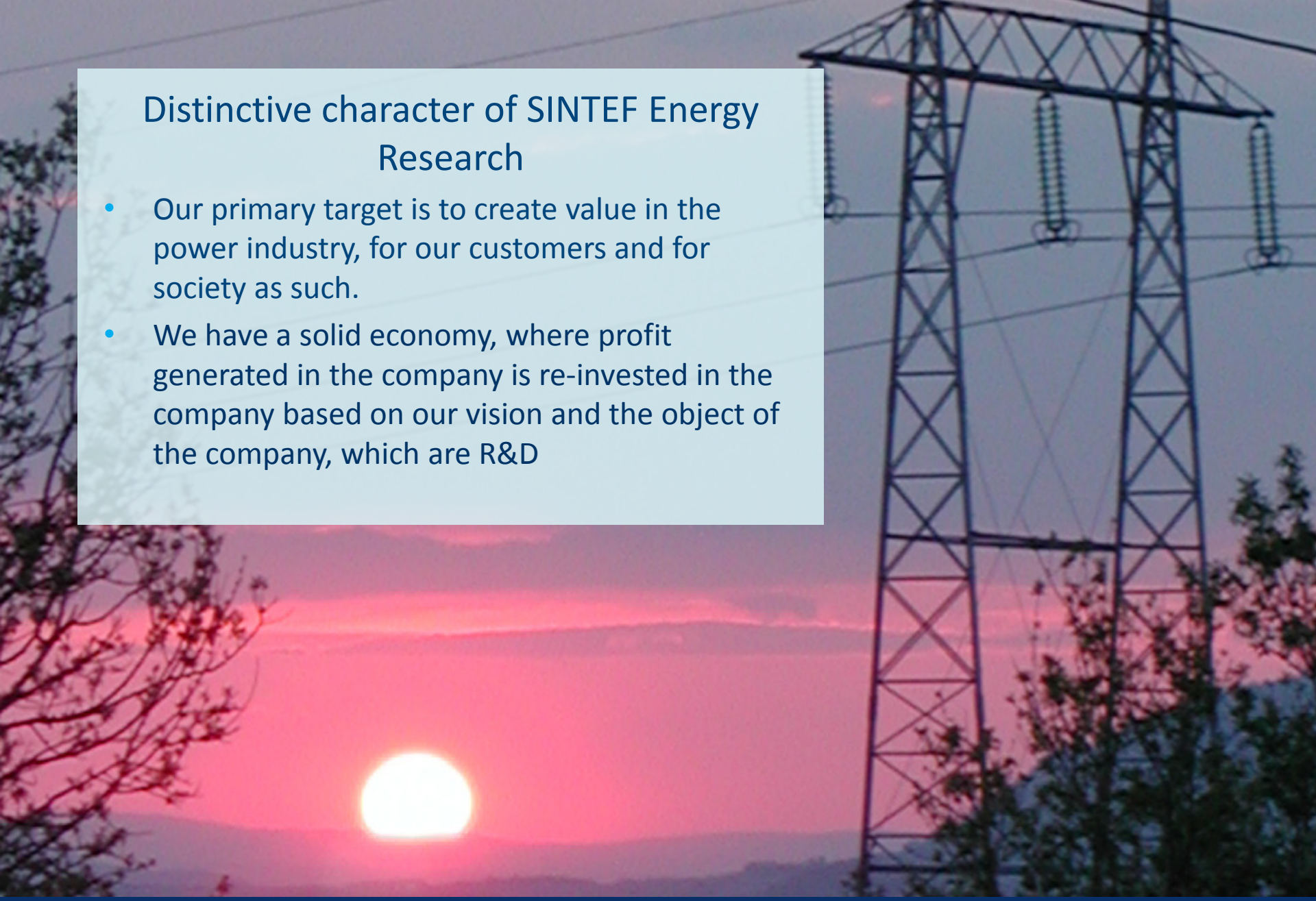
SINTEF Energy Research

- We develop solutions for the great challenges of our time.
- We are an internationally leading research and knowledge institute.
- We create business opportunities and values for the industry and the economy
- We collaborate closely with NTNU
- SINTEF is a non-profit organisation



Distinctive character of SINTEF Energy Research

- Our primary target is to create value in the power industry, for our customers and for society as such.
- We have a solid economy, where profit generated in the company is re-invested in the company based on our vision and the object of the company, which are R&D

