Scientific Large-scale Infrastructure
for Computing Communication
Experimental Studies
Research Infrastructure

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RI

The SLICES Research Infrastructure in the International Research Platform Landscape

Marie-José Montpetit, Ing. Ph.D.
(Interim) Executive Director

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www.slices-ri.eu

SLICES: a Unique RI for Digital Research (and Innovation)

Launched in 2017.

Entered the **ESFRI Roadmap** in 2021.

SLICES-RI supports the research community:

- **Design**, **develop** and **deploy** the next generation of Digital Services.
- **Support innovation in academia and industry.**
- **Education and HQP training.**

Enables to combine **networking, computing and storage resources** across countries, nodes and sites.

Scientific focus

- **6G+ technologies and services**, networking, data collection and storage with meta data generation, cloud/edge-based distributed architectures and services, federated AI and in the future digital twins, distributed agents, quantum computing etc.
- **Data** is a major focus.
- **Reproducibility** is key.

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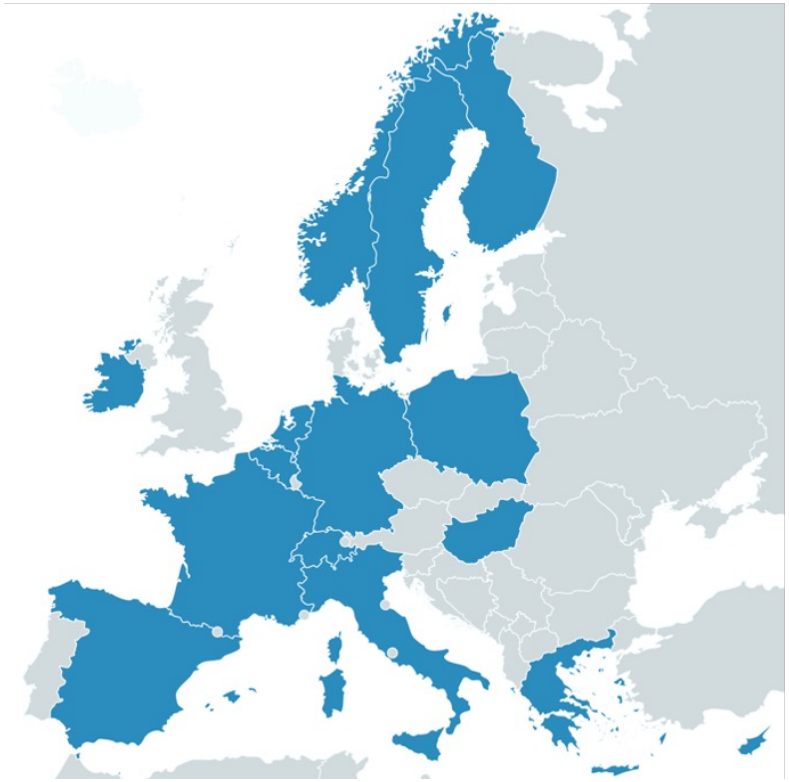
SLICES is an “Internet of Platforms”



26 partners from 16 countries.

SLICES will enable **scientific excellence and breakthrough** and will **foster innovation in the ICT domain**, strengthening the **impact of European research**, while contributing to European agenda to address **societal challenges**, and in particular, the twin transition to a sustainable and digital economy.

