



# Development of the industry through cooperation on research

Mario Morales – SINTEF

Andre Araujo – Emerald

# Agenda

1. What is Research and Applied Research
2. The Research Council of Norway
3. Technology Readiness Levels (TLR)
4. Industry Cooperation on Research
5. Spin-off example

# Research and Applied Research

- **Basic research** focuses on the advancement of knowledge, rather than solving a problem
  - Basic research tends to be **self-initiated** and caused by an individual's motivation to learn more about an area
- **Applied research** directs its efforts toward finding a solution to a specific problem.
  - Work to help a client and are driven by the **client's desires**.

# The Research Council of Norway (NFR)

- The Research Council's aim is to promote a society where research is created, used and shared, and thus contributes to restructuring and enhanced sustainability

→ Democracy, administration and renewal	→ Land-based food, the environment and bioresources
→ Energy, transport and low emissions	→ Life science
→ Global development and international relations	→ Enabling technologies
→ Oceans	→ Natural sciences and technologies
→ Health	→ Petroleum
→ Humanities and social sciences	→ Education and competence
→ Industry and services	→ Welfare, culture and society
→ Climate and polar research	→ Sámi

# Research Statistics

7 milliards USD spent on research in 2019

90.000 people involved. 75% researchers and academics

2020: 1634 new doctors

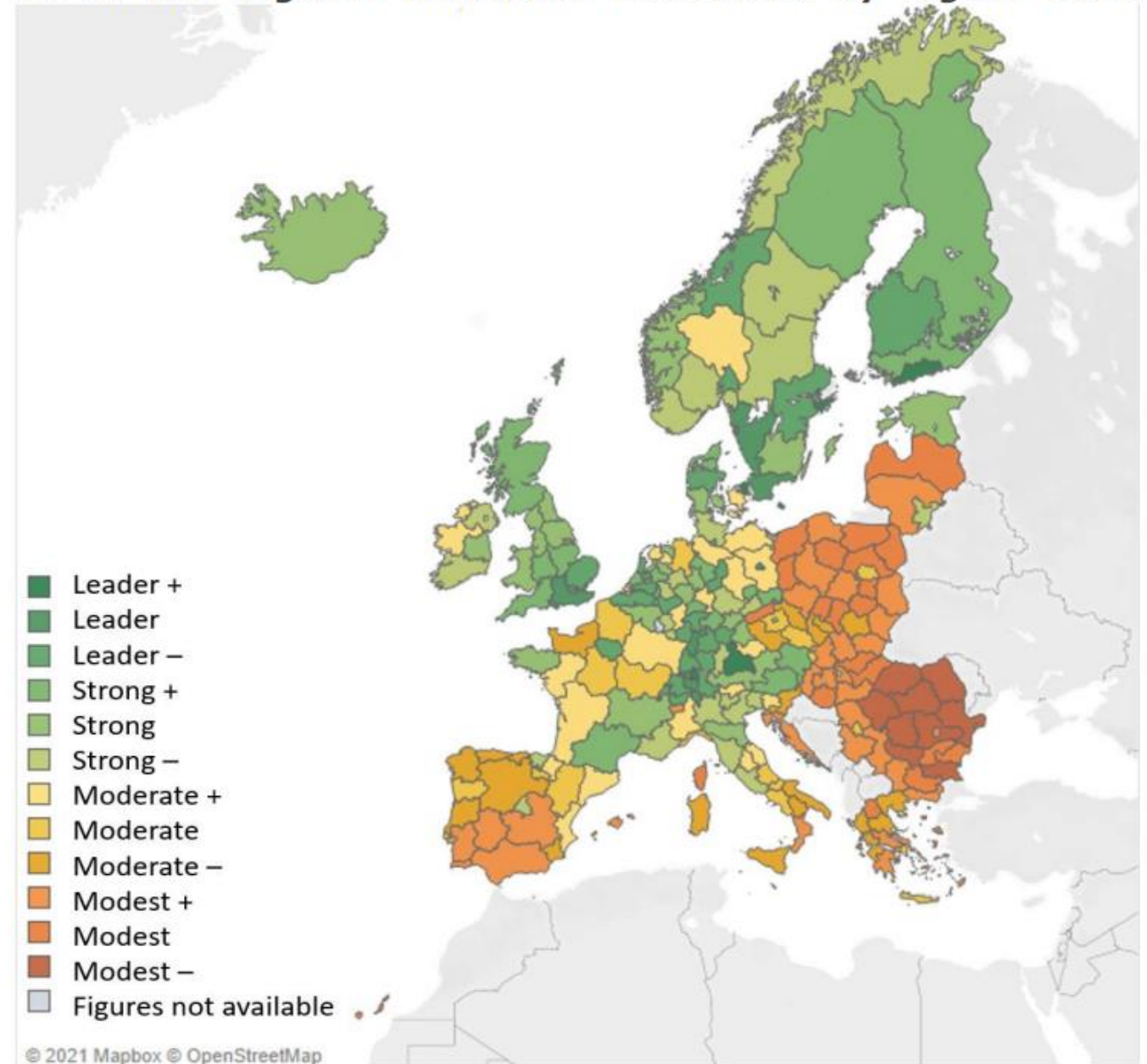
Budget for 2021: 4.8 milliards USD (1,1% GDP)