SINTEF as software house

Strategy and our objective and vision

Creative, productive maintenance

Future plans

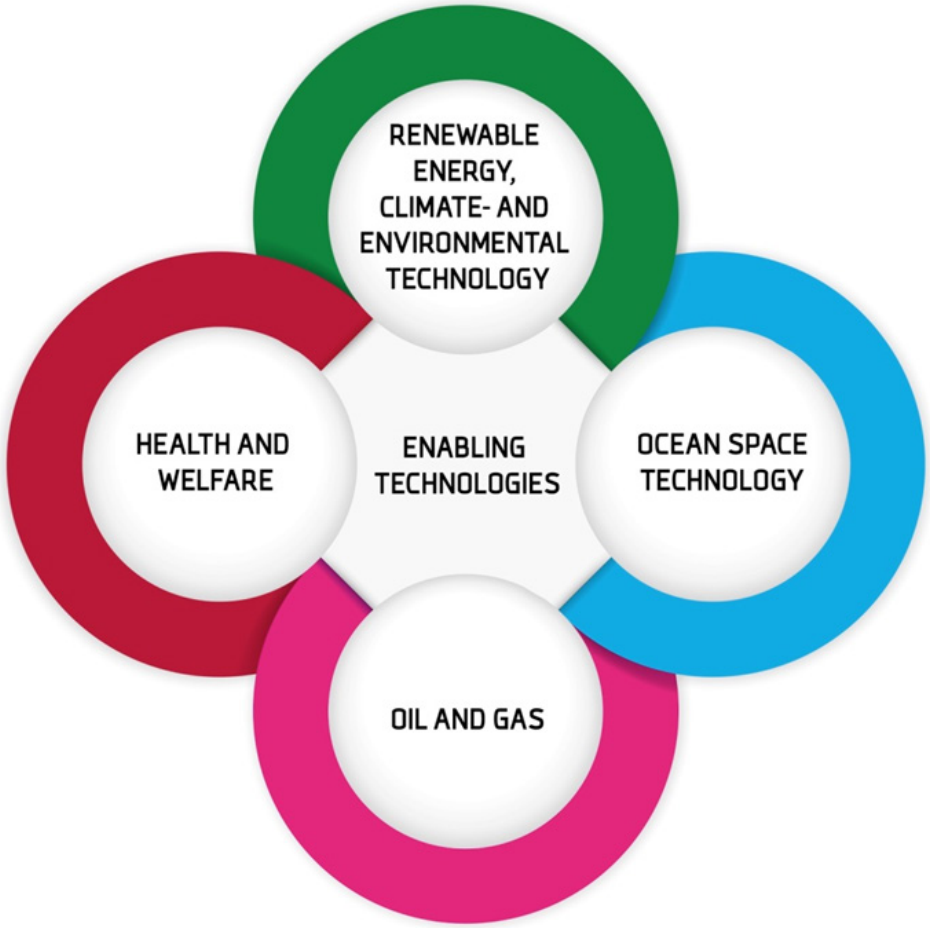
Research manager, Michael Belsnes

Main goal and strategic focus areas

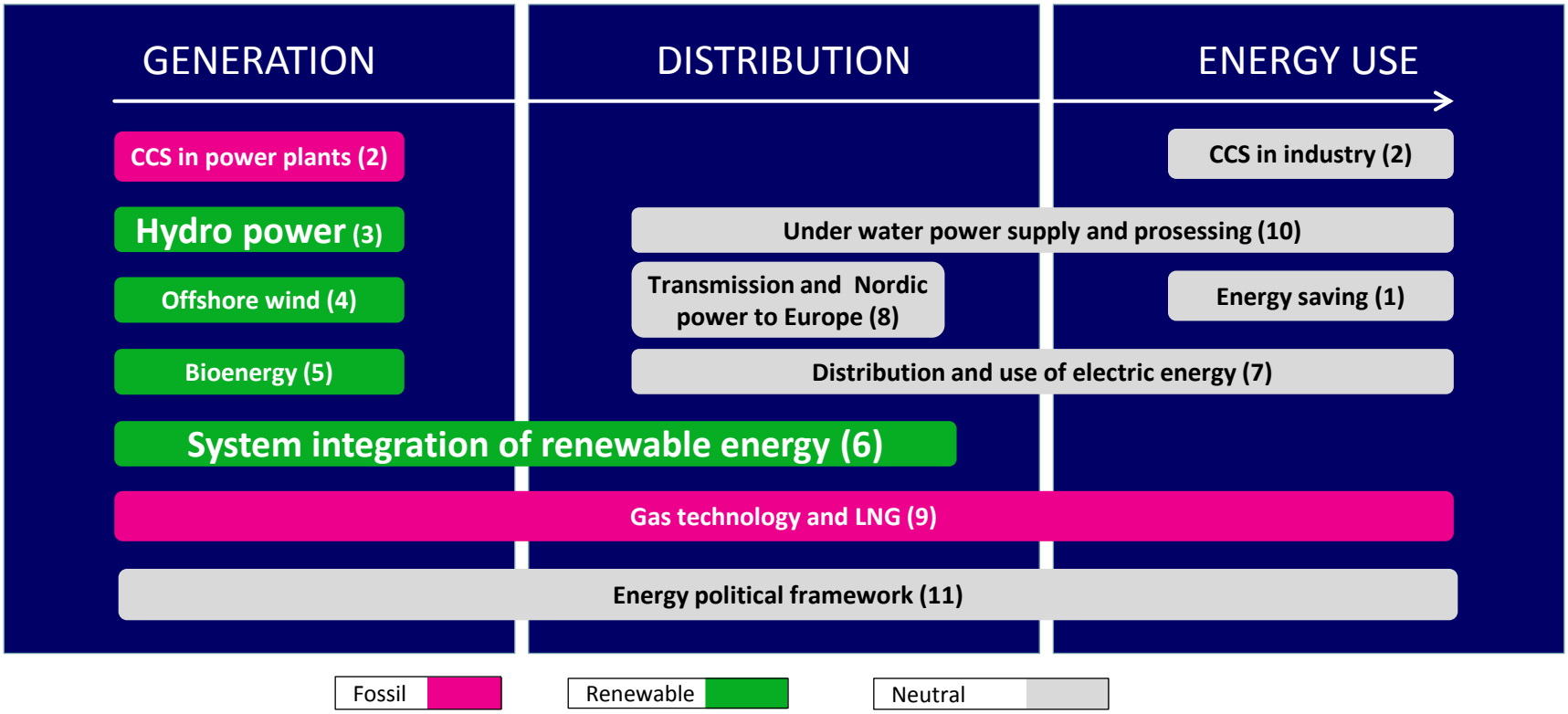
SINTEF shall be a world-leading research institute

