

# A word of introduction

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## Jean-Baptiste Poline

- Neuroimaging and genetic statistical data analysis
- Open and reproducible science (**NIH ReproNim**)
- Neuroinformatics infrastructures (**CONP**, **NeuroHub**)
- Publishing platforms and research culture questions (**Aperture**)
- Moved from Berkeley to the MNI 2 years ago, **TOSI** attraction

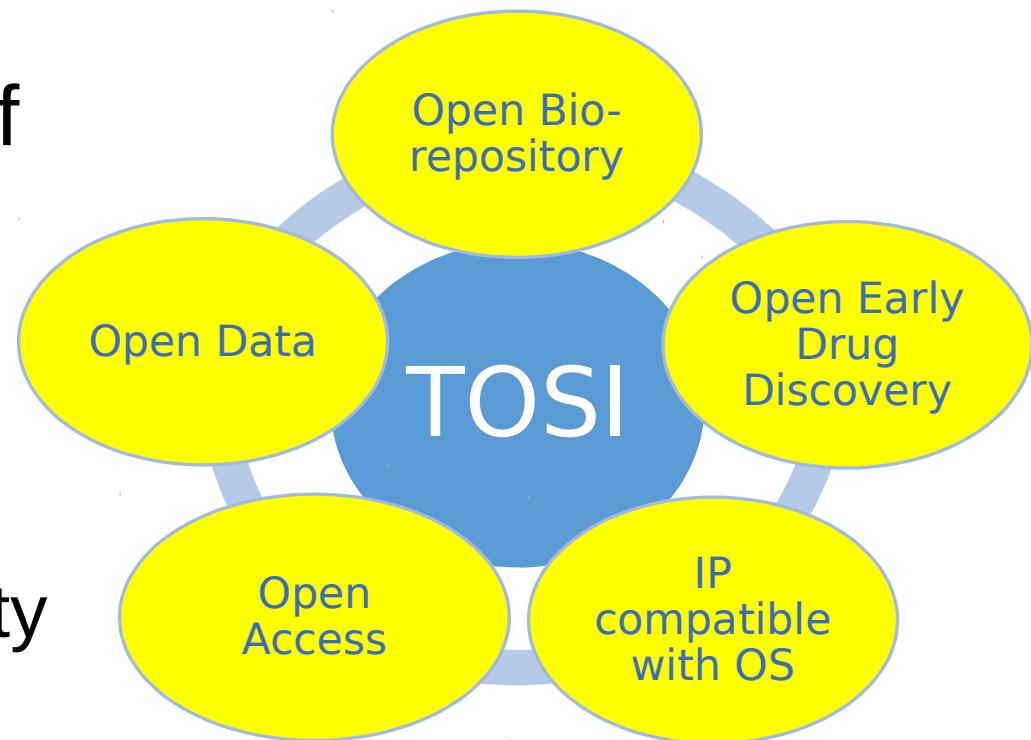
# The Montreal Neurological Institute & Hospital



# Tanenbaum Open Science Institute: An Open Institute experiment



- Changing the culture of research
  - Lessons learnt
- Open Science
  - Perception versus reality



**Poupon, Viviane, Annabel Seyller, and Guy A. Rouleau.** 2017.  
"The Tanenbaum Open Science Institute: Leading a Paradigm Shift at  
the Montreal Neurological Institute." *Neuron* 95 (5): 1002–6.

# TOSI: Some successes

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- Bottom-up approach with an active internal buy-in process
- **Strong institutional commitment**
- **Official blessing from McGill University leadership**
- Crafted as an experiment (living-lab approach)
- **Philanthropy as a kick-starter and a key driver**
- OS as a magnet to attract philanthropic support
- Role model for governmental partners (Canada & beyond)
- **Robust strategic partnerships with other initiatives**
- Continuous sharing of lessons learned
- Being the first = need to be very agile & focus-driven
- Continuously act outside of our comfort zone
- Implementation of a Grassroots OS Committee

# What has been challenging?

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- Limited financial capacity: difficult to simultaneously implement all infrastructures
- **Culture change is a long process**
- Ingrained biases against “open”, especially at Universities’ level
- **Need new ways to acknowledge OS practices**
- Being first, no model to emulate
- **Great hype within academia BUT practice still hampered by perceived risks (eg scooping)**

# Perception vs Reality

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**“Pharma will not see the value of OS and will not embark”**