1800 EU projects

- 2,5% of EU grants for H2020

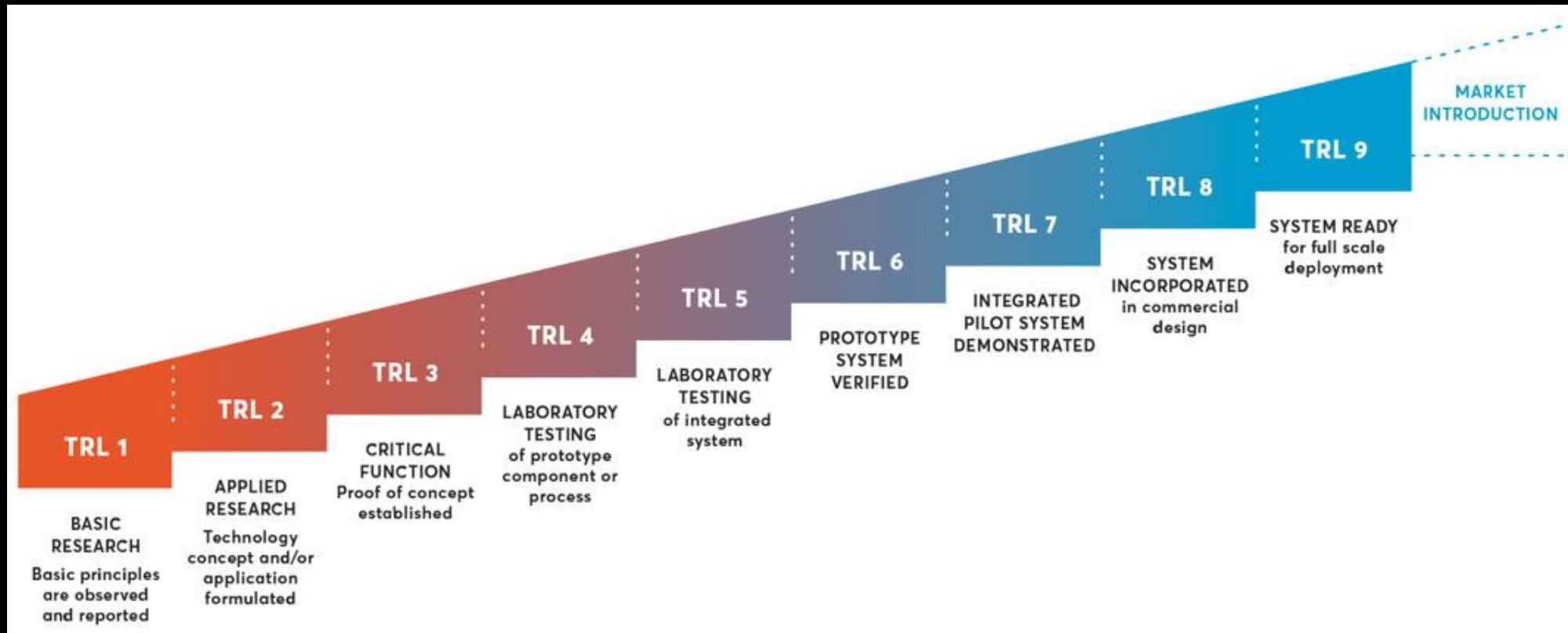
# Research Statistics

**Figure 2.7 Scores in relation to average innovation activity in the EU on the Regional Innovation Scoreboard by region. 2021.**

