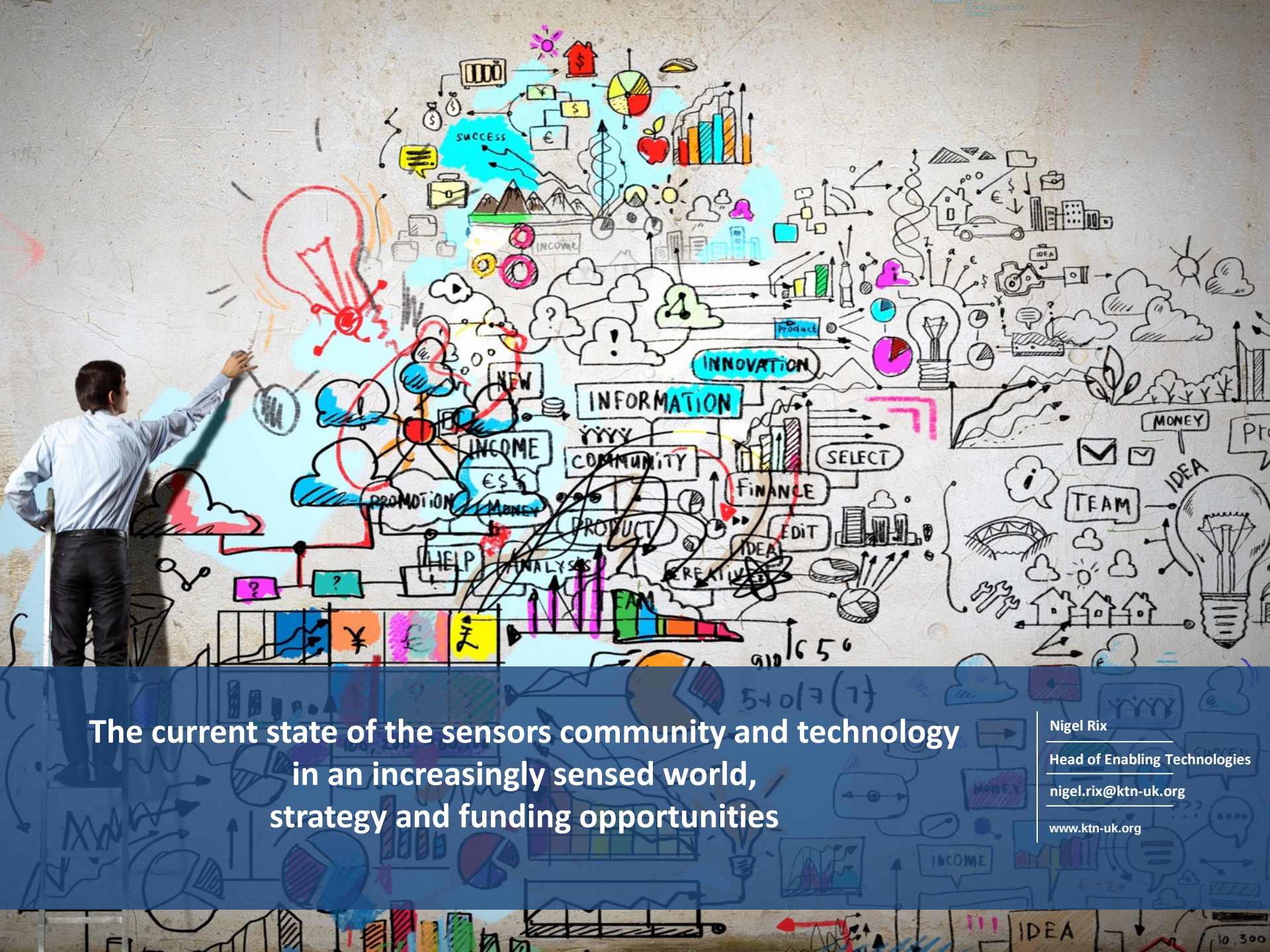

The current state of the sensors community and technology in an increasingly sensed world, strategy and funding opportunities

Nigel Rix

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Sensor – Global Market

Sensors

- 2014 - $ 86.3 billion
- 2015 - $ 95.3 billion
- 2020 - $ 154.4 billion
- 2025 > $ 200 billion

