

INCF – new capability for global coordination in neuroinformatics

incf International Neuroinformatics
Coordinating Facility

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THE HUMAN BRAIN

130 billion neurons

3 million km of 'wires'

1 million billion connections

Volume of 1.5 l
10 Watts of power



Neuroscience: Levels of investigation

Genes

Molecules

Synapses

Cells

Circuits, projections

Regions, areas

Whole brain

Behaviour

**Biomedicine and
life sciences today:**

Hypothesis driven

Discovery based



Infrastructure requirements for discovery based sciences

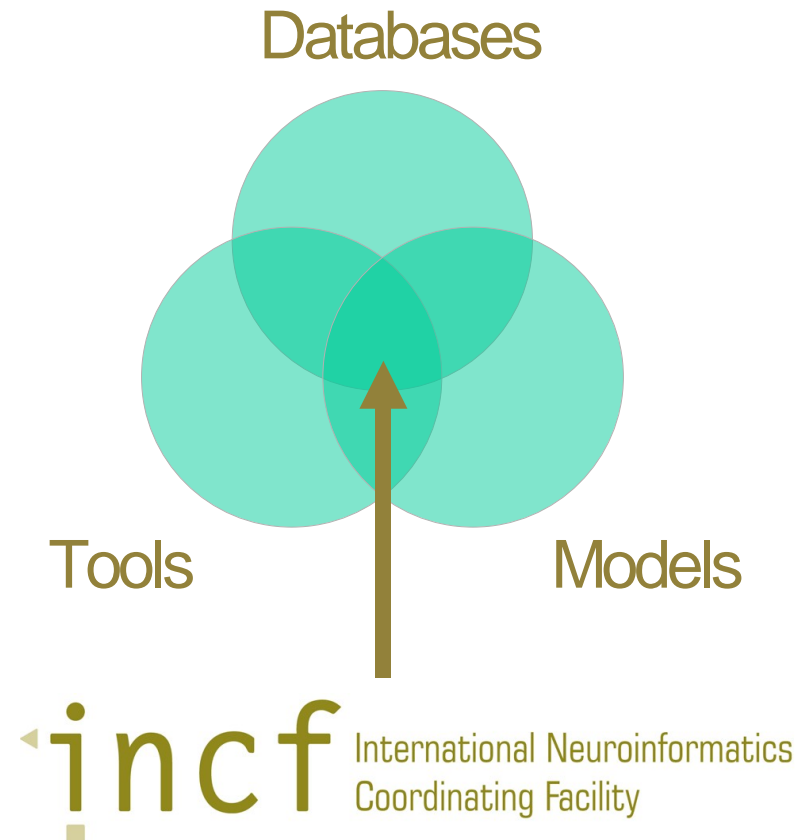
- Large scale data storage
- High speed networking
- Interoperable tools and databases

Distributed computing and web services architectures

Neuroinformatics: relevant for hypothesis driven and discovery based research

Core aspects:

- Interoperable databases
- Shared tools for data-acquisition, analysis, visualization and distribution
- Environments for theoretical analyses: computational and simulation approaches