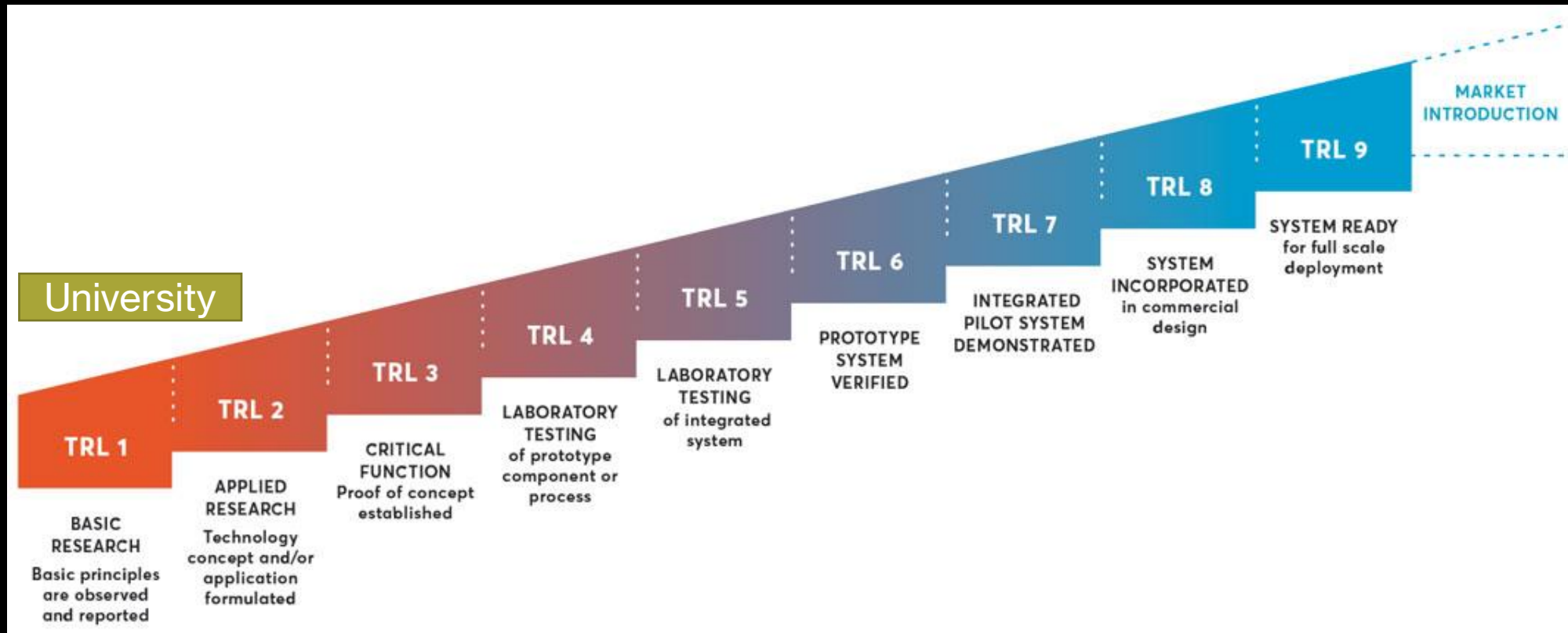


Source: Regional Innovation Scoreboard 2021, EU Commission

# TRLs

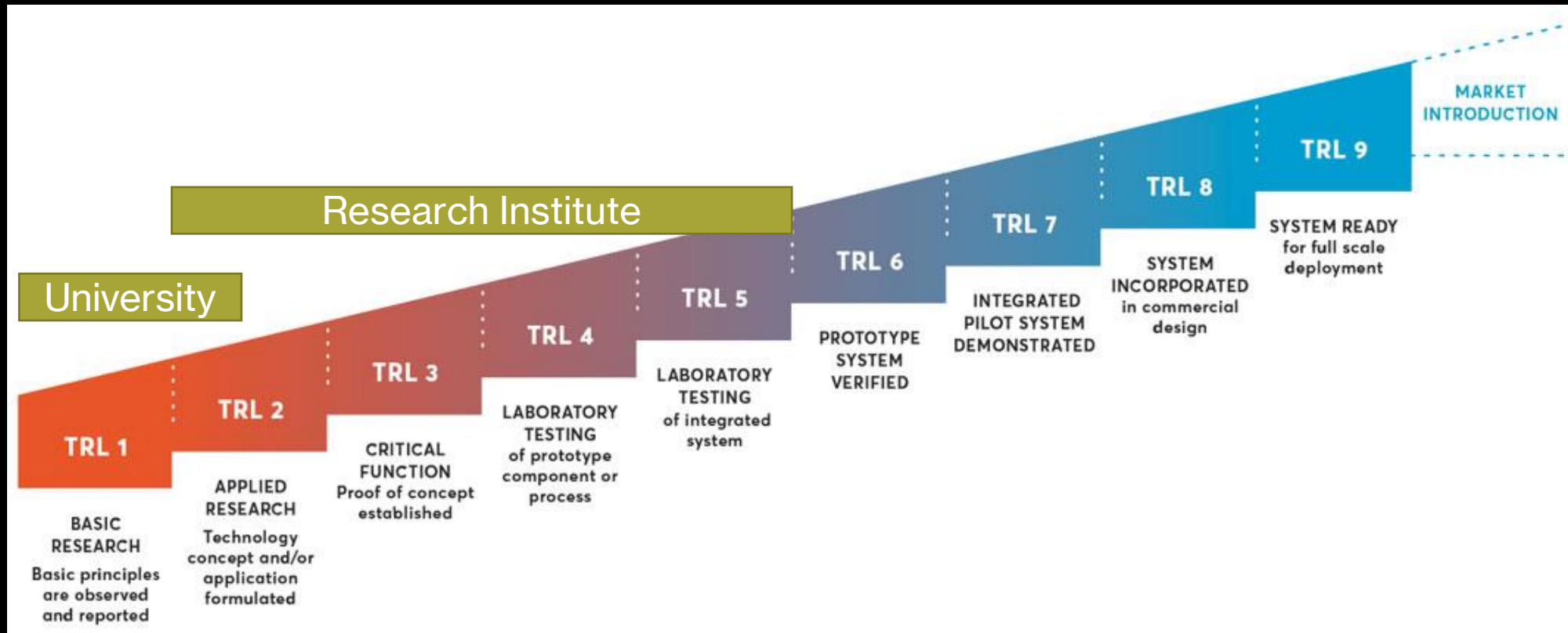


# TRLs

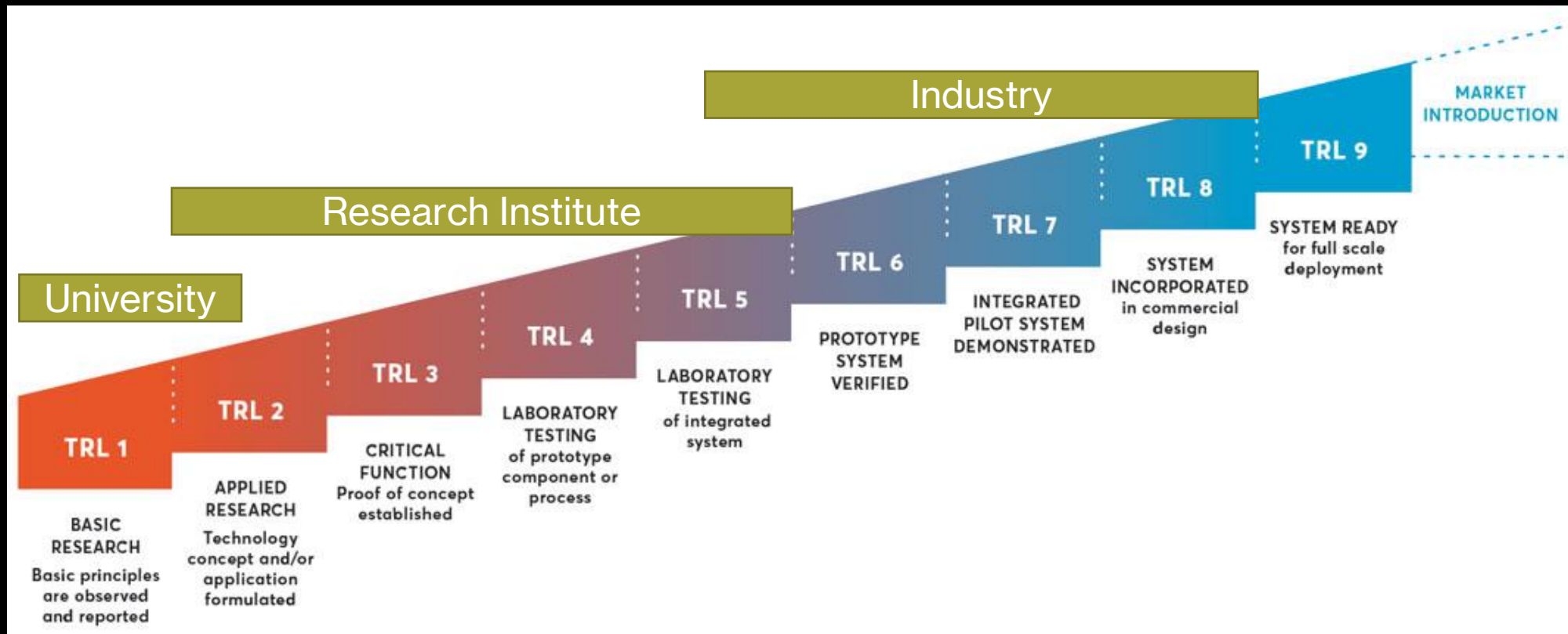




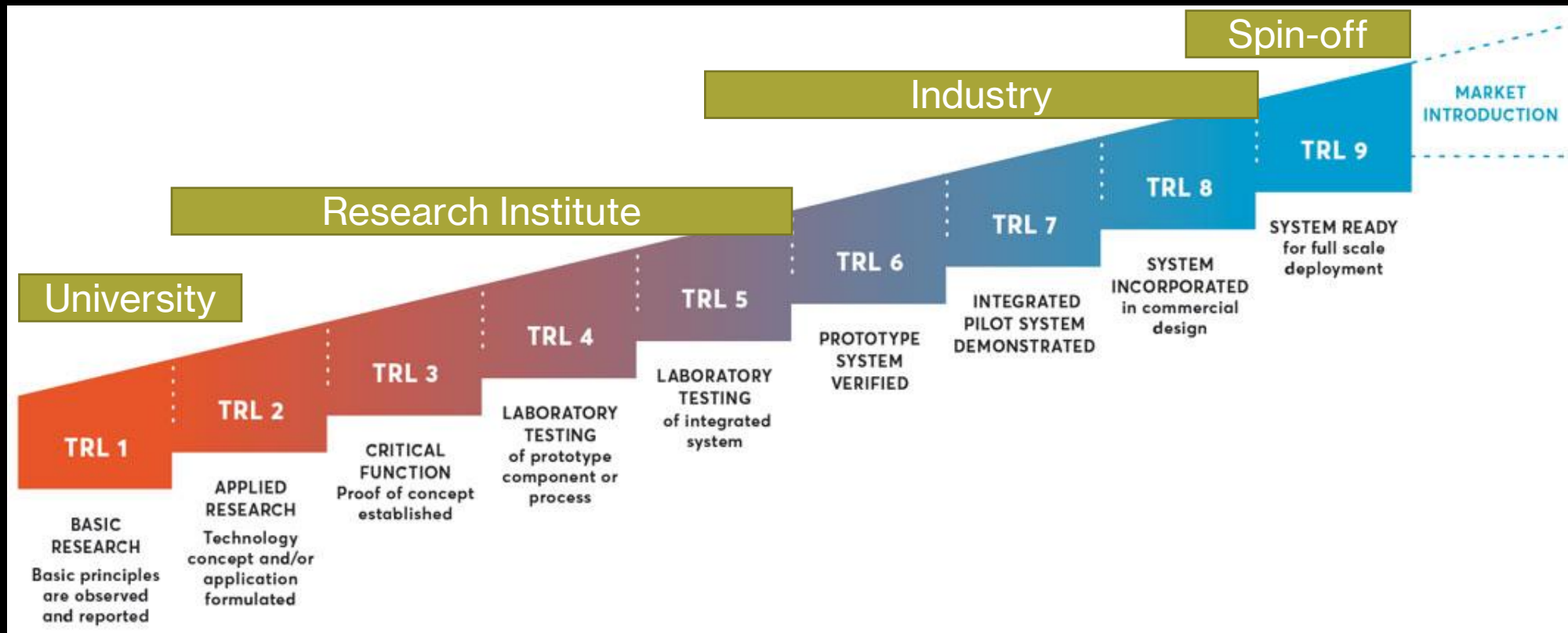
