LET'S GET UP TO SPEED

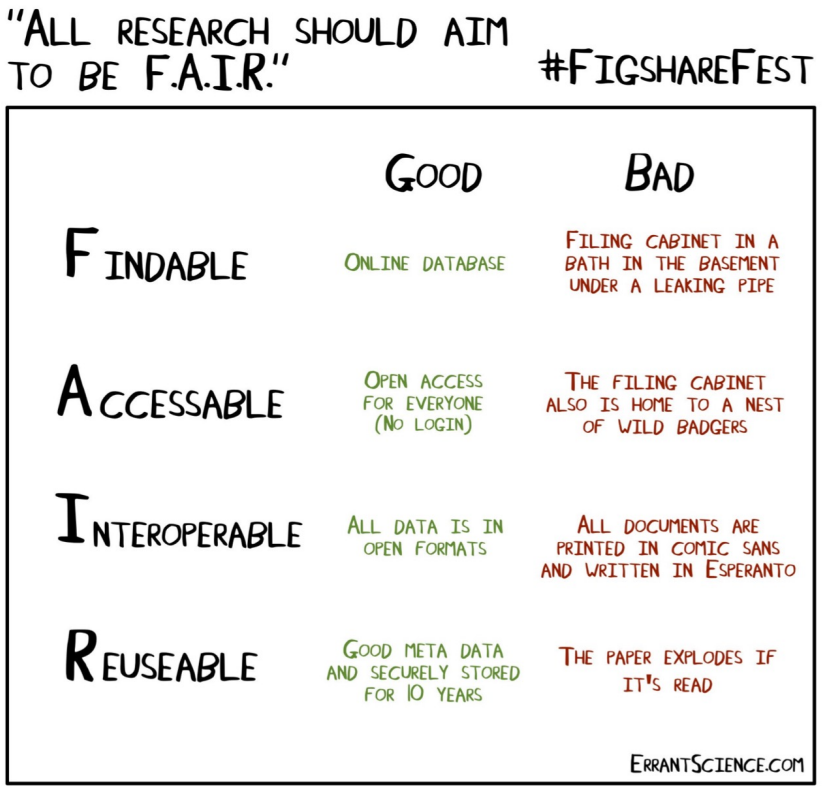
Dr. ir. Peter Michielse
SURF RESEARCH

2.5 quintillion

bytes of data are being produced daily

Looking at:

FAIR



Looking at:

MACHINE LEARNING

AI COPERNICUS 'DISCOVERS' THAT EARTH ORBITS THE SUN

Neural network that teaches itself the laws of physics could help to solve quantum-mechanics mysteries.

By Davide Castelvecchi

they can use to discover new laws of physics,

Looking at:

EXASCALE

SURF

How do we deal with that?

WHAT ARE WE WORKING ON?

Radio sky survey using LOFAR

Data processing

Natalie Danezi
Raymond Oonk
Coen Schrijvers

Forbes

New Night Sky Map Reveals 'Hundreds Of Thousands' Unknown Galaxies With 15 Million More Forecast

