

A small white boat with a dark hull is positioned in the center of the frame. Two workers are on board: one in an orange suit and another in a bright yellow suit. They are near a large, dark, cylindrical object, possibly a pipe or part of a drilling rig, which is partially submerged. The background shows a dark, choppy sea and a distant, rocky coastline under a heavy, grey, stormy sky. The overall mood is somber and industrial.

# Ragnarok 2.0

– revolutionary smart suit for workers exposed to high-risk environments

# Protex Balti AS - leading supplier of advanced textile solutions to Scandinavian market







In 2007 Protex (NOR) entered Estonian market through acquisitions



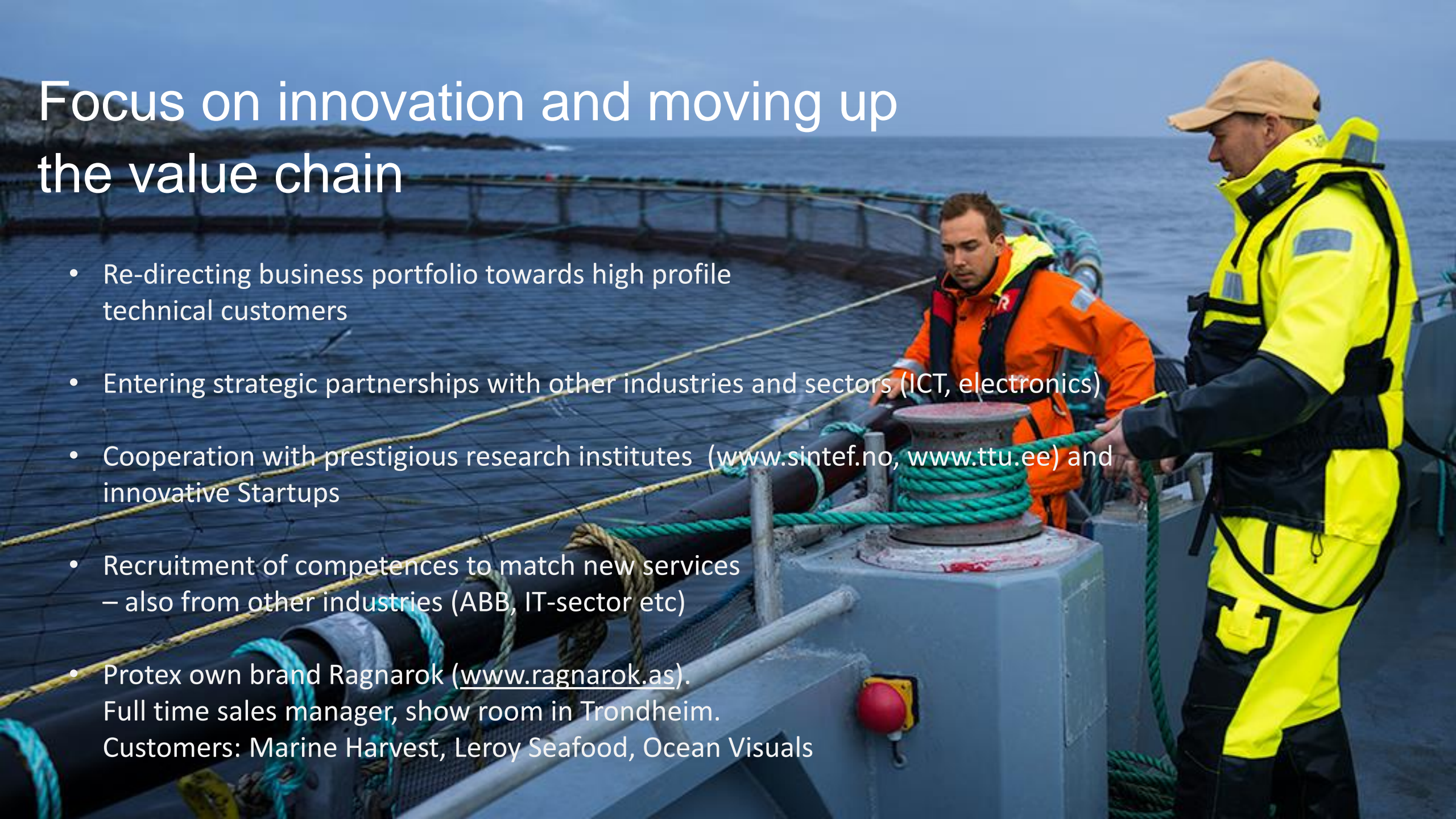


Fast growth brought many challenges and Protex suffered heavy losses (2014)