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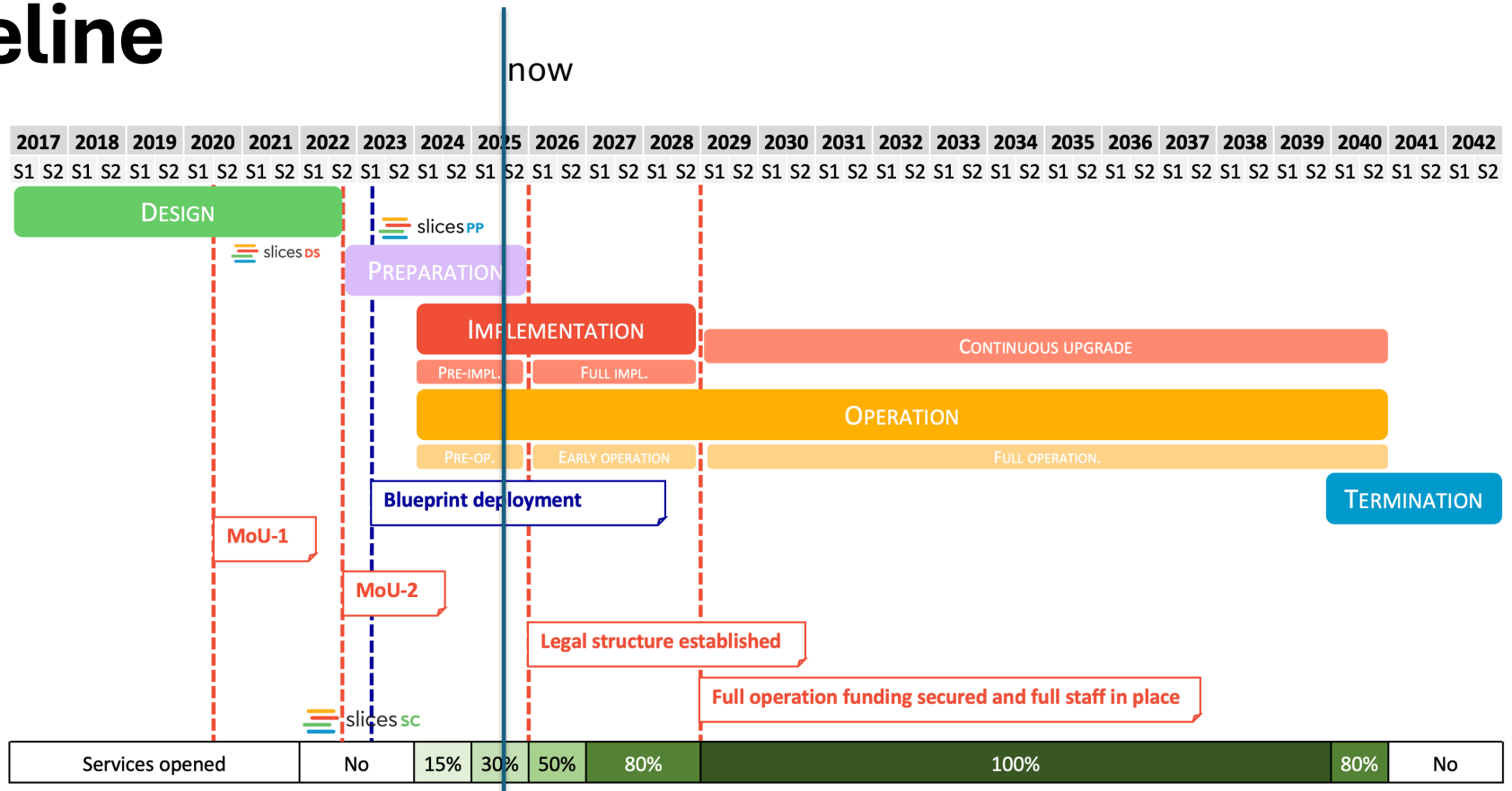
Timeline