**“Implementing an Open Science policy might refrain young researchers to join The Neuro”**

**“Will public funders and donors engage and support?”**

**“Will OS prevent new collaboration projects ?”**

**“Will ethics be an issue?”**

**“Will clinicians see the benefits?”**

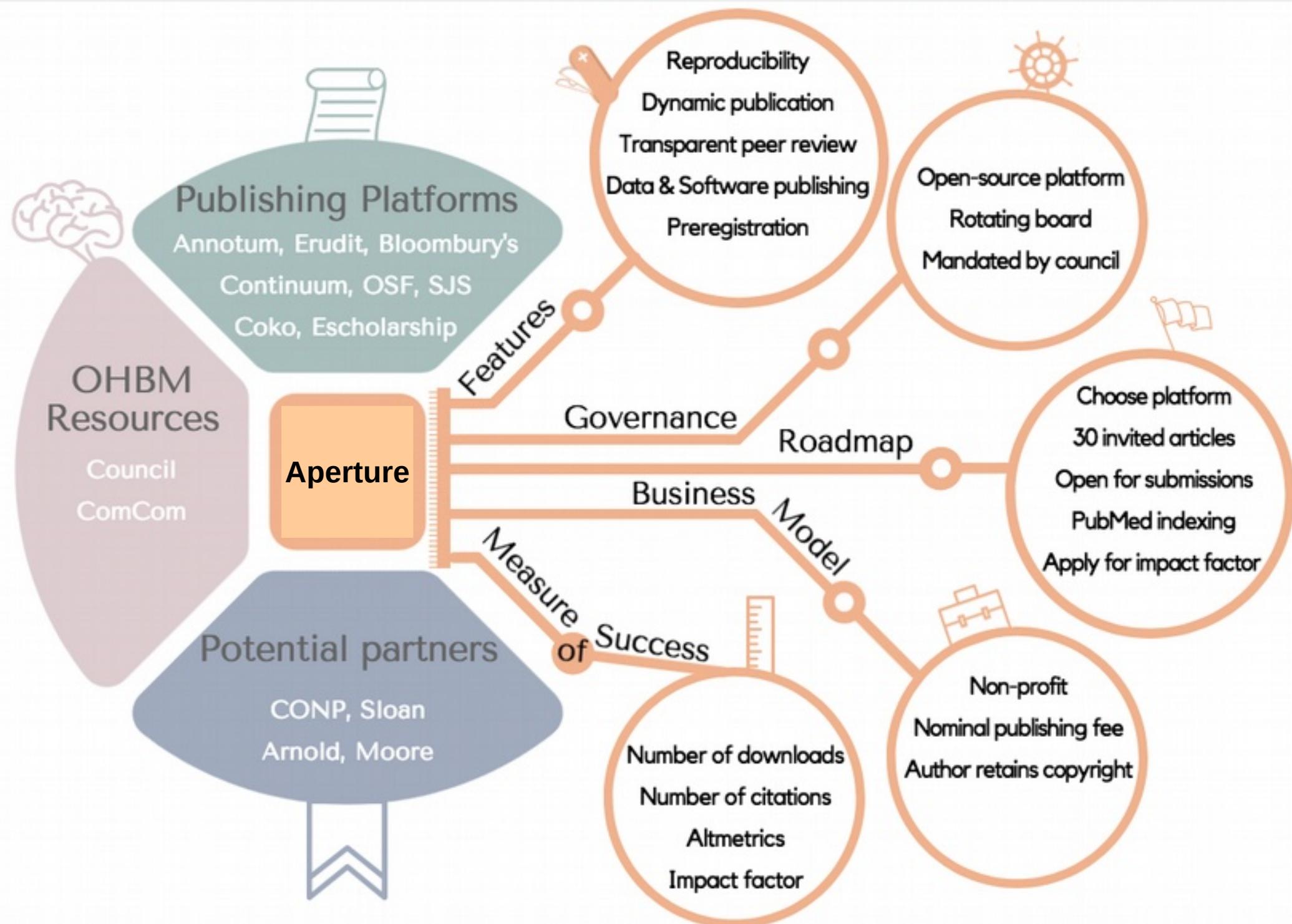
**“You need patents before creating a spin off company”**