# Focus on innovation and moving up the value chain

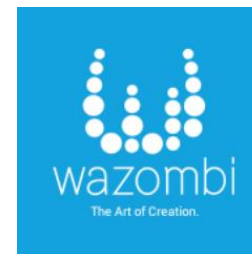
- Re-directing business portfolio towards high profile technical customers
- Entering strategic partnerships with other industries and sectors (ICT, electronics)
- Cooperation with prestigious research institutes ([www.sintef.no](http://www.sintef.no), [www.ttu.ee](http://www.ttu.ee)) and innovative Startups
- Recruitment of competences to match new services – also from other industries (ABB, IT-sector etc)
- Protex own brand Ragnarok ([www.ragnarok.as](http://www.ragnarok.as)). Full time sales manager, show room in Trondheim. Customers: Marine Harvest, Leroy Seafood, Ocean Visuals



# Consortium partners for Ragnarok 2.0



ESTONIAN ICT CLUSTER :



TALLINN UNIVERSITY OF  
TECHNOLOGY



European frontrunners within ICT, smart electronics, R&D and manufacturing





# Ragnarok 2.0 – much more than a work clothing 1(2)



## **Speech to text notes -**

easy note taking in hard working conditions where it's not possible to write or use computer, Ragnarok can record speech and save it as voice clips or text .



## **Fall Detection**

each Ragnarok can sense when user falls or slips or and can notify team members or supervisors, adding another security layer of early notification



## **Positioning and tracking**

supervisor can get information on who is where and when



# Ragnarok 2.0 – much more than a work clothing 2(2)



## **Safety light**

Embedded light cables for improved visibility and safety - logo or glowing lines with EL wire for safety and design



## **Monitor vital signs**

get real-time vital info on ambient temperatures, heart rate, surrounding noise level to better understand the working conditions and the environment



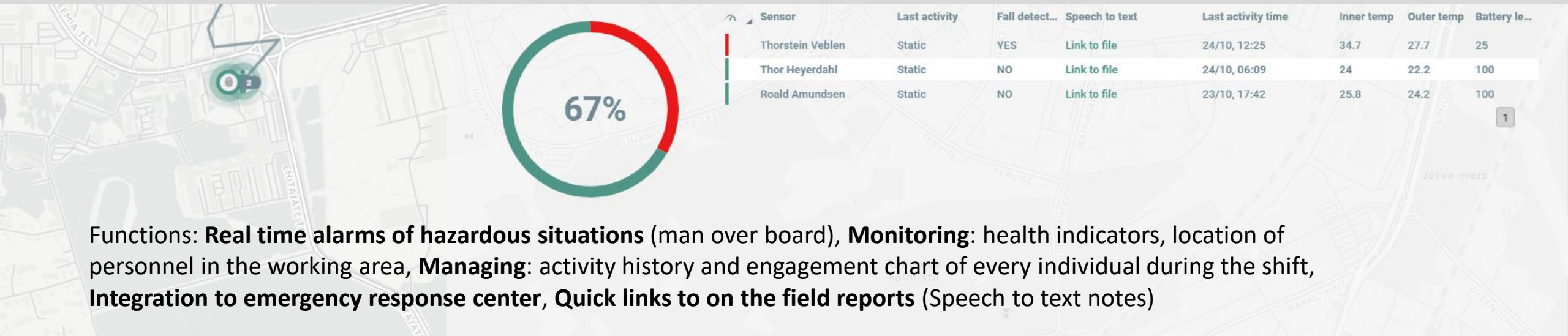
## **Activity monitoring**

Supervisors and users will have real-time feedback on the type and intensity of physical activity