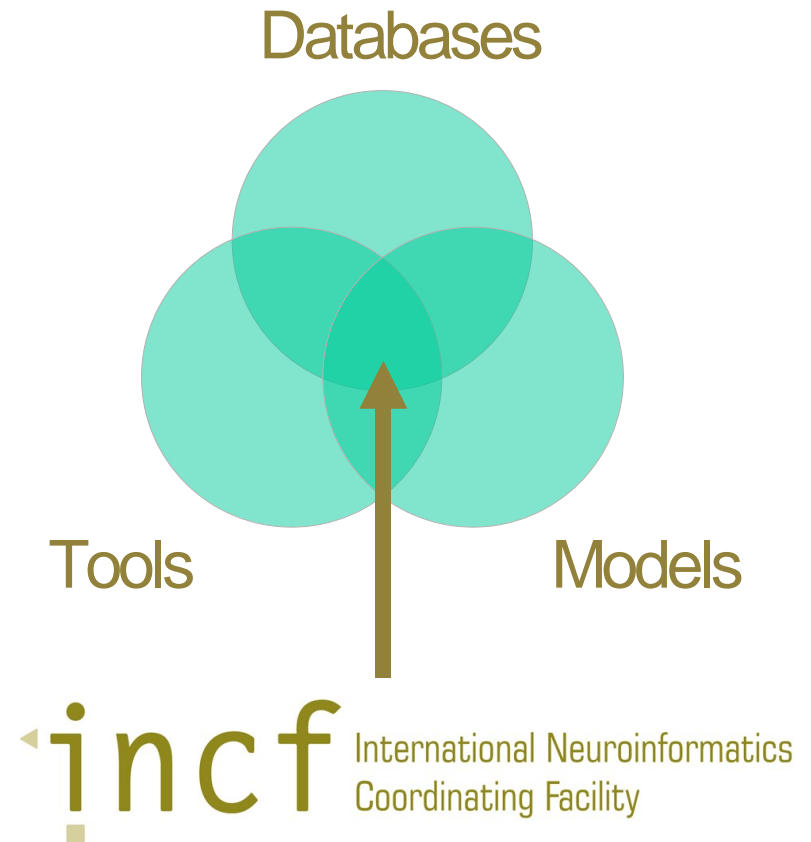




Neuroinformatics:

At the intersection between many disciplines:

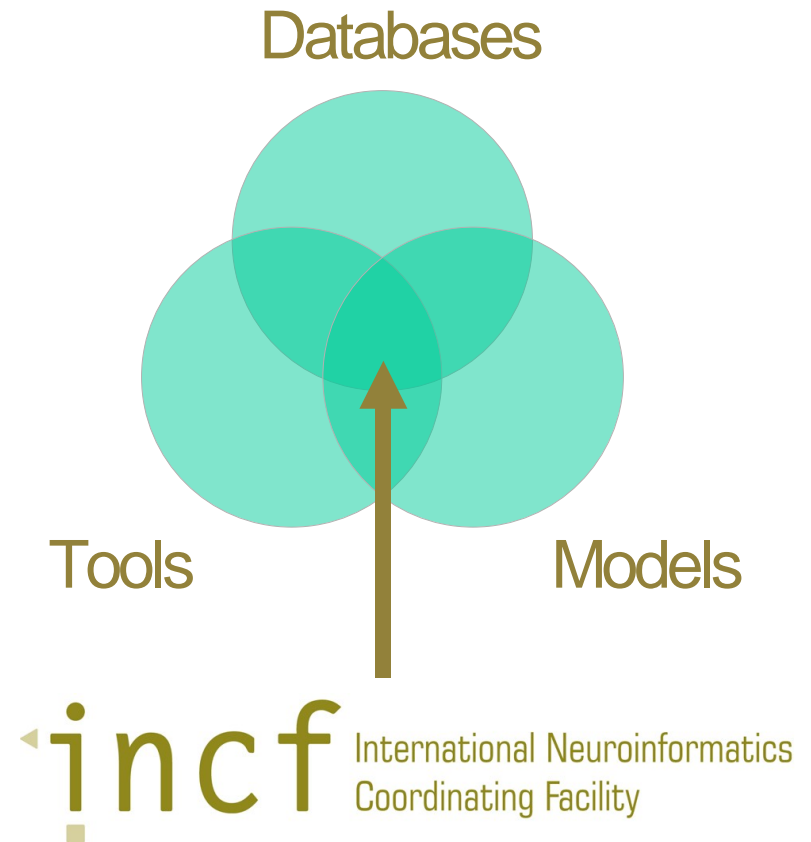
- medicine
- biology
- behavioural sciences
- physics
- computer science
- mathematics
- engineering



Neuroinformatics:

Neuroinformatics - an interdisciplinary research area, combining research in neuroscience and informatics (including computation) to **develop and apply advanced tools and approaches needed for understanding the brain.**

*Definition provided by:
OECD MegaScience Forum
OECD Global Science Forum*





The mission of the INCF

coordinate and foster international activities in neuroinformatics

contribute to development and maintenance of database and computational infrastructure and support mechanisms for neuroscience applications

enable access to all freely accessible data and analysis resources for human brain research to the international research community

develop mechanisms for the seamless flow of information and knowledge between academia, private enterprises and the publication industry



The INCF is a network of independent National nodes, funded by national resources

The INCF **Secretariat** offers services to the National nodes:

- will assist the Nodes in reaching their goals
- will play a proactive role in furthering neuroinformatics in each member country
- will coordinate efforts among the nodes, with the aim of avoiding unnecessary duplications and facilitate dissemination of results and achievements



Top – down: The INCF is a direct result of a decision made by Science ministers in the OECD countries.