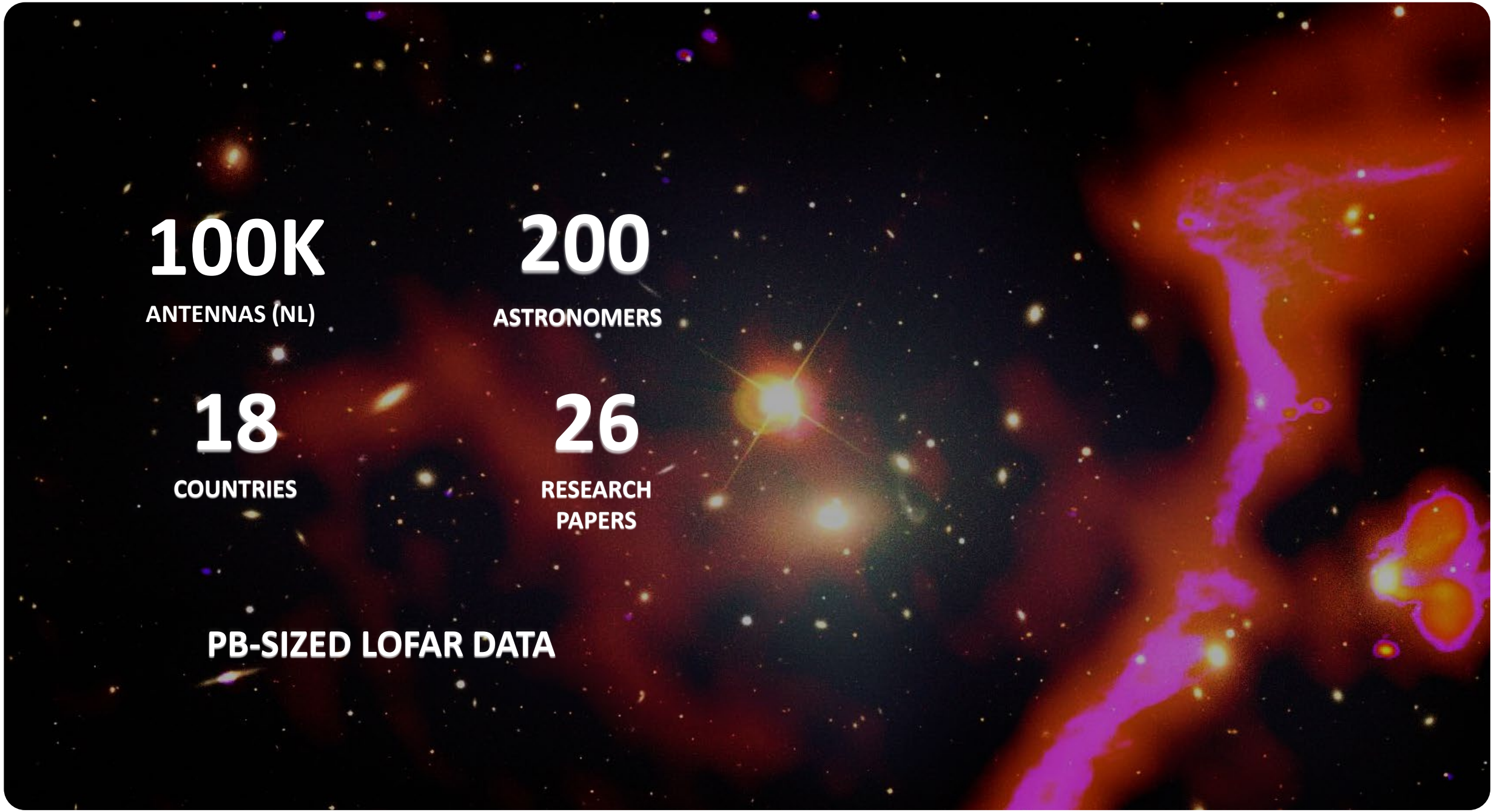
NOS

Onderzoekers brengen 300.000 sterrenstelsels in kaart

CNN

New sky survey reveals hundreds of thousands of galaxies

620M potential readers ...