We develop solutions to some of society's grand challenges by being at the forefront of our strategic focus areas:

- **Renewable energy, climate- and environmental technology**
- Oil and gas
- Ocean space technology
- Health and welfare
- Enabling technologies



Strategic areas in SINTEF Energy Research

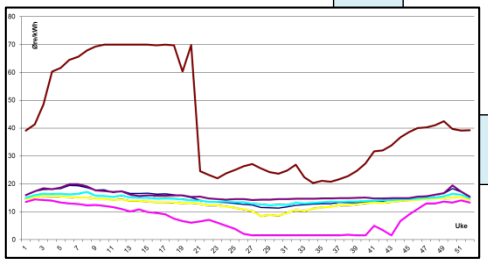


SINTEF Energy Research work with the entire value chain

Together with NTNU we aim to be the ones closest to the correct solution.

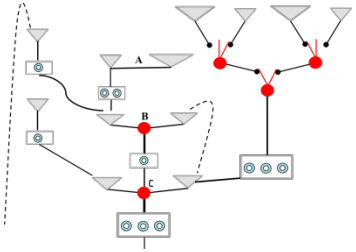
Energy system

Norway, Scandinavia, Europe



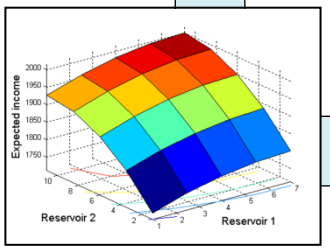
LTM

Long-term & seasonal planning



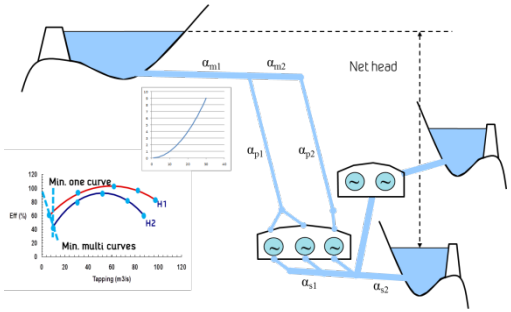
Our organization must be robust in size and distribution of expertise

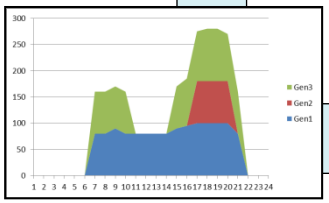
We aim to be internationally leading in hydro power scheduling and to be reputable within R&D through application and publication.