CAGR of 10.1% from 2015 to 2020

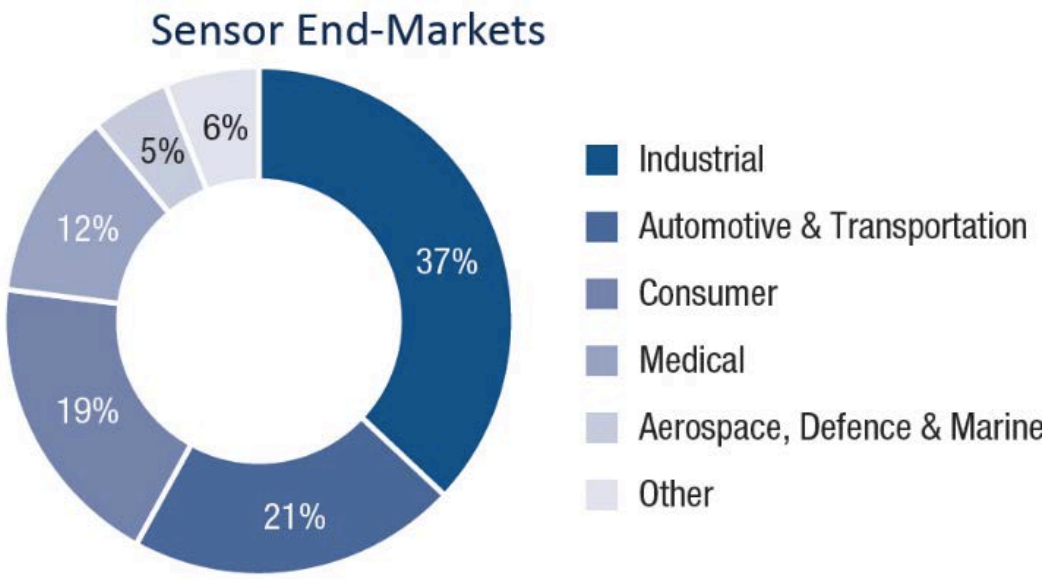
Smart Sensors

- 2015 - $ 18.58 billion
- 2022 - $ 57.77 billion

CAGR of 18.1% from 2016 to 2022

Sensing and Instrumentation Systems:
claimed to be 7x size of the Sensor market

Sensor Global Market

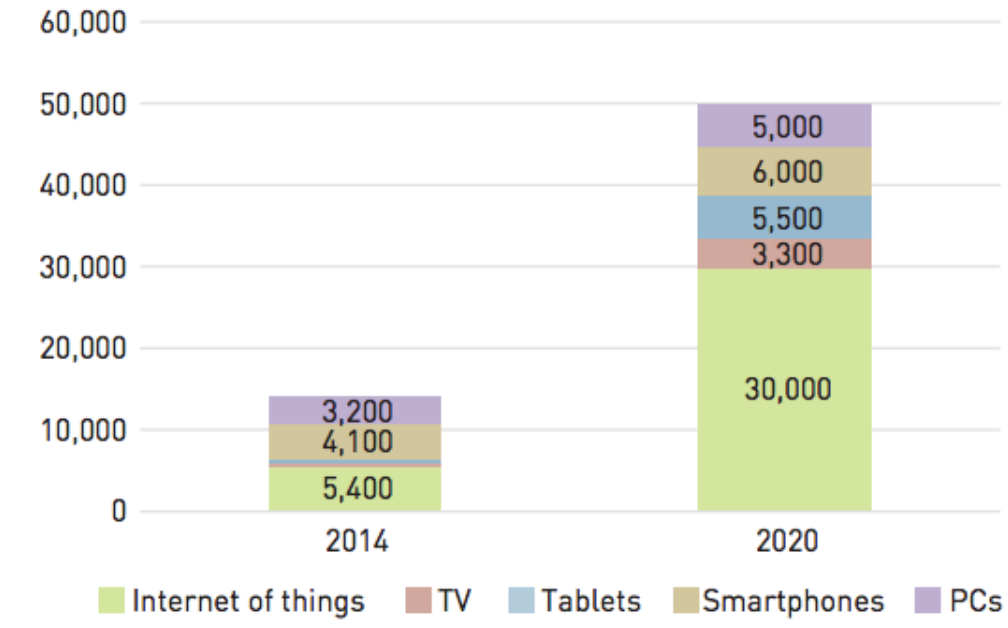


Major growth in:

- Industrial sector
  - Driven by Industry 4.0
- Automotive
  - 100 sensors -> 200
  - Autonomous Cars
- Consumer
  - Smart Home
- Medical
  - Diagnostics

Sensor Global Market

Figure 2: Connected Devices by 2020 (in millions)

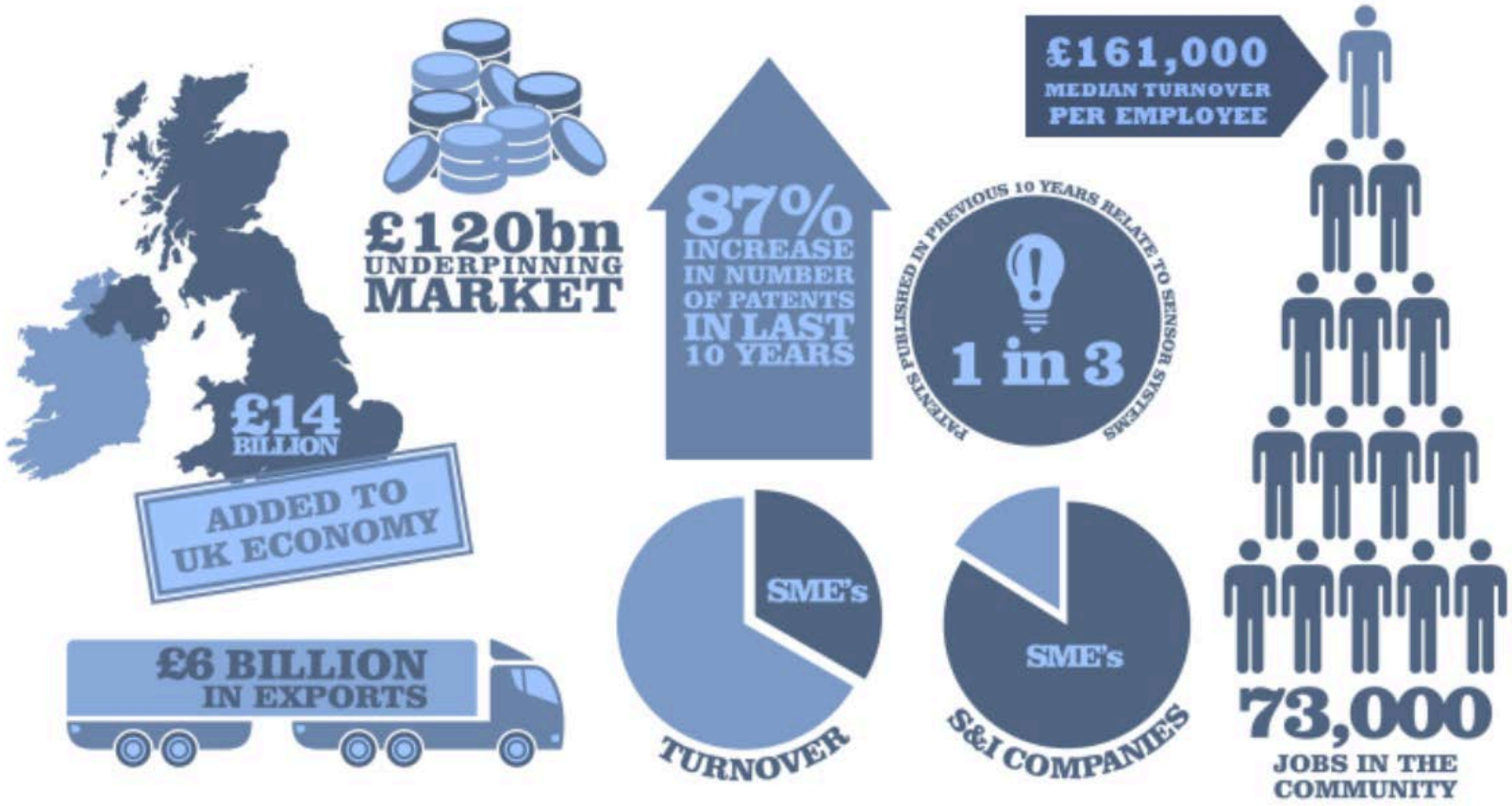


Source: IDC

Major growth in:

- IoT
  - Ease of deployment
    - Location, data links
  - New Applications
    - Environmental etc.
  - Multiple sensors
  - Several sensors of each type

UK Sensor Market



KTN Report on UK Sensor Market

2013 Study of 874 organisations

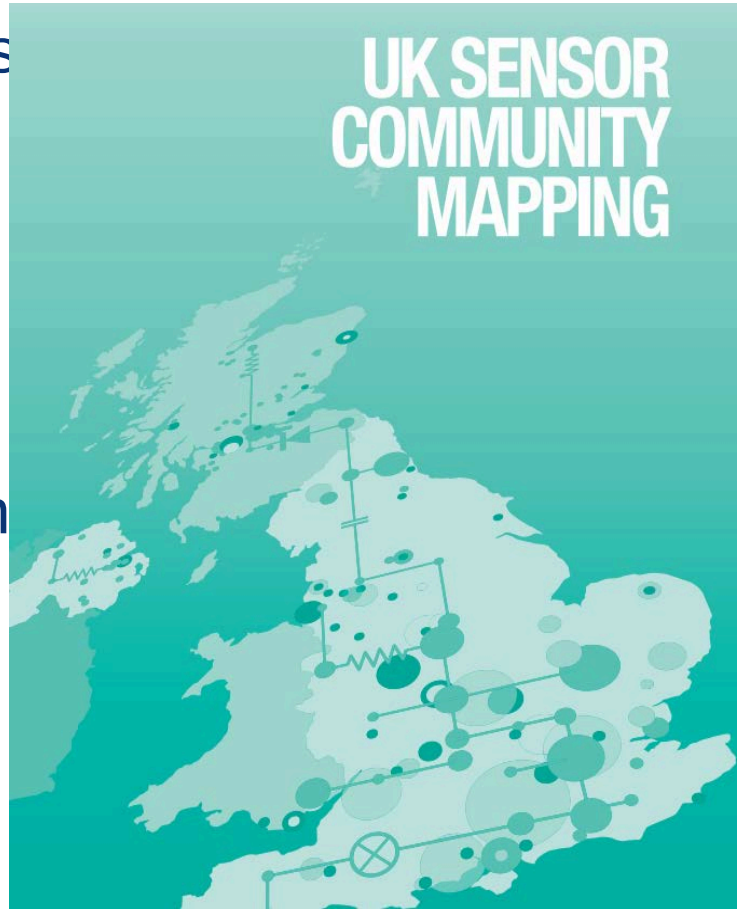
Biosensor - £2.7 billion

Transport - £7.7 billion