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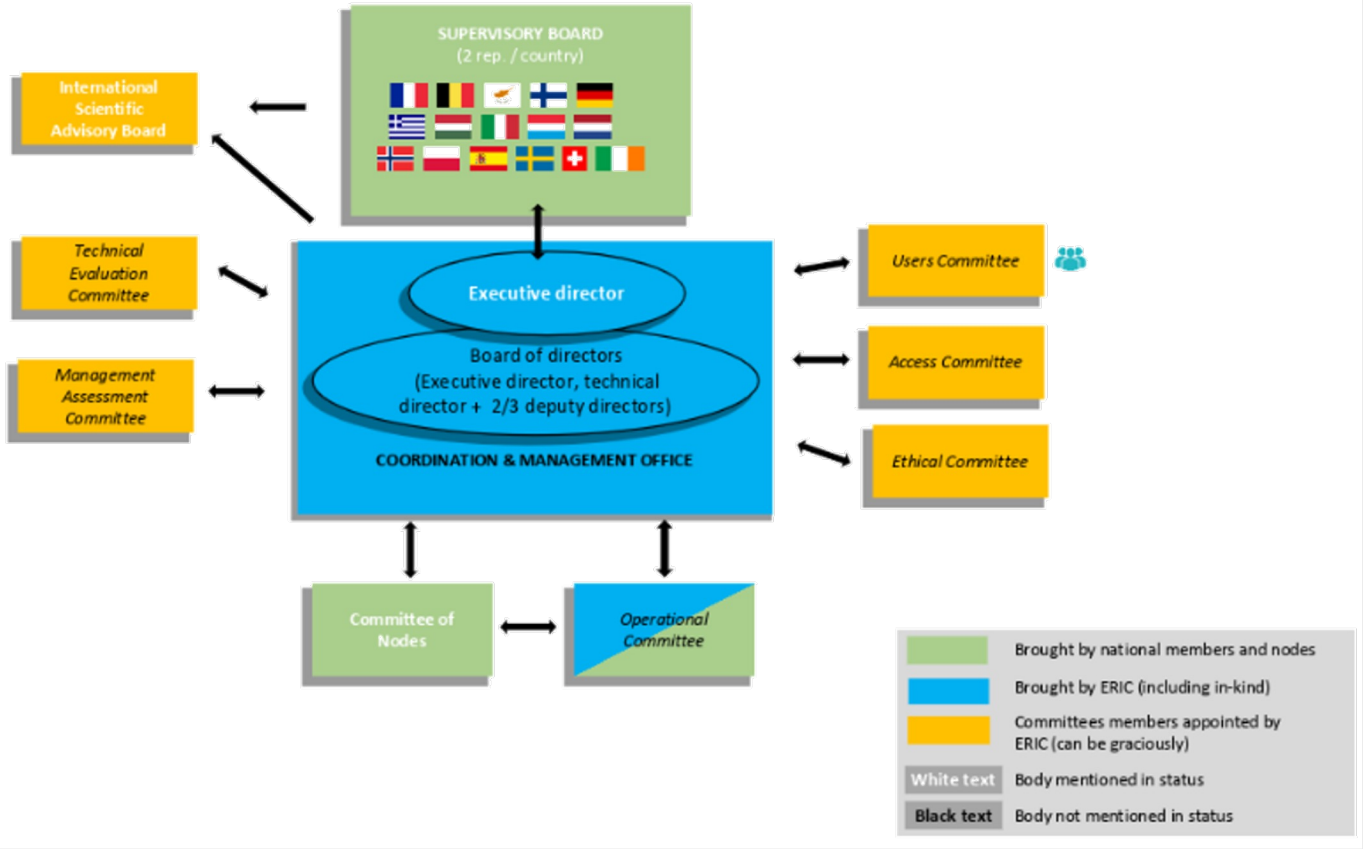
SLICES-ERIC

- Legal structure: **E**uropean **R**esearch **I**nfrastructure **C**onsortium
- Under development.
- France to launch the request for the creation of the ERIC in 2025 (if possible) or 2026.



Ref. Serge Fdida SLICES-RI

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Slices-RI Features

Highly visible

- Blueprints/MRS presented in WS, Summer schools Hackathons, etc.

Project-based

- The research uses the platform and is not (necessarily) on the platform.

Top-down

- From the community.

Distributed/shared

- An internet of collaborating nodes and services using and combining BPs.

Virtualized and efficient

- Take advantage of latest developments and large communities.

Compatible and scalable

- Adapt to changes.
- “Future proof”.

Assessment of International Impact

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Positioning SLICES-RI: the PAWR Program

A $100M program started by the US **National Science Foundation** to create four city-scale testbeds for the purpose of accelerating fundamental research on wireless communications and networking technologies.

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Northeastern University

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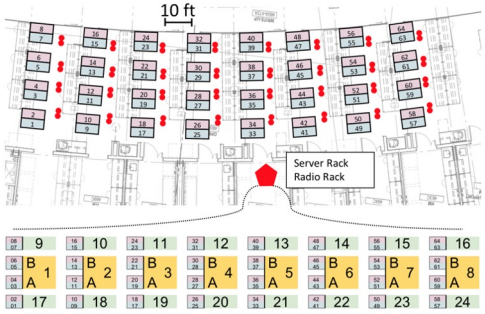
Colosseum: Northeastern University

- Initial design and testing at-a-scale on Colosseum w/ different scenarios and digital twinning.
- Validate on real-world indoor environment on local testbeds.
- Experiment in the wild on PAWR city-scale platforms.
- Collaboration with SLICES-RI on 6G.