KTM

Short-term energy management





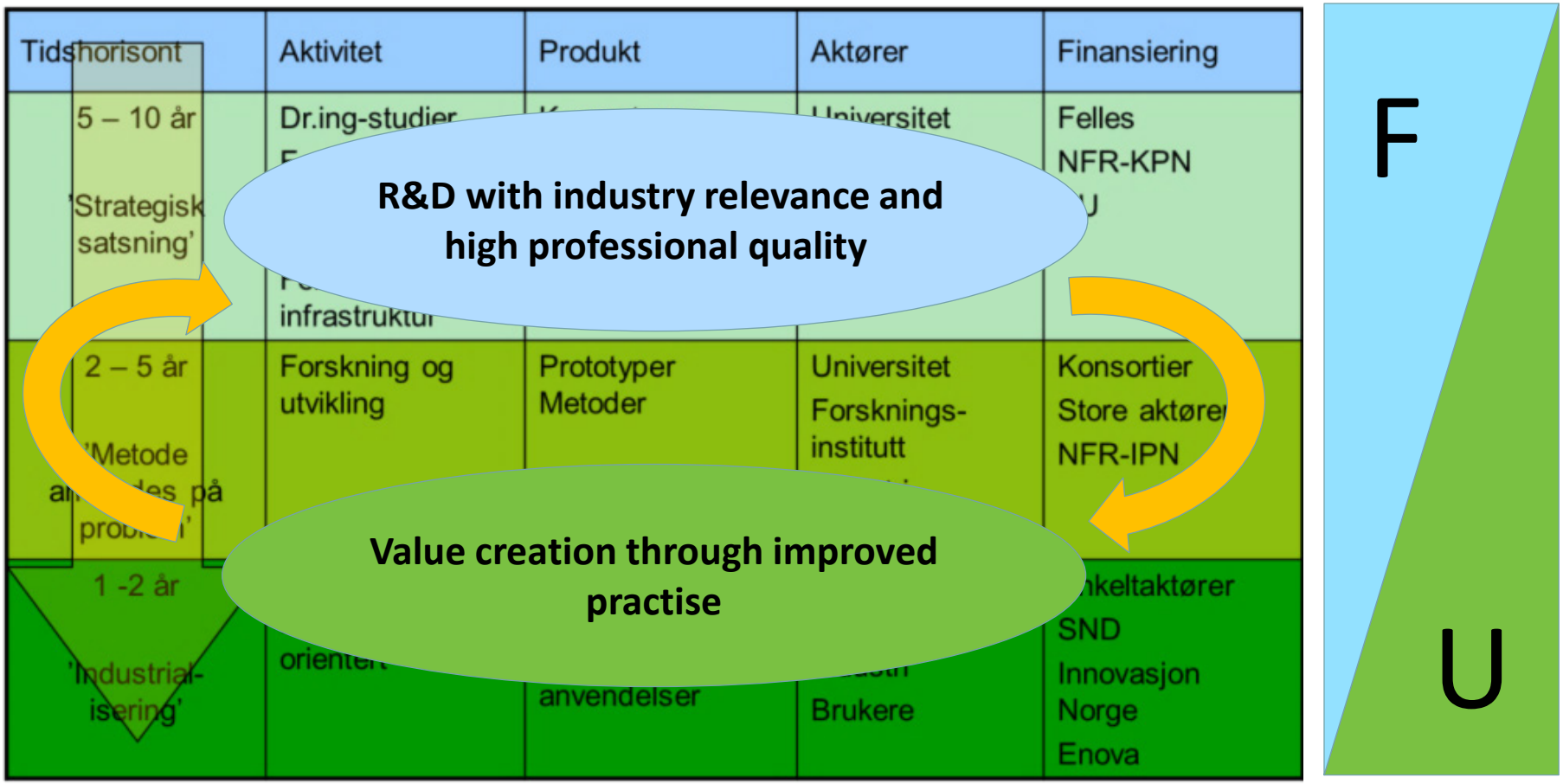
Simulation & verification

Time

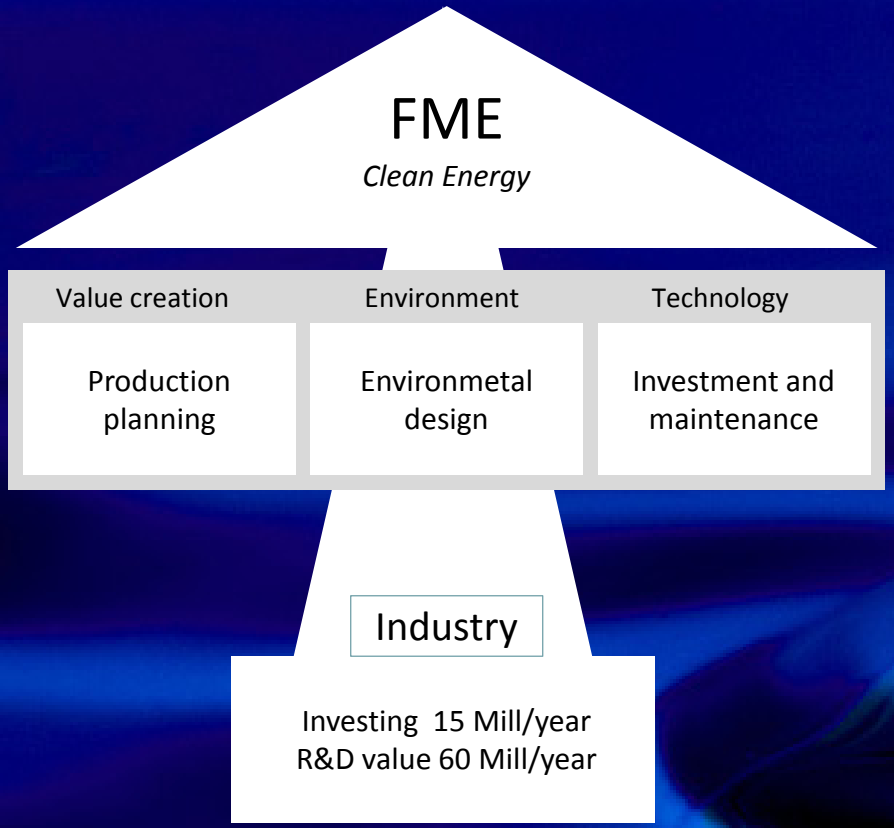
Planning

Implementing