Aerospace - £6.9 billion

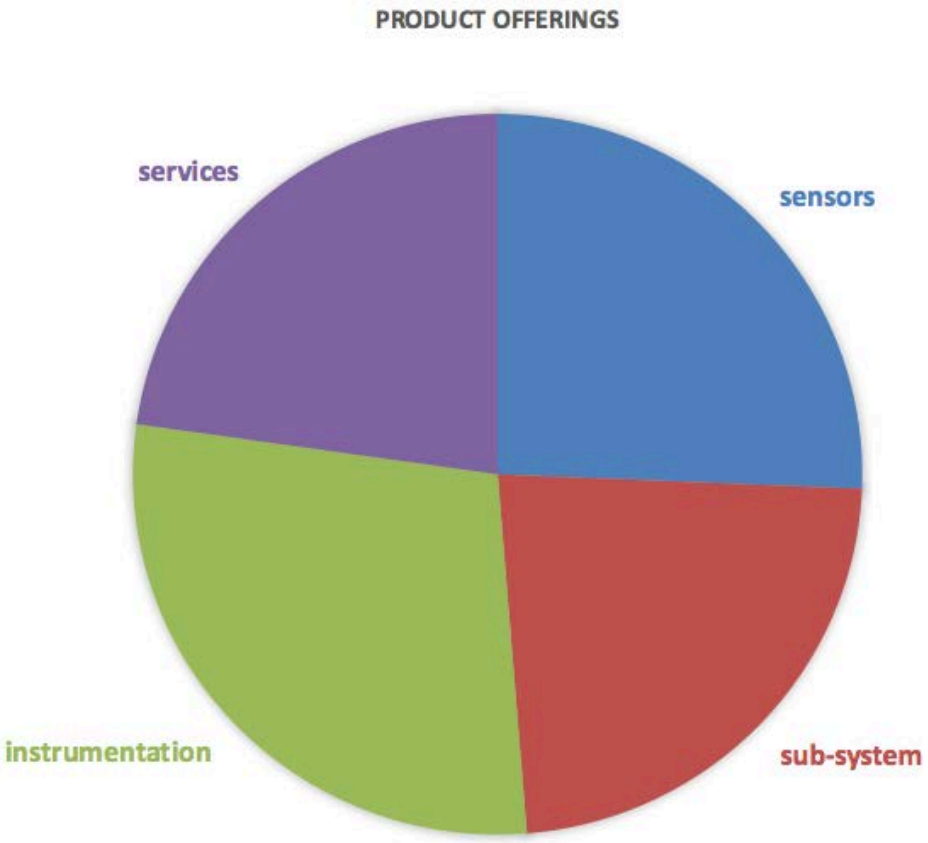
Defence & Security - £7.6 billion

bit.ly/UKsensorlandscape



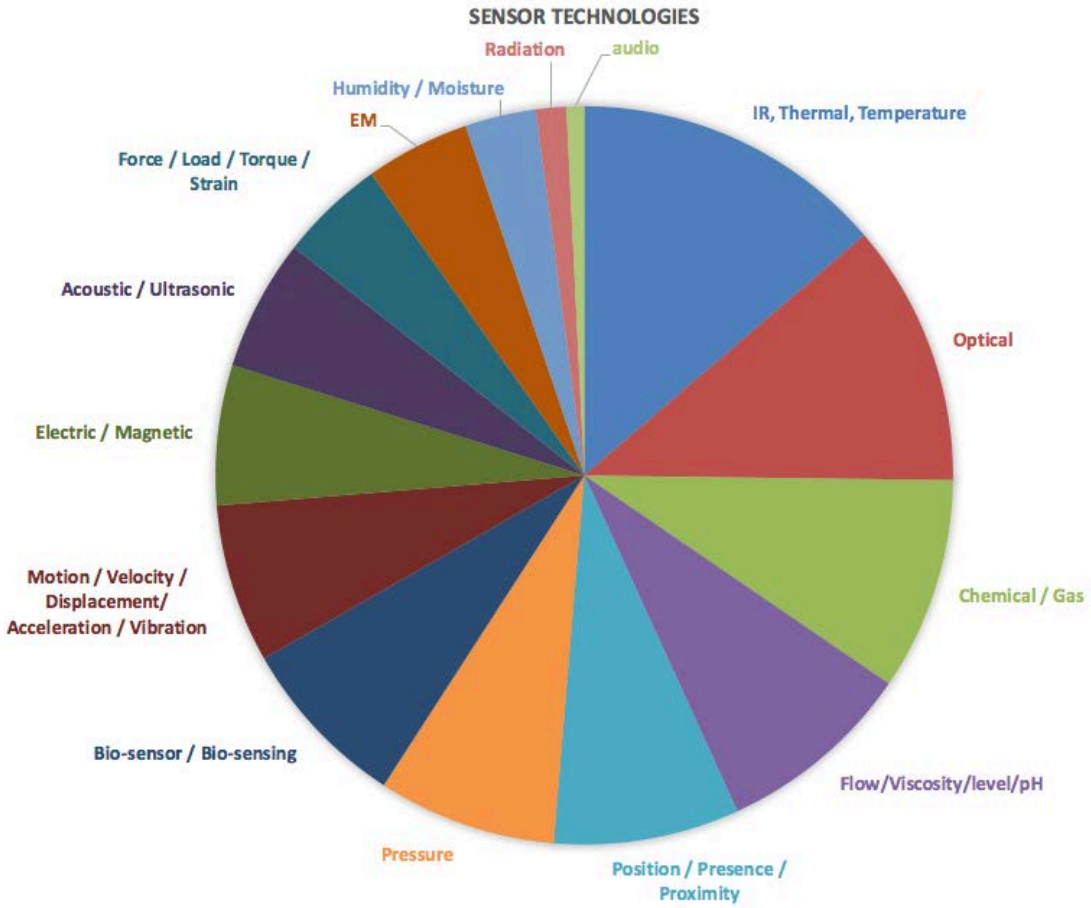
UK Sensor Market

Product Offerings



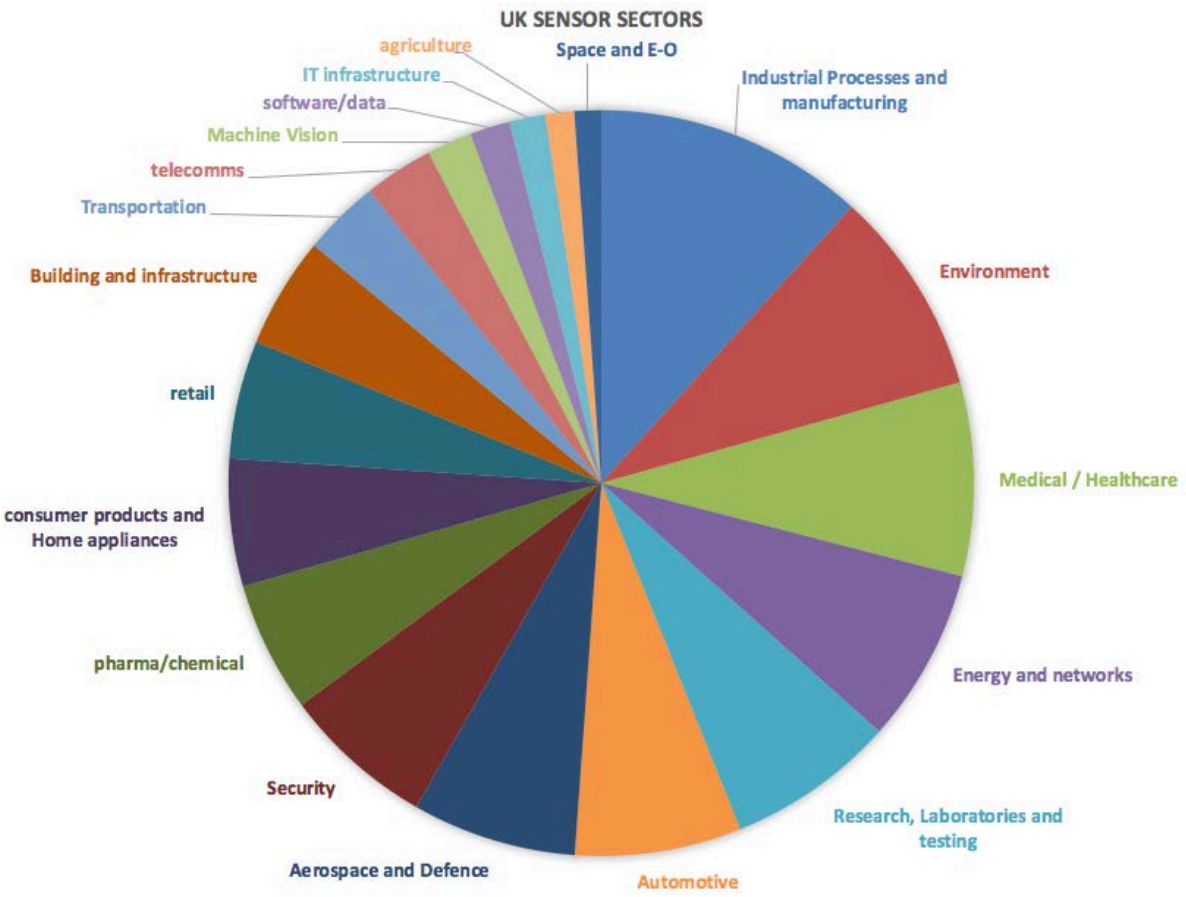
UK Sensor Market

Technologies



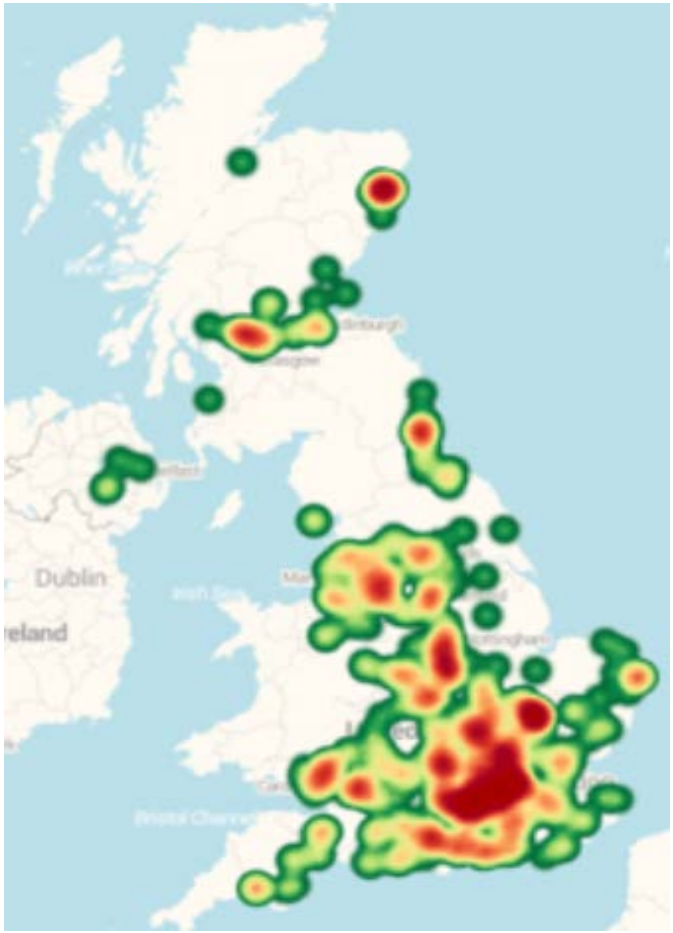