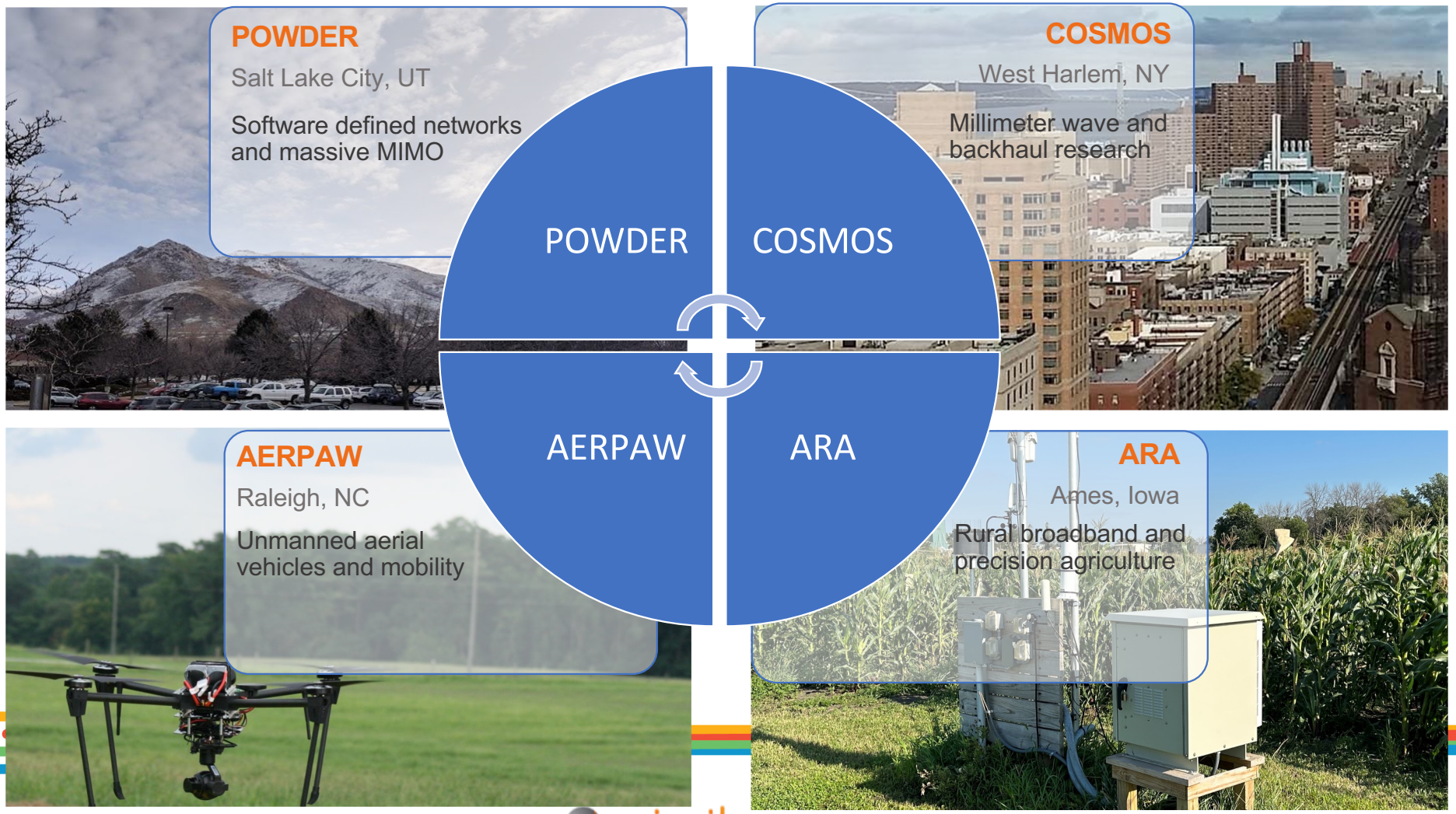
Test at-a-scale on emulated scenarios

Validate in real wireless environment



Test large-scale capabilities

PAWR Platforms



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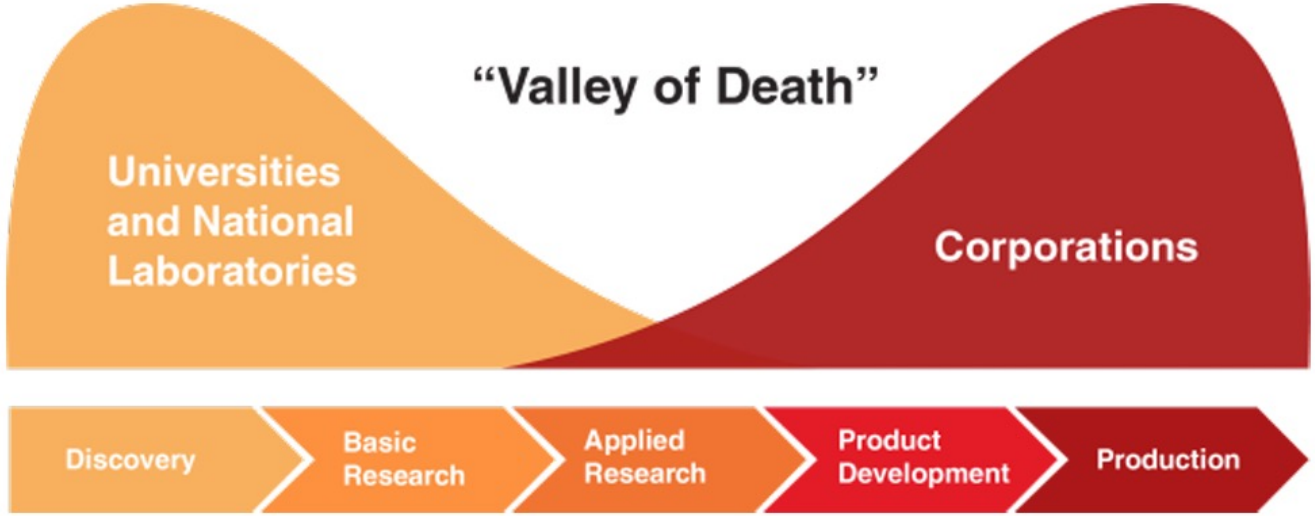
Bridging the Academic/Industry Gap

- SLICES want to facilitate technology transfer by **bridging the gap between academia and industry**, the so-called “Valley of Death”.
- SLICES **reproducible experimentation** enables the development of technologies and solutions that are directly applicable to industry needs, leading to faster adoption and implementation of new technologies.