**“Will other academic institutions be reluctant to become OS because of the position on IP?”**

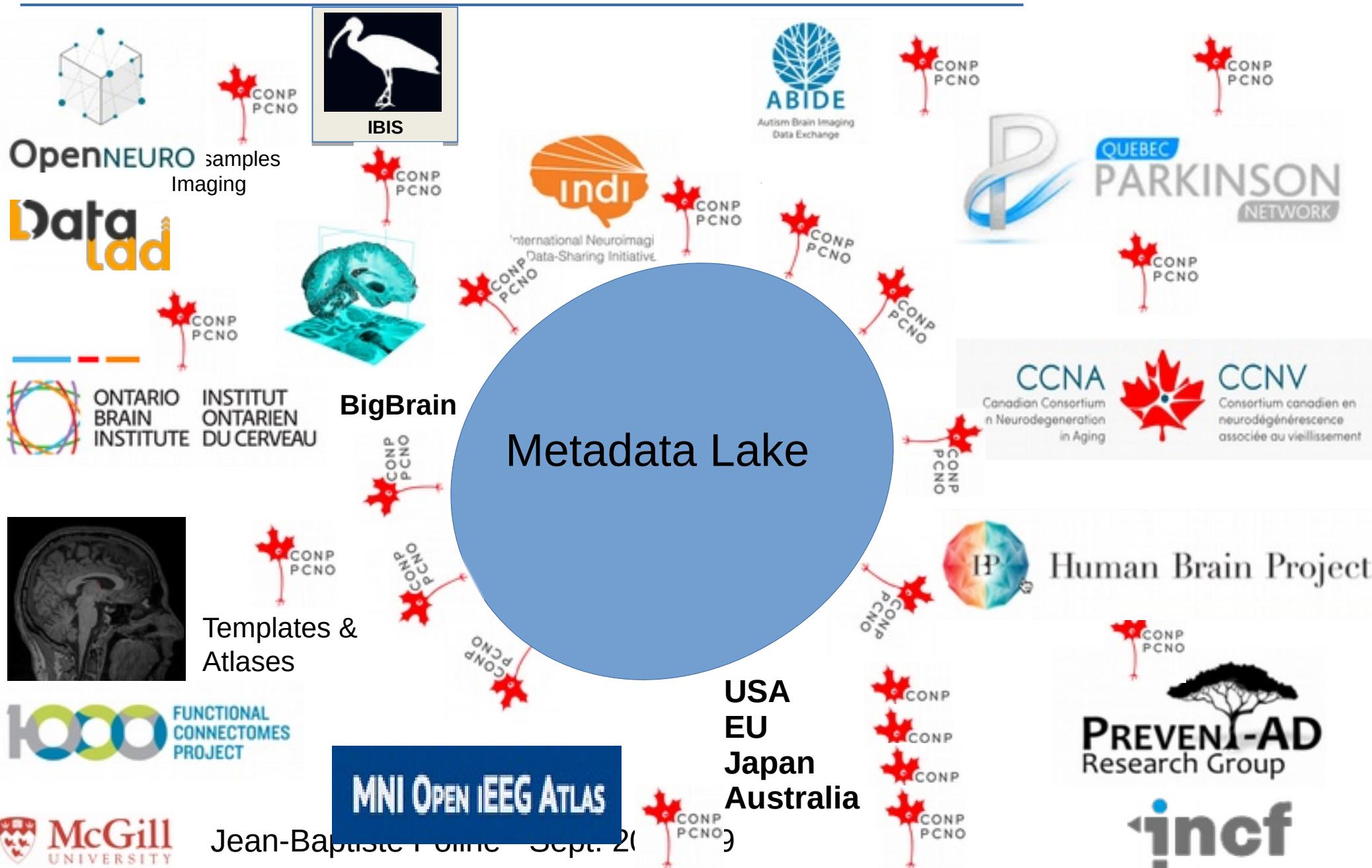
# Publications: ways forward

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- The Aperture Project : 5 principles
  - Open source platform
  - Governance by a scientific society
  - Non profit / cheap
  - Review transparency and scientific excellence
  - Publish the full research
- NeuroLibre
  - Check that Open Computational Notebooks run



# Canadian Open Neuroscience Platform



# NeuroHub

Healthy Brains for Healthy Lives,  
Canada First Research Excellence  
Fund

HOST

**Collaborative      Reproducible**

PUBLISH

State-of the-art  
Technologies

FIND

**INTERACTIVE SCIENTIFIC  
PUBLISHING**  
✓ *Derived data & Results*

- *Data provenance*
- *Procedural steps*
- *Data analysis outputs*
- *Interactive graphics*

PROCESS

WORK SPACE

**DATA SPACE**

- ✓ *From Data Providers*
- ✓ *Automatic Data transfer from existing databases (e.g.: LORIS)*
- ✓ *Data extraction from published studies*
- ✓ *Derived-data*

**METADATA  
QUERYING**  
✓ *Searchable repository through standardized metadata of ALL data hosted in NeuroHub*

**ANALYTIC TOOLS**

- ✓ *Interactive computing*
- ✓ *Statistical analysis*
- ✓ *Execution pipelines*
- ✓ *Machine learning*
- ✓ *Modeling*

# INCF : Standards and best practices in FAIR Neuroscience



**Sociological tools are essential !**

Jean-Baptiste Poline - Sept. 20, 2019

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# Incentives in summary

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- Love
- Money
- Fame
- Rules
- Publishing platforms
- Funding agencies and Intl organizations
- Infrastructures and tools
- Training and community building through Intl org.

Paraphrasing Carole Goble,  
INCF conference, Warsaw 2019

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# Thanks !