UK Sensor Market

Industry Sectors



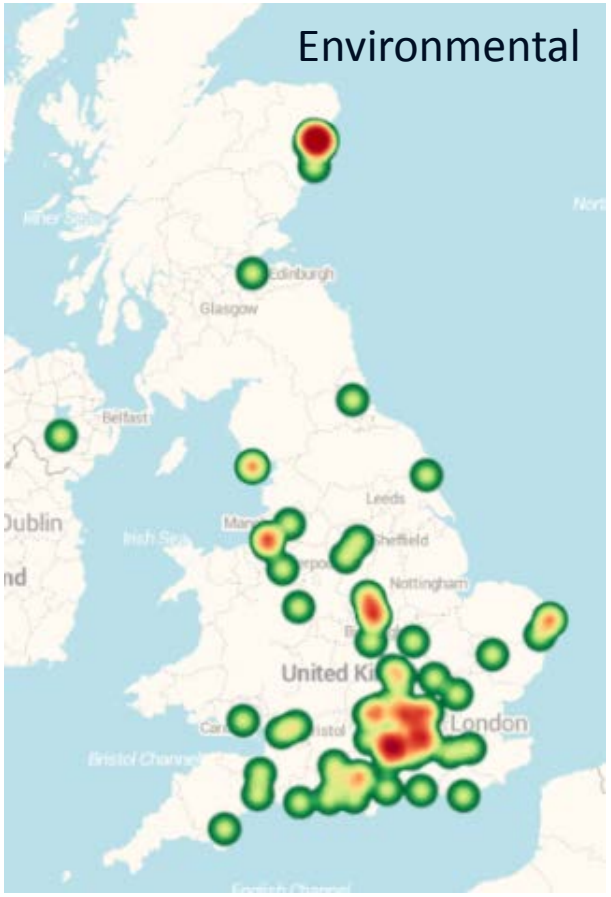
UK Sensor Market

Geographic Distribution



UK Sensor Market

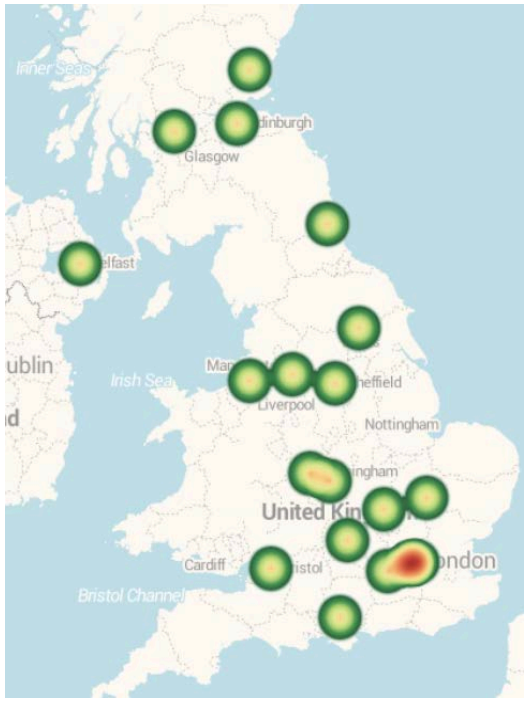
Manufacturing, Environmental and Automotive



UK Sensor Market

Research Activity

Top 20 Universities



How to grow the future?