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NSF PAWR webinar (July 28, 2016)

https://www.nsf.gov/attachments/139307/public/PAWR-Webinar_v4.pdf

SLICES-RI as a driver of innovation

Decrease costs:

- Mutualize
  - Technology development.
  - Resources.
  - Synergies of funding sources.
  - Avoid fragmentation.

Increase revenues with new services and products:

- How to monetizing the services that RIs provide
- Who is paying?
  - Industry: Large companies, SMEs, Startups

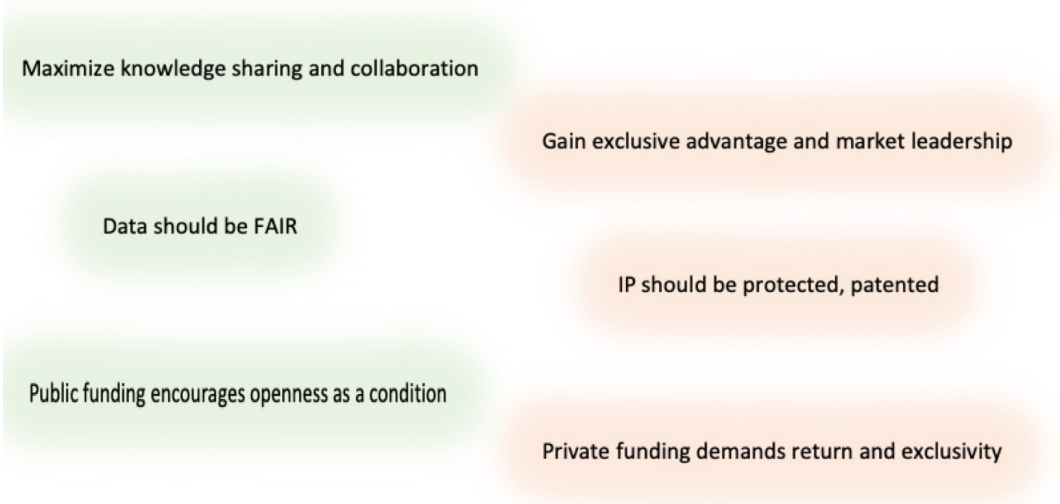
Key topics: Lowering time to market, academic cooperation, minimizing R&D risks, skill development.