100K
ANTENNAS (NL)
200
ASTRONOMERS
18
COUNTRIES
26
RESEARCH PAPERS
PB-SIZED LOFAR DATA

Research on auto-immune diseases
Data sharing

Barbera van Schaik
Antoine H. C. van Kampen
Amsterdam UMC

Nuno Ferreira
SURF

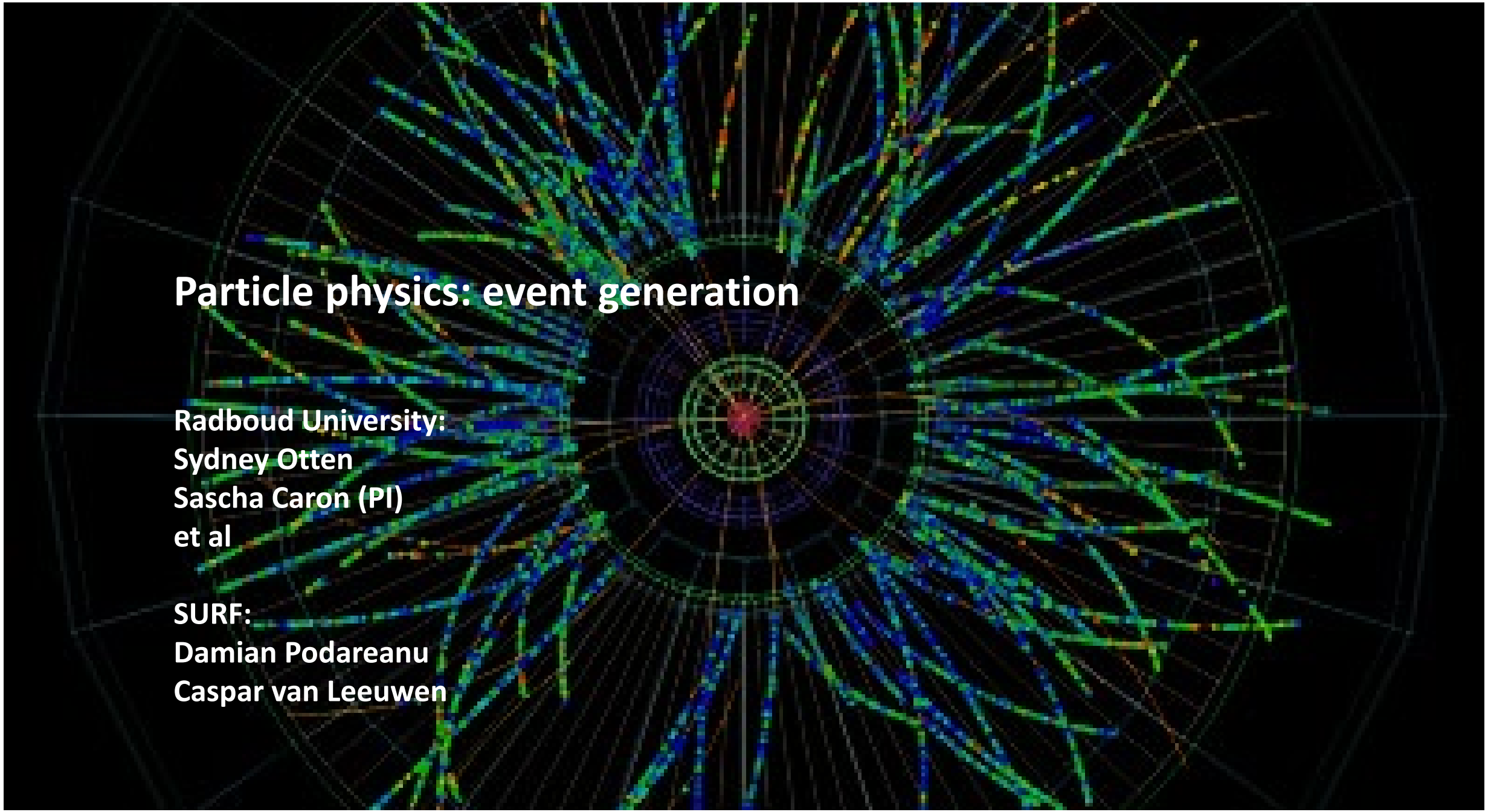
The ODISSEI Secure Supercomputer (OSSC)
a “CBS enclave” within the SURF domain

Annette Langedijk
Michel Scheerman
Narges Zarabi

Collaborating without direct data sharing

Axel Berg
Freek Dijkstra
Hylke Koers

SURF



Particle physics: event generation

Radboud University:
Sydney Otten
Sascha Caron (PI)
et al

SURF:
Damian Podareanu
Caspar van Leeuwen

1 exascale (10^18 flop/s, 10^17 bytes memory) system will have around 10 million of CPU/GPU cores

So there is no programming “as usual” anymore

AND MANY OTHER PROJECTS

How we will do this together

Ease of access: both administrative and technical

National approach to the data challenges in science (e.g. through Digital Competence Centers)

Build and extend expertise and support

Align with and collaborate on what is needed with all stakeholders (researchers, communities, SURF institutions)

Knowledge building and innovation

Converge infrastructures where possible, for efficient and flexible service deployment

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Driving innovation together