Inventers - love Technology Push

The largest mousetrap in the world

Sensor and Sensor Systems Market

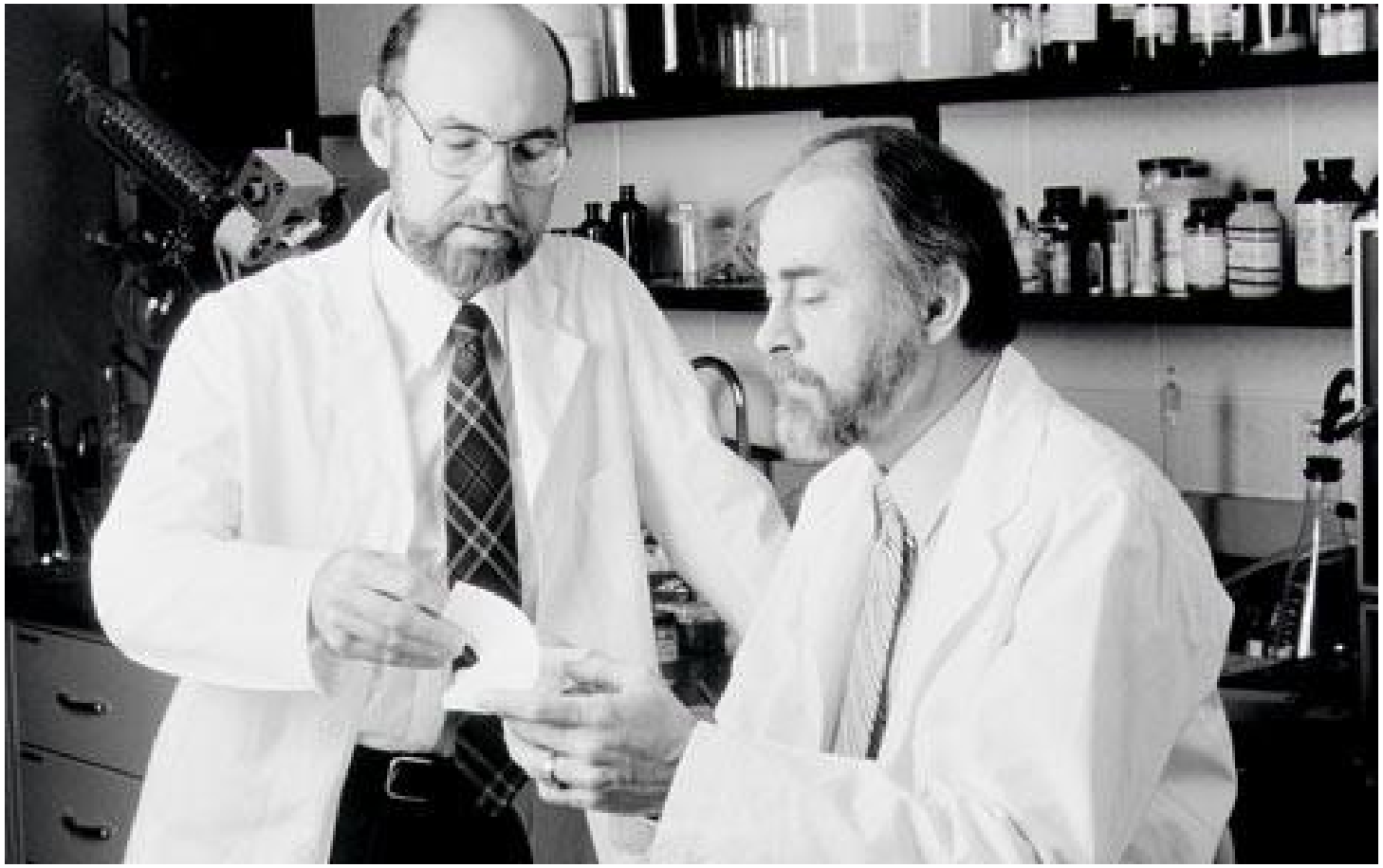
The “value” of sensor systems

Vital for:

- Aerospace
- Smart Transportation
- Smart Cities
- Smart Manufacturing
- Precision Agriculture
- Medical Monitoring
- Environmental Monitoring

Sensor Systems underpin IoT

Spencer and Fry



Post-It Notes

1968, a scientist at 3M in the United States, **Dr. Spencer Silver**, was attempting to develop a super-strong adhesive.
Instead he accidentally created a "low-tack", reusable adhesive.

For five years, Silver promoted his "solution without a problem" within 3M both informally and through seminars but failed to gain acceptance.

In 1974 a colleague who had attended one of his seminars, **Art Fry**, came up with the idea of using the adhesive to anchor his bookmark in his hymnbook.

For three more years Fry utilized 3M's officially sanctioned ”pet project" to develop the idea.

Post-It Notes

The original yellow color was chosen by accident, as the lab next-door to the Post-It team had **only yellow scrap paper** to use.

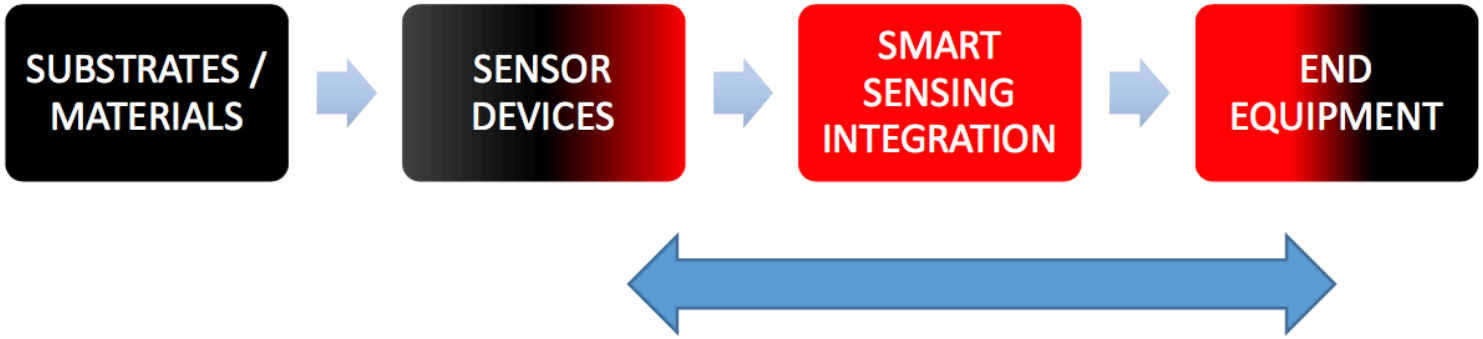
In 1977 3M launched the product as "Press 'n Peel" in stores in four cities but results were disappointing.

