



Western Norway
University of
Applied Sciences

HUMANE

Future skills in the maritime sector

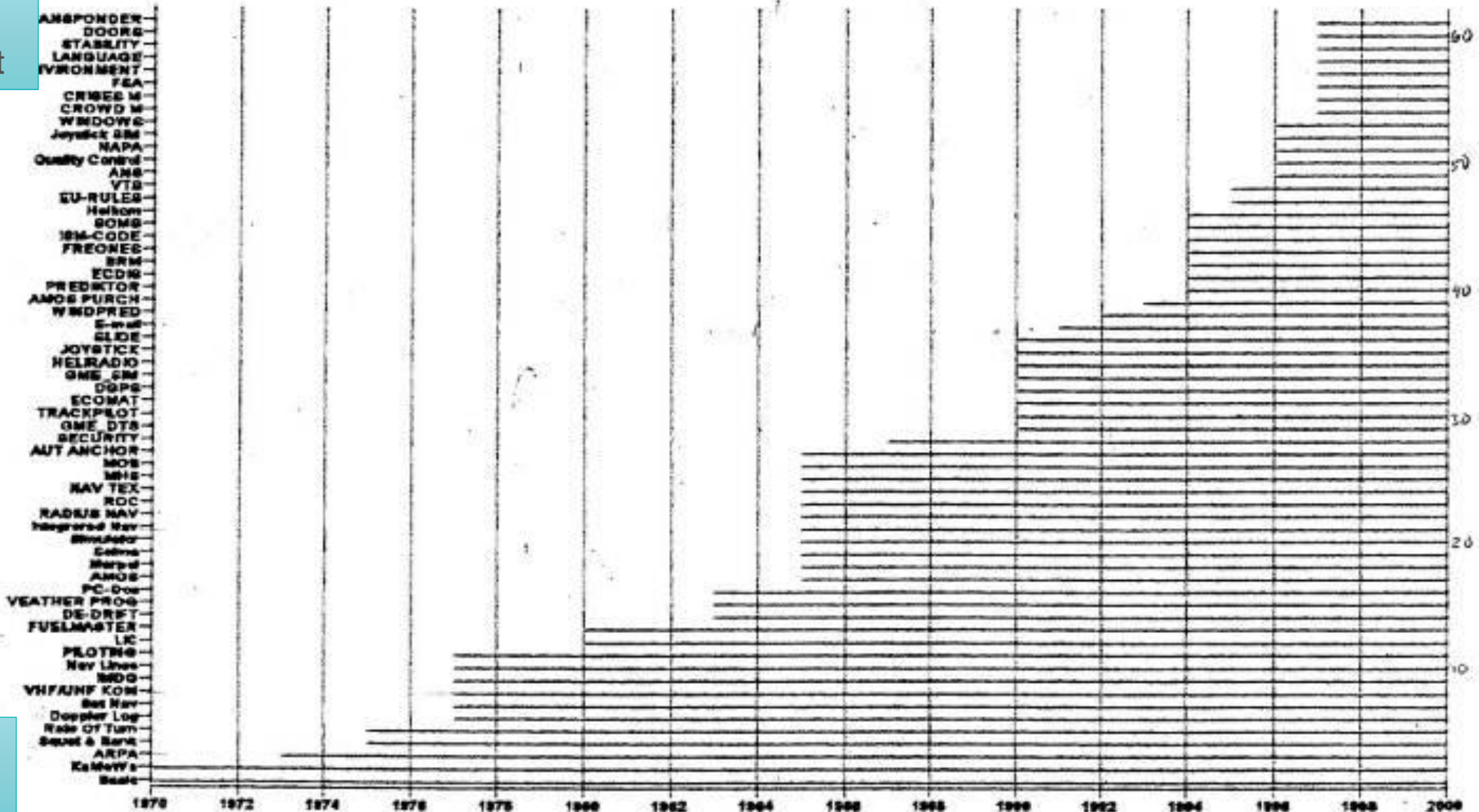


HUMANE

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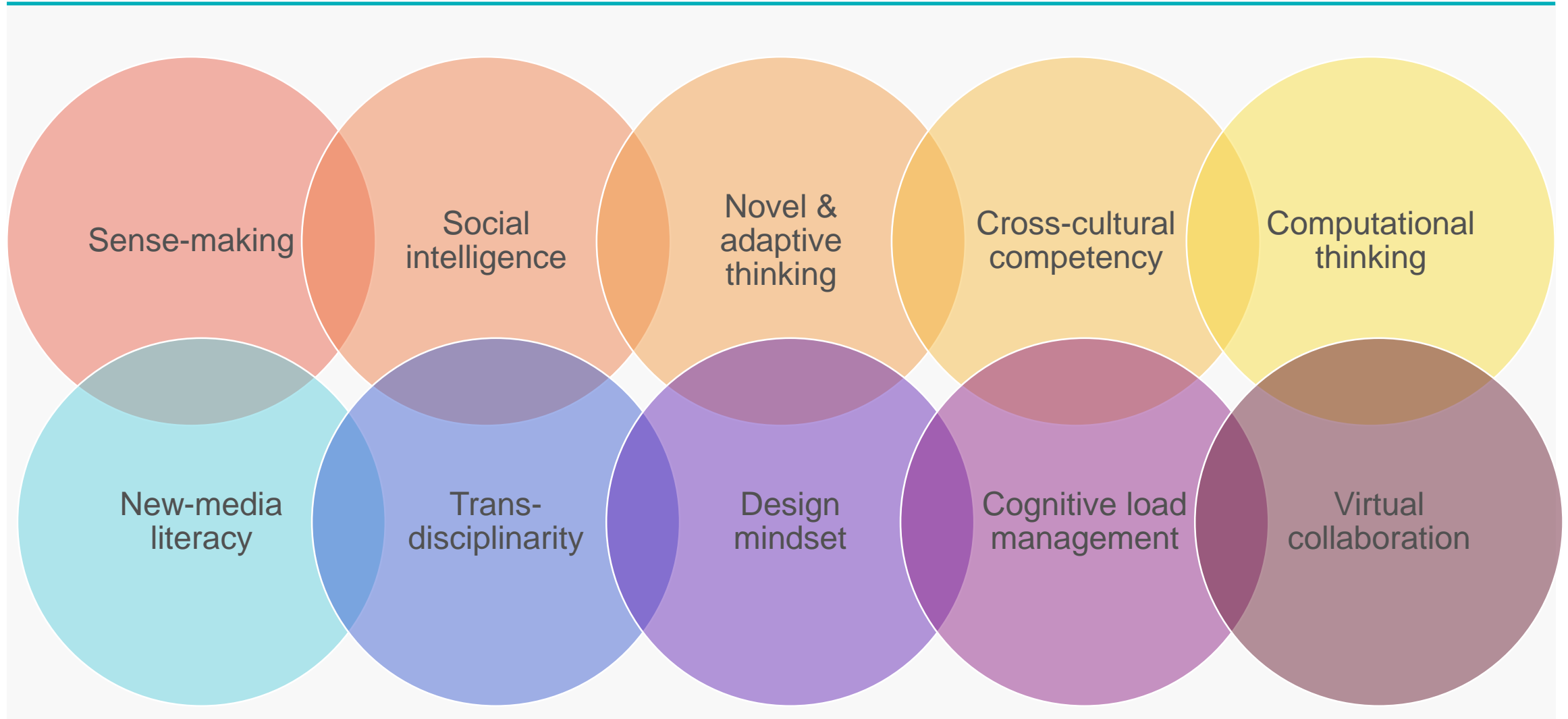
THE INCREASE in SKILLS REQUIREMENTS 1970 -2000

Transponder
Crisis mgmnt



ARPA
KaMeWa

Ten skills for the future workforce



The HUMANE project

- › **HUMANE:**
 - › **Human**
 - › **Maritime**
 - › **Autonomy**
 - › **Enable**
- › Looking into the future
- › Focus: human factors in the context of ship automation/autonomy
- › Goal: to enable (positive approach)



HUMANE

HUMANE project

› HUMANE expert workshops:

1. System safety & cyber security (October 2018)
 2. Legal implications (January 2019)
- Soon...
3. Skill sets, competence and knowledge
 4. Organisational & job design issues



CIRM	SINTEF	Inmarsat
Massterly	BW Gas	Wärtsilä
Rolls Royce	Bellona	MTI-NYK
DNV-GL	Lloyds Register	Kystverket
InterManager	ABB	Norcontrol
Kongsberg Maritime	Kongsberg Seatex	Maritime Robotics
F-Secure	RISE Viktoria	EXMAR
Norwegian Maritime Authority	Danish Maritime Authority	Swedish Transport Agency
Western Norway University of Applied Sciences	Norwegian University of Science and Technology	University of Southeast Norway
University of Southampton	Åbo Akademi University	Wilhelmsen Ship Management
BIMCO	Gard	

Expert workshops – discussed skills

IT skills

- Basic understanding of IT systems (troubleshooting, small fixes)
- Ability to interact with user interfaces (training problem or design problem?)
- Cybersecurity awareness