A Vision for joint Industry/Academia Innovation in SLICES: the MIT/McGill model

- Support joint “summer schools” or “winter schools” that combine researchers and practitioners to work on industry defined used cases and priorities:
  - Complements companies engineering and management skills with the latest in academic research in digital science.
  - Complement academic skills with real world examples.
  - Provide a collaborative environment with industry and academia working jointly.
    - Gap analysis in class and on-site development to understand the scope of changes on supply management applied to a real environment.
    - Joint use case development.
    - Prototyping using SLICES facilities.
    - Pre-product development.
- Cross fertilization:
  - Academics in industry for sabbaticals and « scientific advisors ».
  - Industrials in academia for residencies.
- Targeted webinars (build on the “Networking Channel”).

Challenges

- IPR: open vs. trade secrets.
- Outcome imbalance: near term vs long term.
- Knowledge imbalance and the dynamics of an evolving digital landscape.
- Standardisation vs. development: consensus vs. best possible.



Serge Fdida: 3rd ESFRI Stakeholder Forum Meetup

Conclusion

- SLICES-RI aims to be the ”go to “ platform for digital technology research and innovation.
- It is both aligned and ahead of similar initiatives in the US and else where due to its focus on:
  - User communities.
  - Blueprints.
  - Data.
  - Reproducibility.
- Will SLICES-RI contribute to the meshing of the “two solitudes” of academia and industry?
  - It’s a *call for action*.

It takes a village… thanks to:

- Prof. Georg Carle
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- Dr. David Clark, MIT

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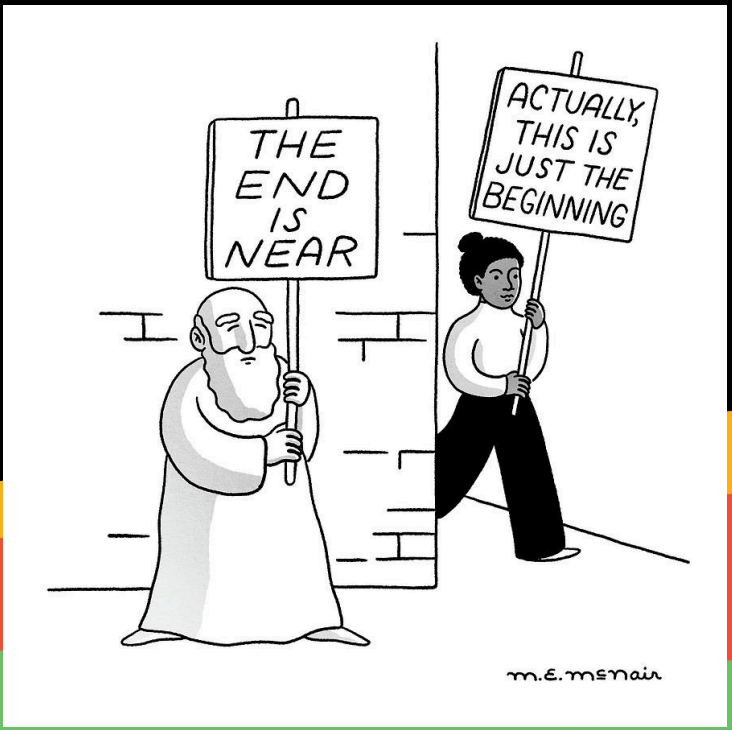
Questions?



marie-jose.montpetit@slices-ri.eu

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