MAXIMUM VALUE CREATION

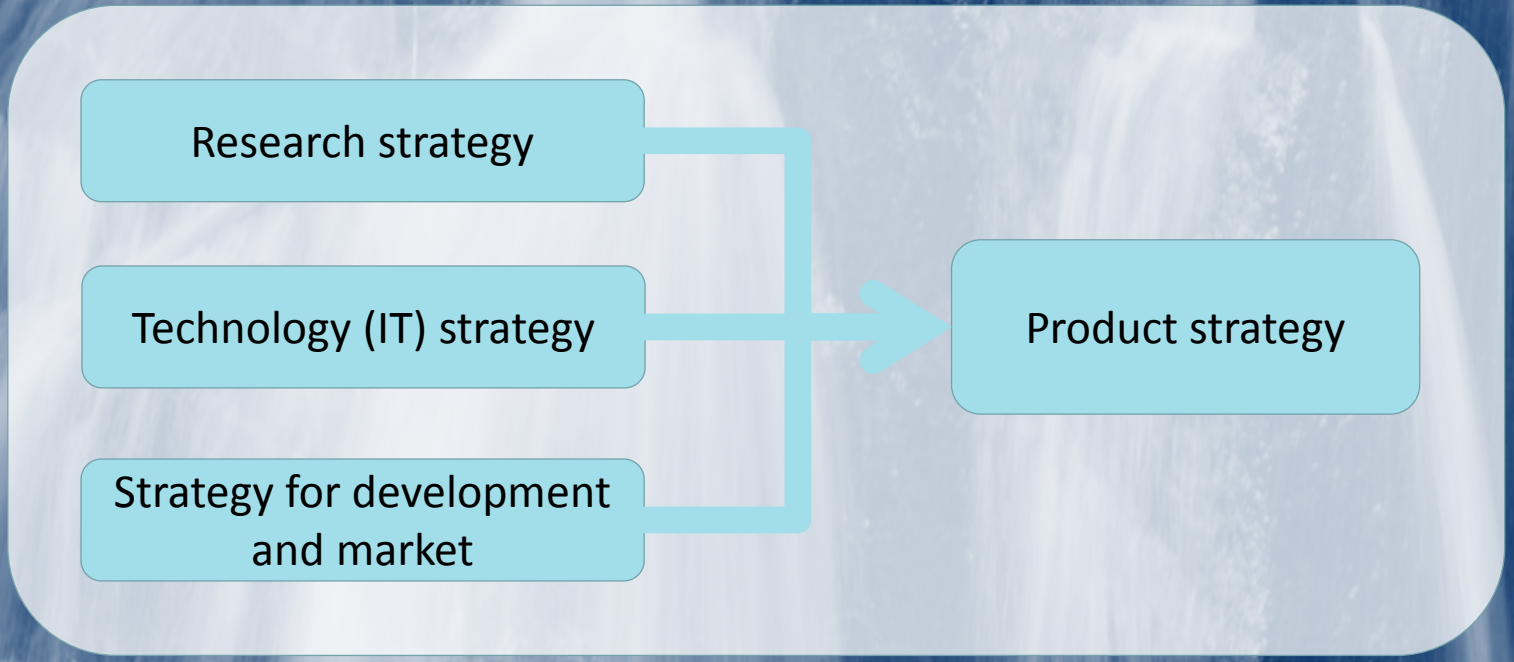


New FME can create large values in the industry and contribute to realization of SINTEF Energy Research's strategy for Hydro Power