Top – down: This decision was based on recommendations prepared by selected working groups under the OECD expert panel umbrella.

Bottom – up: The members of the expert panels were to a large degree scientists representing a wide range of interests and background.



Motivation

Diseases of the Nervous system – 35% of annual costs for health care

Rapid information science development should be exploited

Excessive accumulation of Neuroscience Data at all levels of analyses

Many dynamic complex interactive processes, fragmentation and subspecialisation

.... challenge to integrate and build knowledge and understanding



INCF was formed August 1st 2005.

An international committee evaluated bids for secretariat host.

November 2005, formal inauguration of INCF at OECD in Paris.
Decision that the INCF Secretariat should be located at Karolinska
Institutet, Stockholm.



April 2006, Executive Director of the INCF Secretariat appointed – starting part time in May 2006, and full time September 2006.

Positions for Associate Directors, Program Officers, and other positions, announced.

The Secretariat, with a staff of around 10, planned to be complete after one year in specially designed new space at Karolinska Institutet.

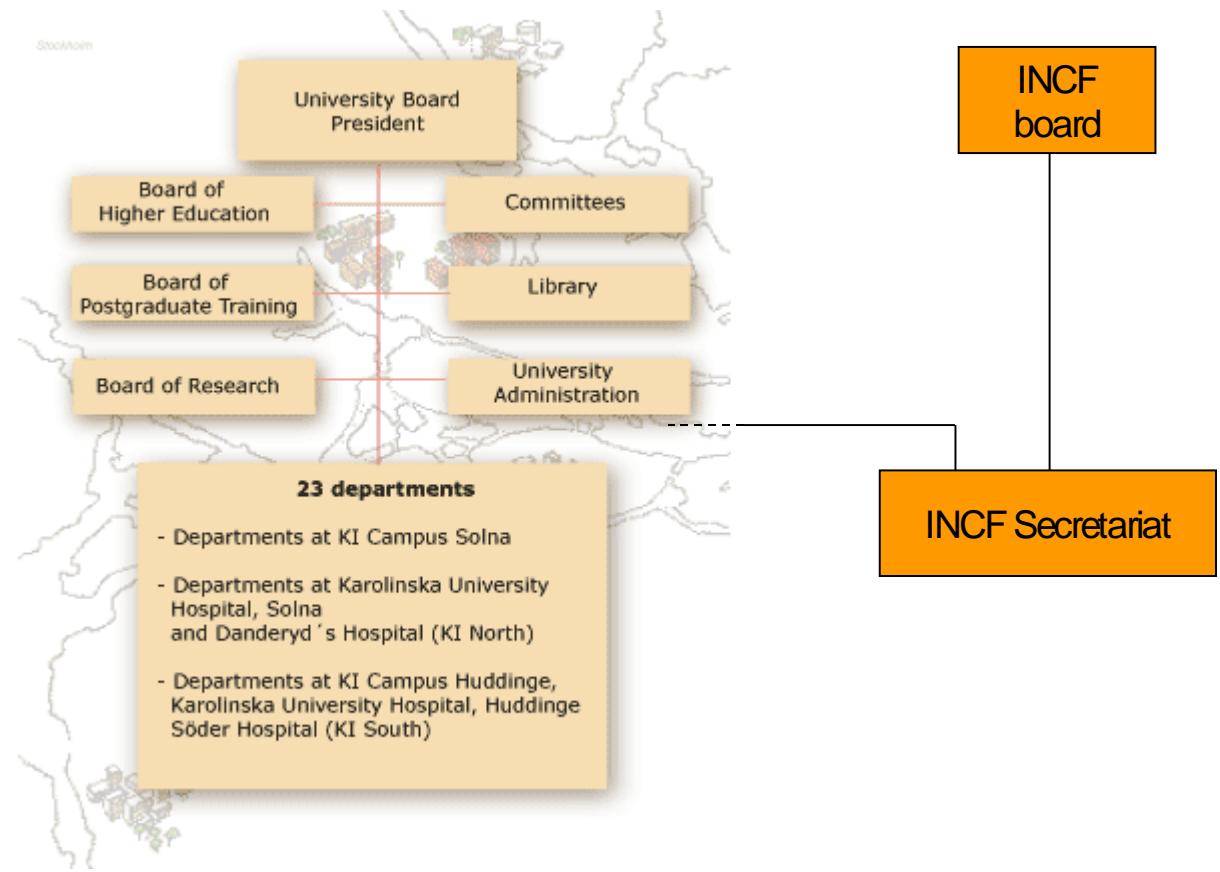


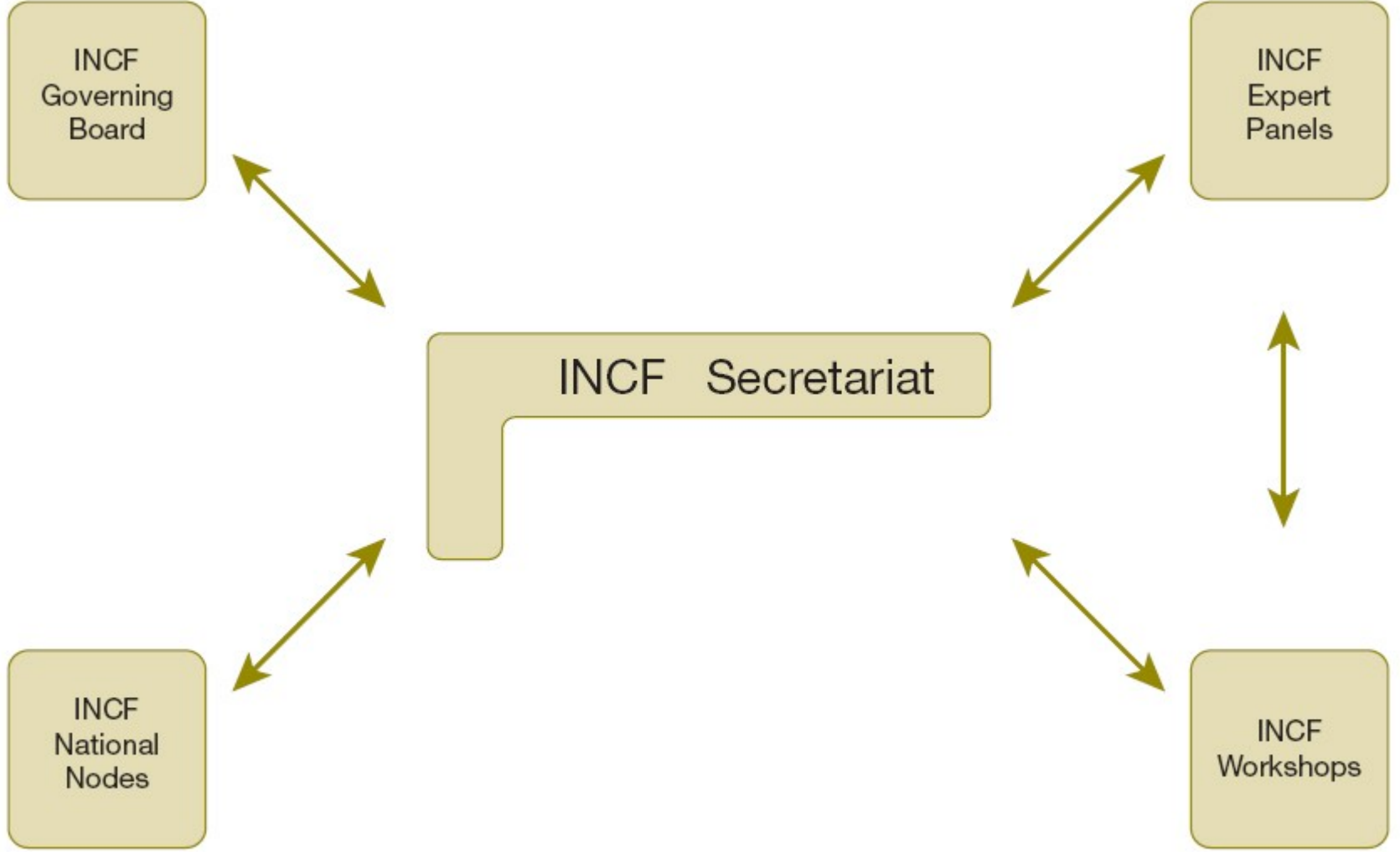
School of Computer science at the Royal Institute of Technology, Stockholm will provide informatics infrastructure for INCF and contribute with research positions