Expert workshops – discussed skills

Skills needed to work with highly automated systems

- Monitoring
- Integrating
- Supervising

Expert workshops – discussed skills

«Meta» skills

- Learning skills
- Ability to find the information (or a person)
- Adaptation

Expert workshops – discussed skills

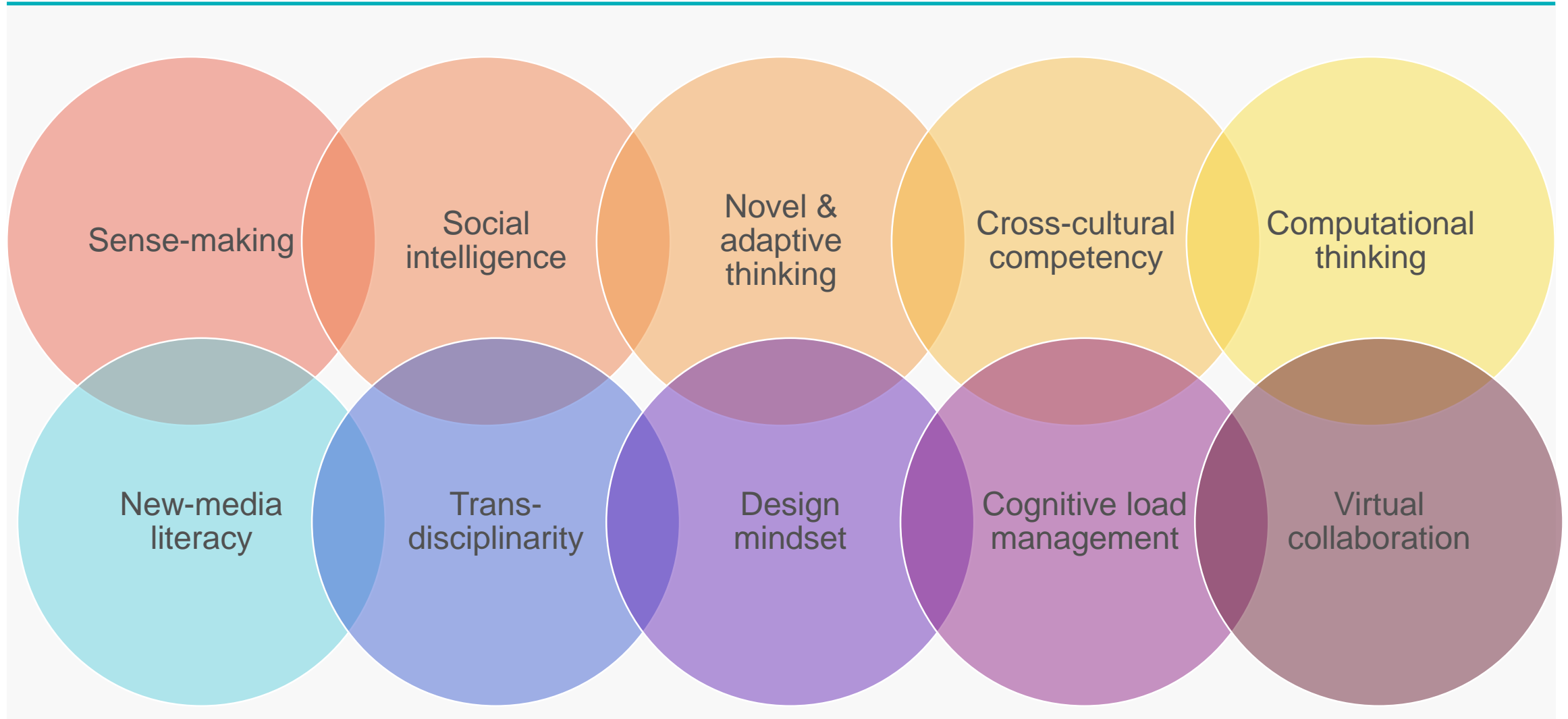
Other skills

- Language – English proficiency
- General/global knowledge about the world
- Cultural ‘awareness’

Desktop simulation with seafarers– preliminary results



Ten skills for the future workforce



What now?

- › Can it be trained?
- › How long does it take?
- › What do the trainers need to do and know?
- › How can the education system reshape itself?
- › Lifelong learning – not only the traditional education is involved



Let us think of an “ecosystem of skills”

- › Knowledge and skills as property of the whole system
 - › Some of the required skills are narrow and specialised
 - › Knowledge and skills are transferred within the system
 - › Sharing and teaming

“Life is learning”

