tools

Definition:

- A *business network* is a collection of organisations or units with relations established to further some common goal. This goal may be defined in terms of economical, environmental or social indicators.

- Business networks differ in scope, scale, formality and degree of integration.

- Risk analysis for business networks, framework and methodology
 - Categorization of networks
 - Selection of viewpoint/ perspective
 - Deciding on endpoint of analysis
- Individual projects to supply:
 - Input on risk factor categories
 - Test cases for framework
- Projects addressing cultural issues of internationalization:
 - Oil & Gas industry: Moving operation from the North Sea to other parts of the world
 - Global Software Work: Software development in globally distributed teams and across organisations
- Process integration risks (draft project)
 - Different expectations to:
 - Degree of integration
 - Degree of automation
 - Quality and security standards
 - Information availability/ openness
 - Incompatible
 - Technological maturity
 - Processes
 - Information
 - Technology standards



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(Illustration by John Howe)