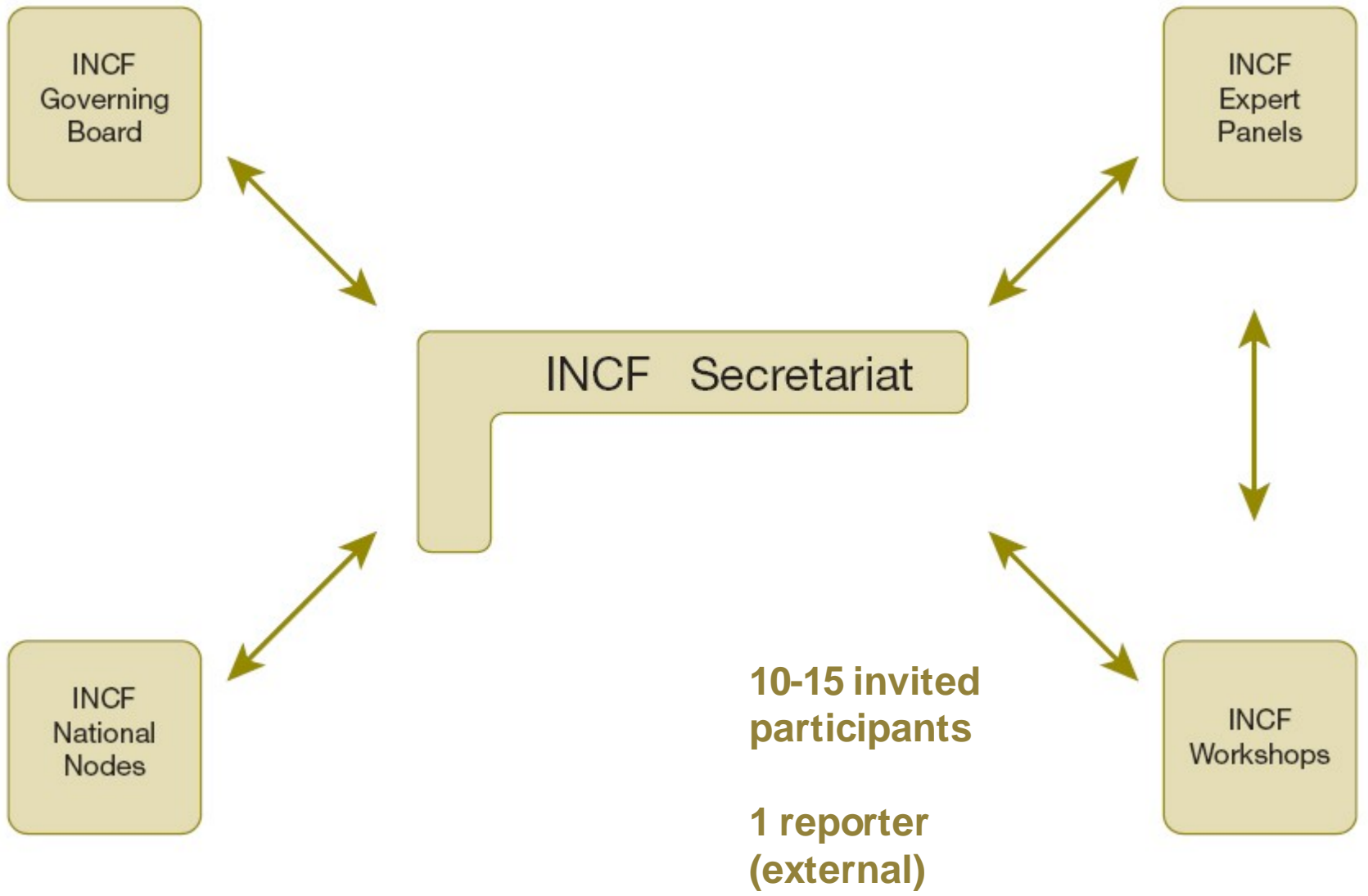
Each member nation is setting up a National node to further the development of neuroinformatics