SINTEF

Combination into a product strategy



Maintenance principles

Important for the users

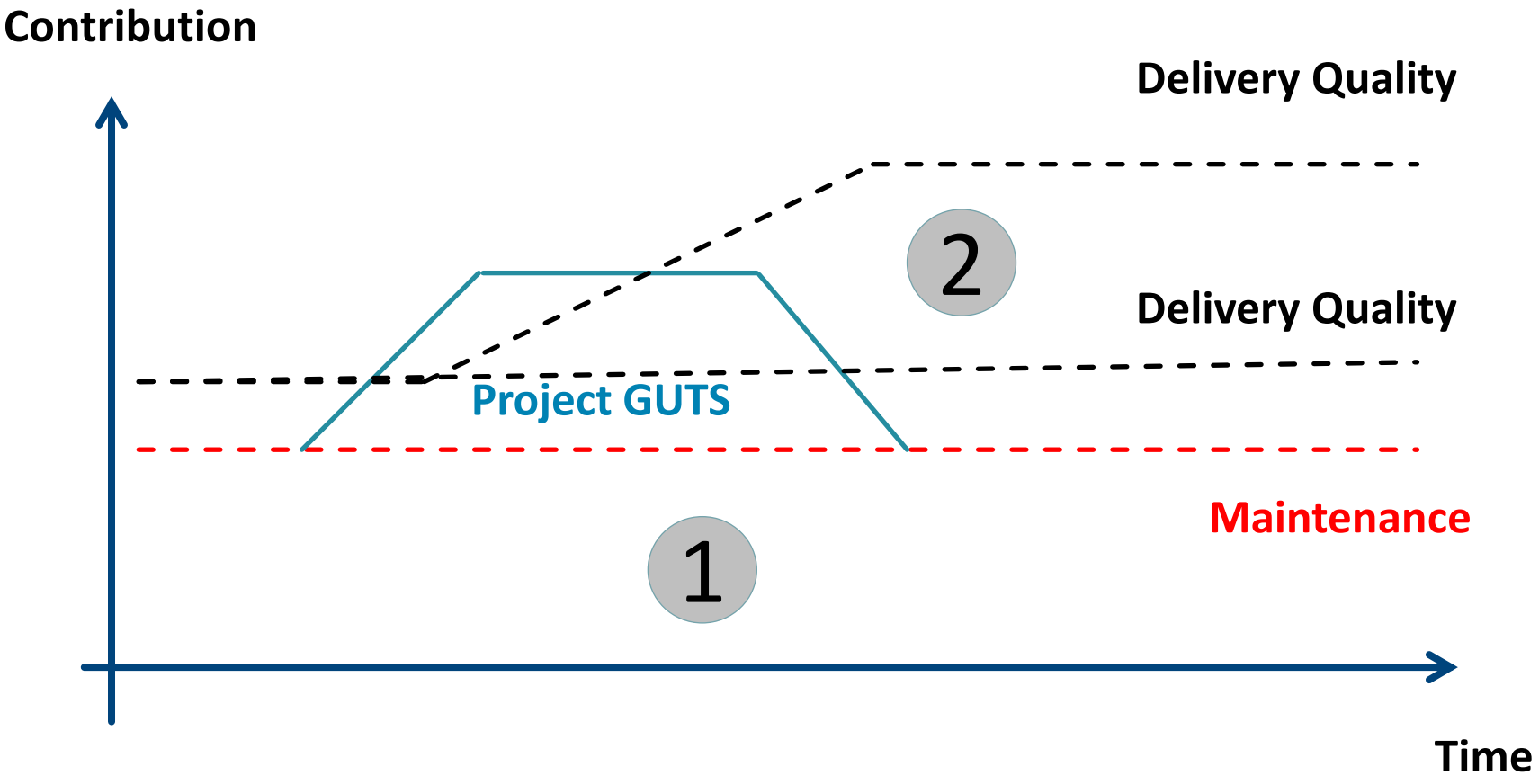
Important for SINTEF

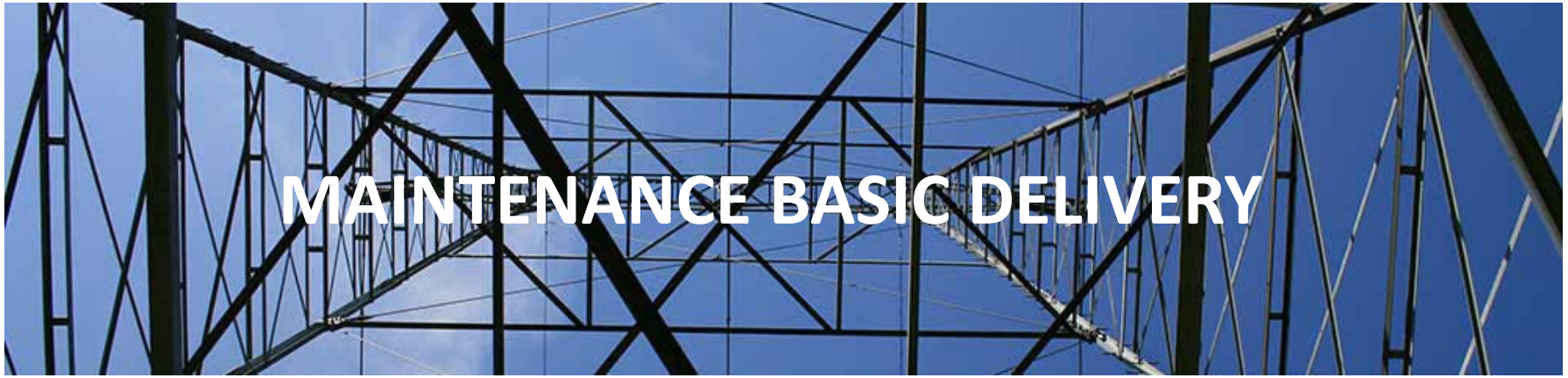
Our models shall contribute to both the users and SINTEF Energy's objectives.

Our models must have a viable level (technology that gives competitiveness in use as well as continued R&D)

Our work shall be conducted with quality and effectiveness.