A year later 3M instead issued free samples directly to consumers in Boise, Idaho, with 94 percent of those who tried them indicating they would buy the product.

In 1979 the product was sold as "Post-Its when the rollout introduction began

It was sold across the United States from **April 6, 1980**.

Sensor Systems Catapult



Market Failures to be addressed:

1) Technology Companies bringing product to market
2) Provide understanding of technology developments and end-user needs
3) Bring together Technology Suppliers and Technology Users
4) Focus for the sector – demonstrations - showcase

Funding

Emerging and Enabling Competition

£15 million to stimulate new products and services

Aim: help businesses innovate to find new revenue sources

Projects £35,000 to £2 million; 6 months and 3 years.

- **Stream 1** projects under 12 months duration and £100k
  - can be single company (SME)

- **Stream 2** projects over 12 months or costing over £100k
  - must be collaborative including an SME

http://www.gov.uk/government/publications/funding-competition-emerging-enabling-technologies

Encouraging proposals that address:

Systems: **multiple technologies** to deliver **real-world outcome**

Smart Sensor Systems: miniaturisation, low-power processing and comms

Smart Technologies: richer and more informative output to the end user

Photonics: for **manufacturing, healthcare and imaging**

Digital Technologies: potential to change and disrupt sectors of the economy

Proposals should include **user/customer perspectives or participation**

ERA-NET Cofund Photonic Sensing

PhotonicSensing is an €18 million transnational call for R&D projects

Focused on development and implementation of photonics based sensing technologies

Innovate UK is to invest up to to €1.8M
Topped up by the European Commission to €2.7M

The competition opened on 1st September 2016

Projects must be collaborative, application-oriented & pre-competitive

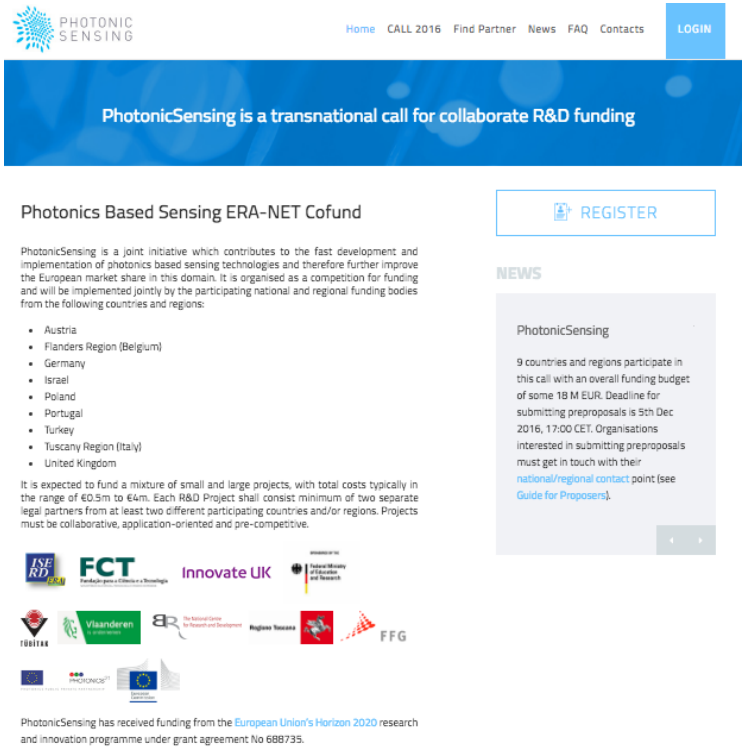
ERA-NET Cofund Photonic Sensing

Everything goes through the website https://photonicsensing.eu

Stage 1 (pre-proposals) is “light touch” and projects are not formally assessed

Cannot enter Stage 2 without having uploaded a Stage 1 application

The Lead Partner should upload the application form for whole project



Other Innovate UK Competitions

Sensor Systems

are essential to all funding calls

Conclusions

The need for sensors and sensing technologies will continue to grow

Driven by greater automation – Automotive, Manufacturing etc.

Increased deployment of IoT will enable many markets
and make it easier for people to use sensors

There is a move to integrate the sensing element
with additional electronics and data processing

New challenges of energy harvesting, communications and data privacy

Questions?