**RAGNAROK**  
BY PROTEX

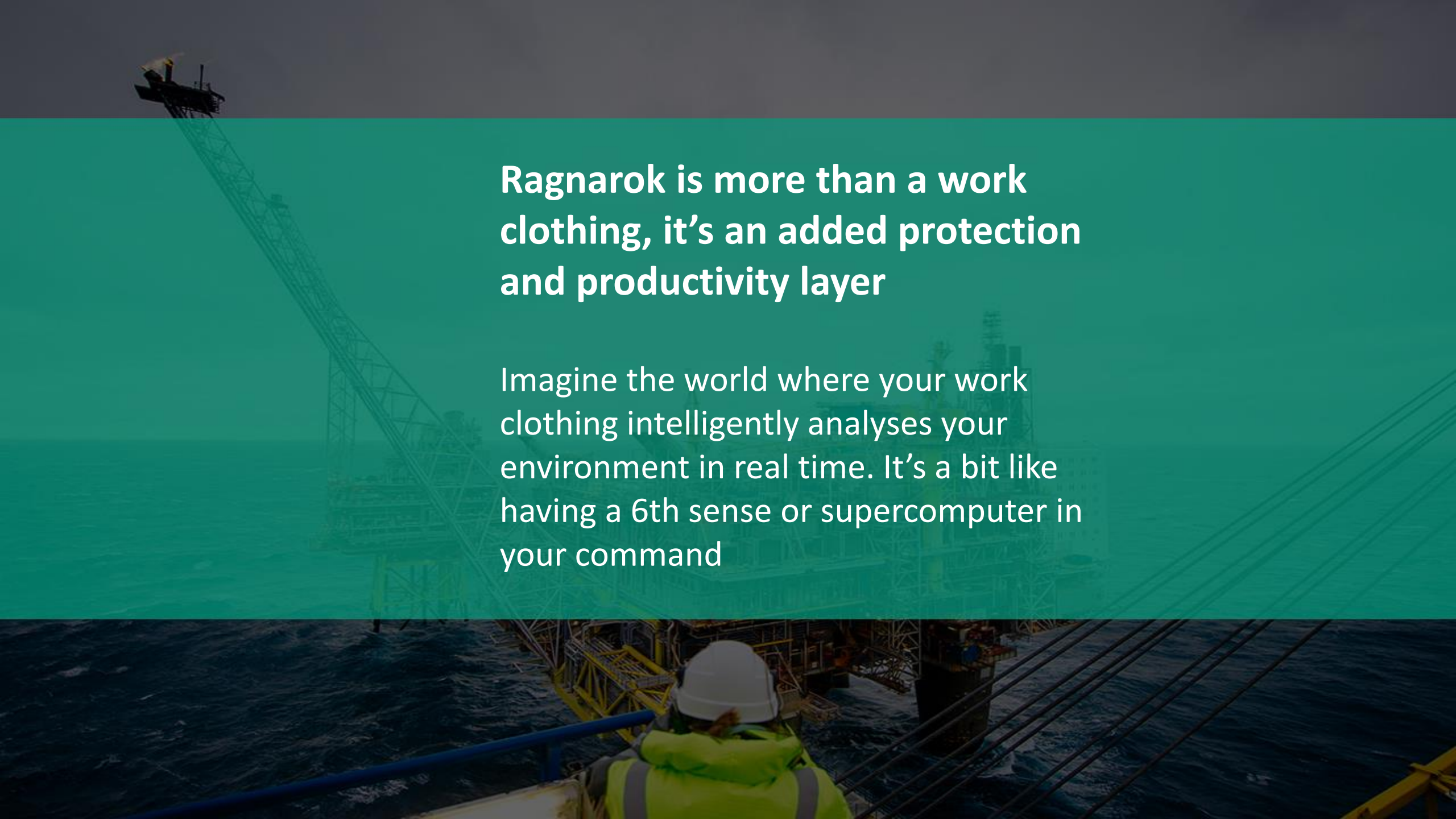
# Supervisor dashboard for monitoring and managing the workforce



Functions: **Real time alarms of hazardous situations** (man over board), **Monitoring:** health indicators, location of personnel in the working area, **Managing:** activity history and engagement chart of every individual during the shift, **Integration to emergency response center**, **Quick links to on the field reports** (Speech to text notes)





The background image shows an offshore oil rig in the middle of the ocean. A worker wearing a white hard hat and a high-visibility yellow jacket is seen from behind, looking out over the rig and the sea. The rig's complex metal structure, including a large crane arm, is visible against the horizon. The sky is a clear, pale blue.

## **Ragnarok is more than a work clothing, it's an added protection and productivity layer**

Imagine the world where your work clothing intelligently analyses your environment in real time. It's a bit like having a 6th sense or supercomputer in your command



Smart wear and Internet of things (IoT) – the race is on



# Best-in-class innovation through clustering between frontrunners within their respective industries and sectors



Supported by European Regional Development Fund through the projects Estonian ICT Cluster and Smart Electronics Cluster ESTRONICS.



**RAGNAROK**  
BY PROTEx  
NORWAY

Thank you.

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