# TRLs



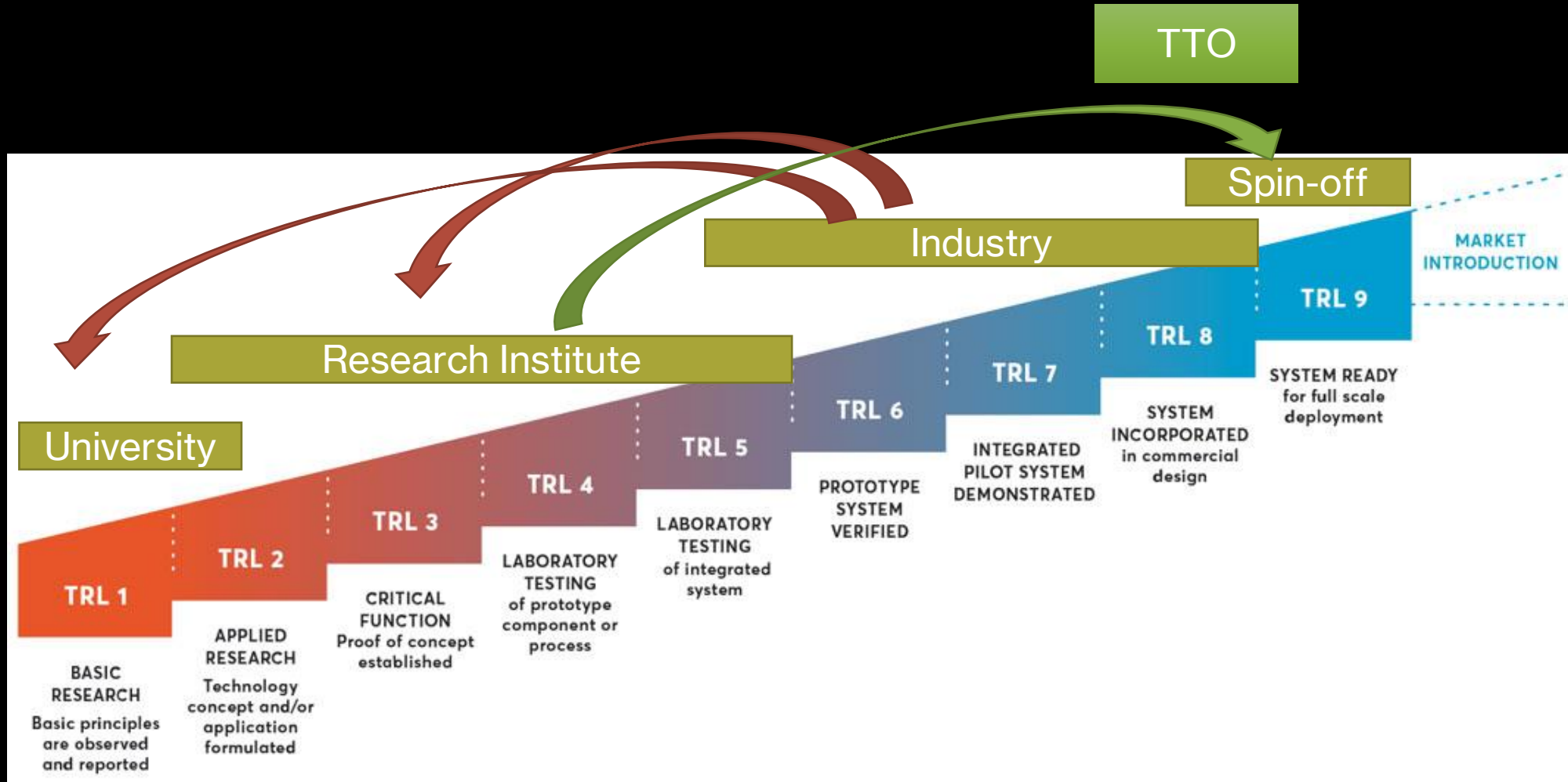
# TRLs



# TRLs



# TRLs



# Spin-off (1)

During the last ten years, about 80 new technologies have been commercialised through spin-offs or licensing from SINTEF.



the world's most accurate, real-time 3D camera



game changing electrolyzers for large scale and 100% sustainable green hydrogen production.



green sustainable solutions to leading technology and material providers worldwide within flame retardants, water-repellent and barrier materials

# Spin-off (2)



1. R&D started in 2009

TRL

1

2. Pilot project 2013

7

3. Large scale survey 2015

8

4. Apply for funding in Norway 2018

9

5. First commercial projects 2019

Market