Nigel Rix

Head of Enabling Technologies, KTN

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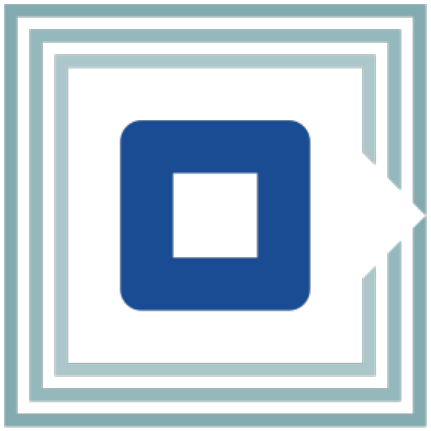
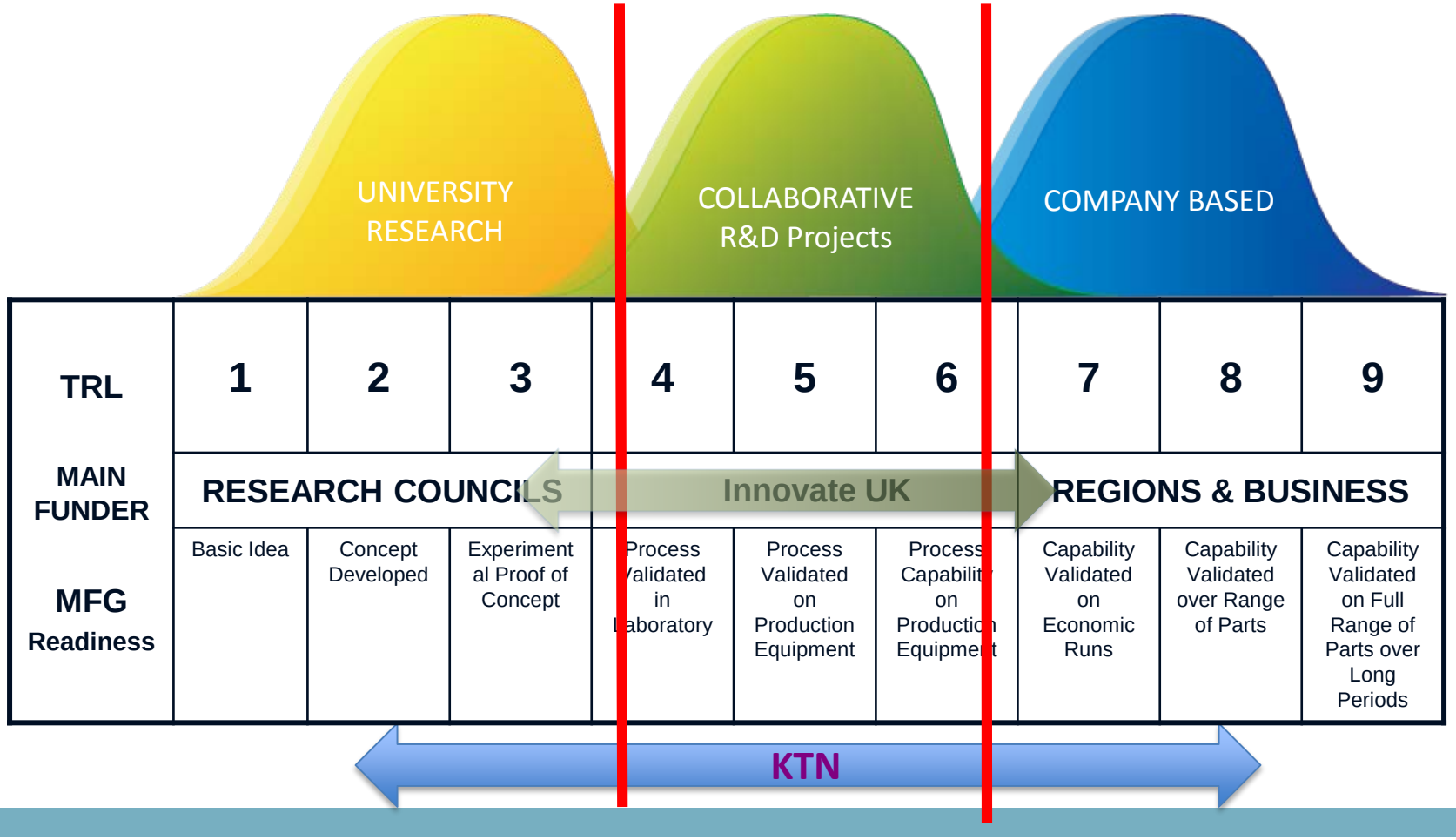


KTN

the Knowledge Transfer Network

Where does KTN operate?

Addressing the “Valley of Death”



Knowledge Transfer Network

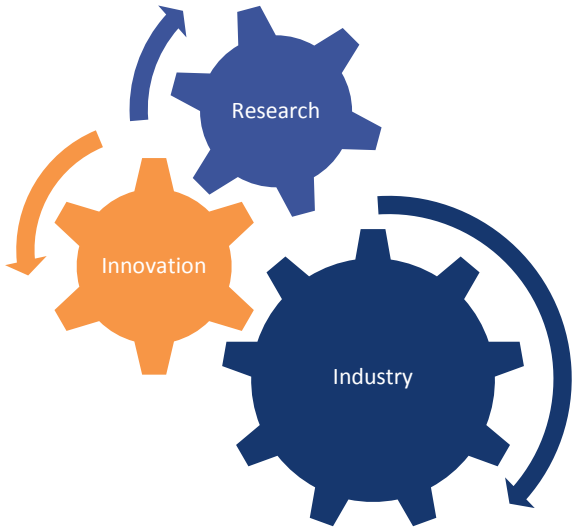
Our Objectives…

- Increase business-led R&D in the UK
- Facilitate exploitation of R&D to capture more UK value from innovation
- Increase collaboration between businesses (B2B) and business to research base (B2R) for UK benefit

The Knowledge Transfer network

What we do…

- Manage the UK's innovation network.
- Connect people
  To speed up innovation, solve problems and find markets for new ideas.
- Assist business development
  Bring together businesses, entrepreneurs, academics and funders to develop new products, processes and services



The Knowledge Transfer Network

Connecting people to accelerate innovation

Strategic

Connecting people who wouldn't't usually meet to solve innovation challenges.

Interdisciplinary

Connecting people with different skills and other disciplines.

Entrepreneurial

Connecting people with investors, business development, entrepreneurs.

Commercial

Connecting people to potential partners to do business.

The Knowledge Transfer Network

- Stimulating dialogue/accelerating innovation

KTN
the Knowledge Transfer Network

ktn-uk.org @KTNUK

In summary…

Keep in contact!

- Contact us at an early stage to discuss potential projects so we can help identify partners and funding options
- Suggest workshops and events you would like to attend
- Let us promote your own events
- Keep us aware of changes, developments and good news stories
- Sign up for our newsletters:

  http://www.ktn-uk.co.uk/subscribe-2/

Thank you

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Subscribe to KTN newsletters:
http://www.ktn-uk.co.uk/subscribe-2/

The Future. Faster

KTN
the Knowledge Transfer Network

We work with
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