Maintenance contribution and development in quality of delivery



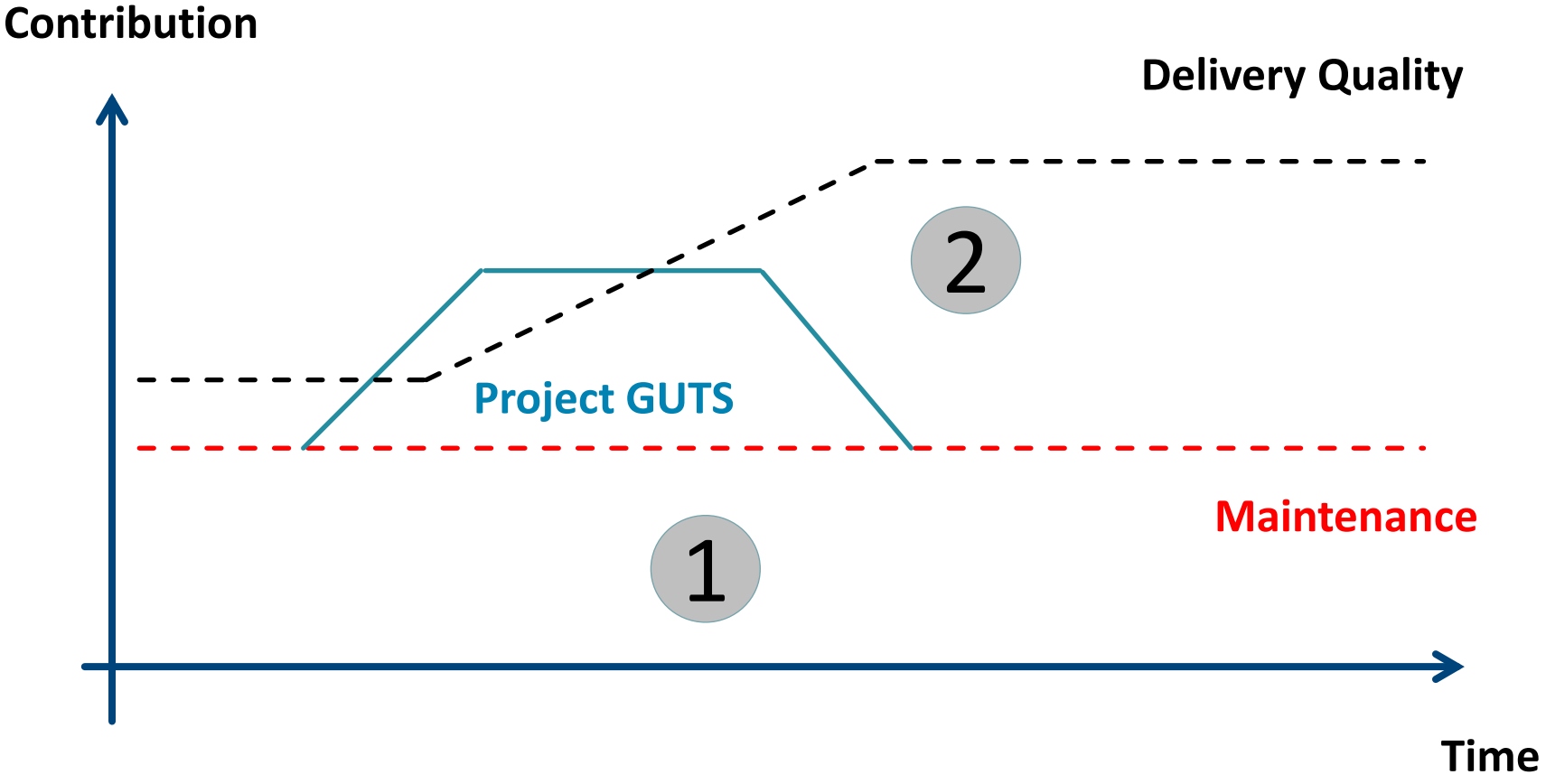


MAINTENANCE BASIC DELIVERY

- SUPPORT AND FAULT CORRECTION
- IMPROVEMENT, NEW FUNCTIIONALTY, DOCUMENTATION
- ADAPTATION TO SYSTEM CHANGES
- MODERN PLATFORM, LIFETIME EXTENSION

GUTS – Getting Up To Speed

Increased competitiveness, improved delivery quality



GUTS – Getting Up To Speed

Increased competitiveness, improved delivery quality (1)

Consequence for the Users	Utility Value
Lower cost in R&D projects	Efficiency improvement that over will contribute to utility value through improvement of the models
Faster delivery in R&D projects	Increased adaptive capacity for the Users regarding changes in framework conditions and work flows
	Increased possibility to use the tools in education where students will become familiar with the tools

GUTS – Getting Up To Speed

Increased competitiveness, improved delivery quality (2)

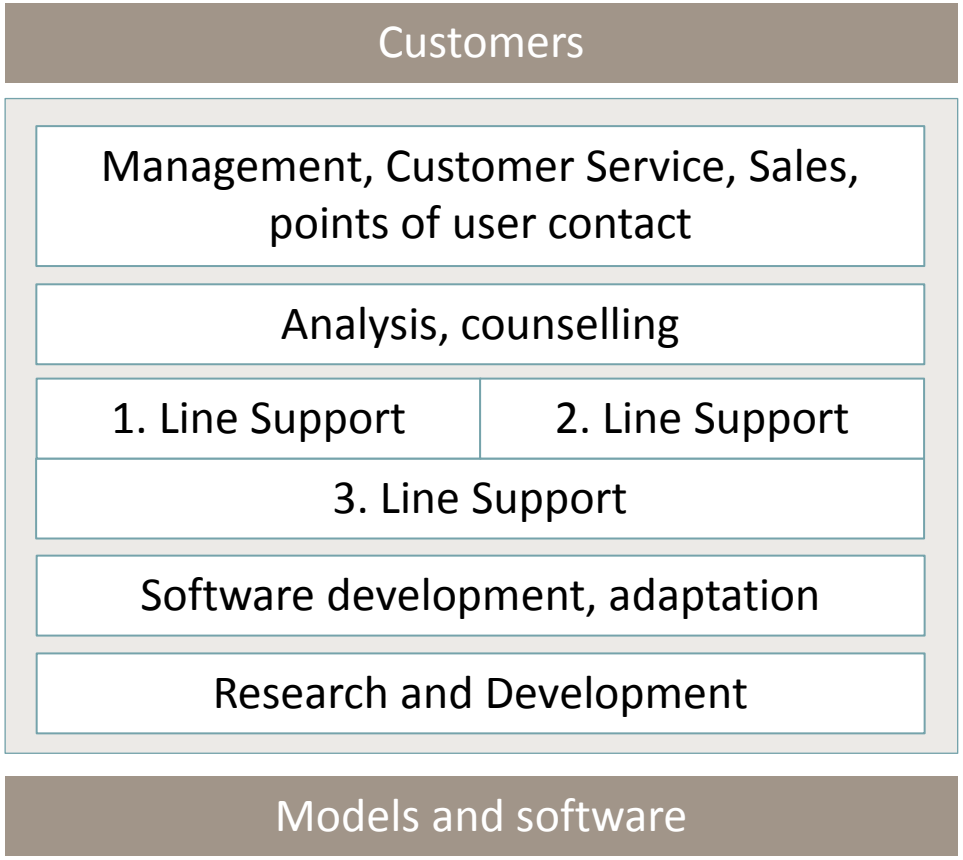
Consequence for the Users	Utility Value
Updated and modern architecture in the models. Bigger robustness regarding external changes such as programming languages and 3. party solutions on parallelization, interface, and optimization.	Possibility of implementing low cost API's that facilitate integration of the models in the operative processes and solutions Lower risk of breakdown in business critical solutions.

GUTS – Getting Up To Speed

Increased competitiveness, improved delivery quality (3)

Consequence for the Users	Utility Value
Lower fail rate of the software, minimum 50% 3 years, and a further 25% reduction after 6 years	Higher User effectiveness in application of the models
Less administration and manual work when taking new releases into use	New functionality can create values at the User as it can be taken into use faster
Better documentation considering the User specific use	Increased possibility for training and as a consequence a higher competence level at the User
	Lower integration cost of new releases

Future steps



Gradual increase, hiring from May

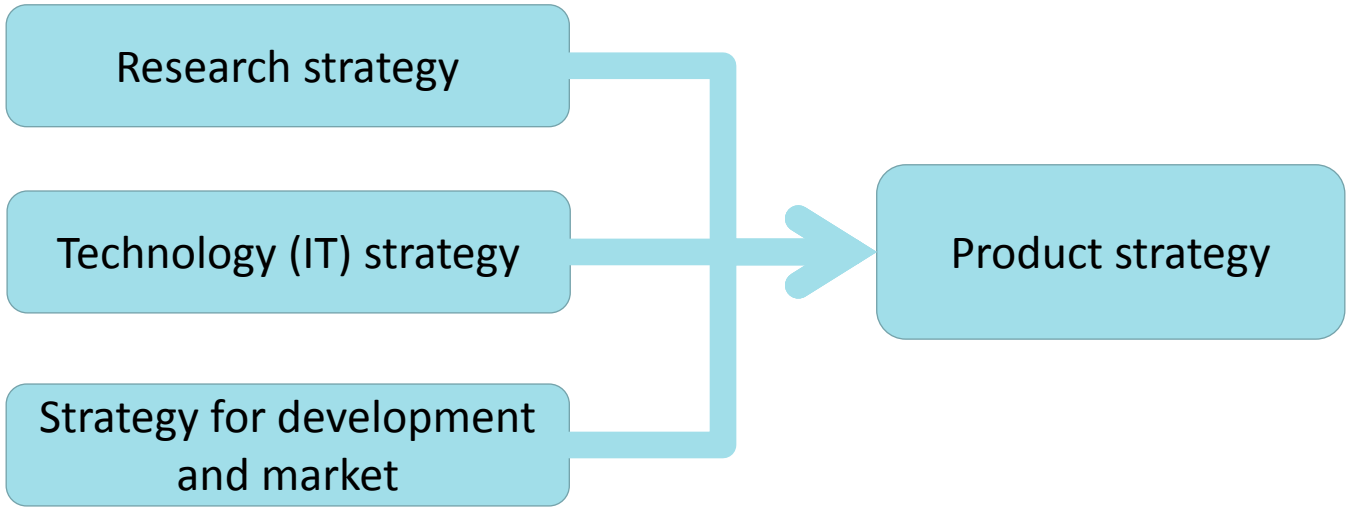
Planning for partner Agreement during May

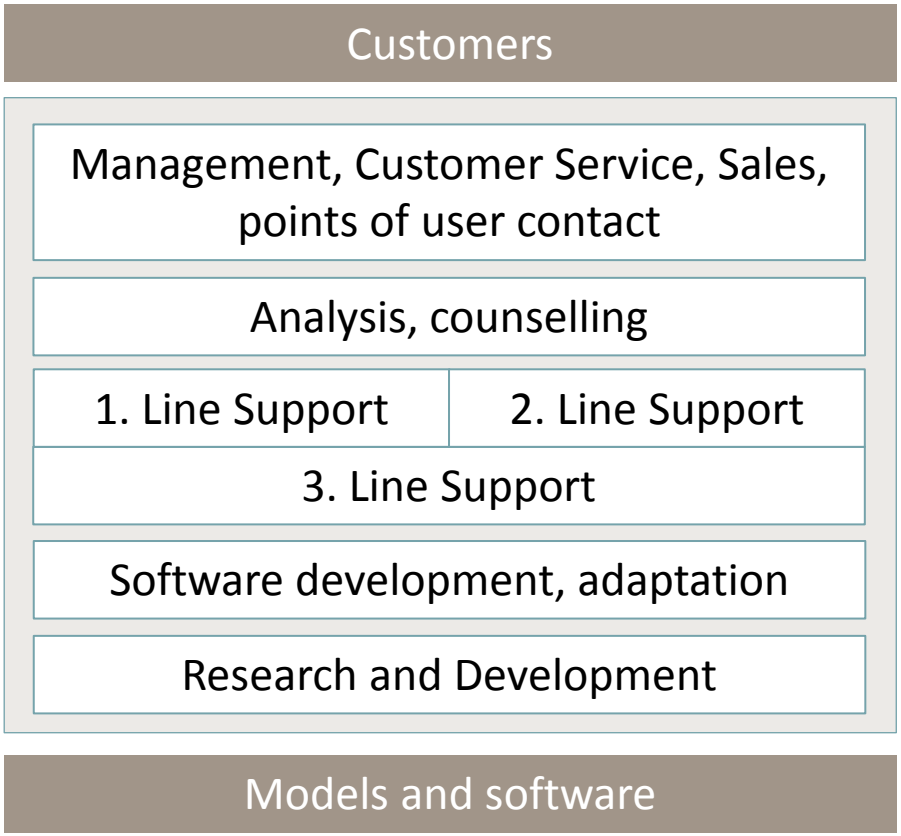
Increased implementation Capacity from August

Questions, comments, discussion

Diverse

Kombinasjon av strategier





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