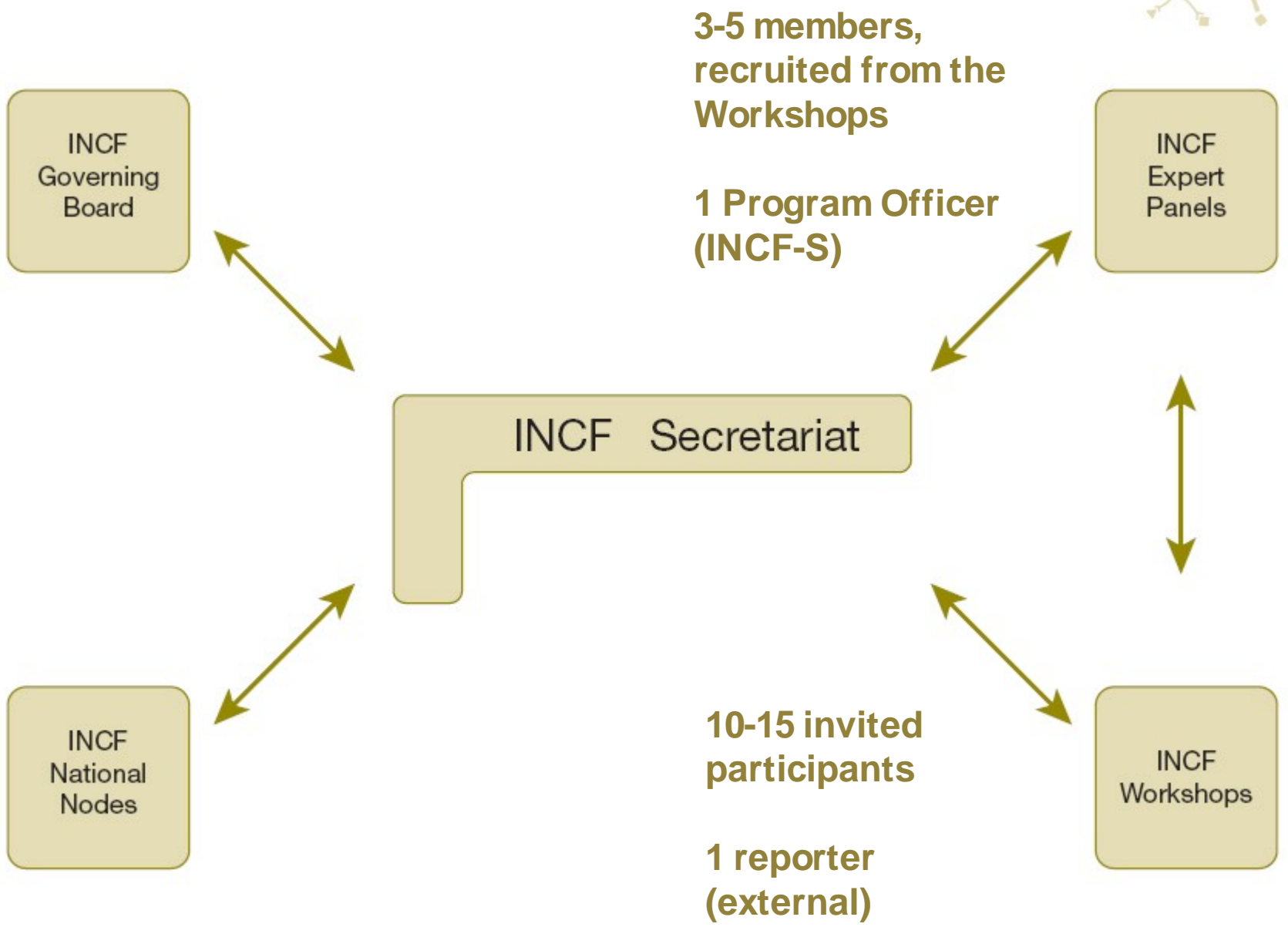


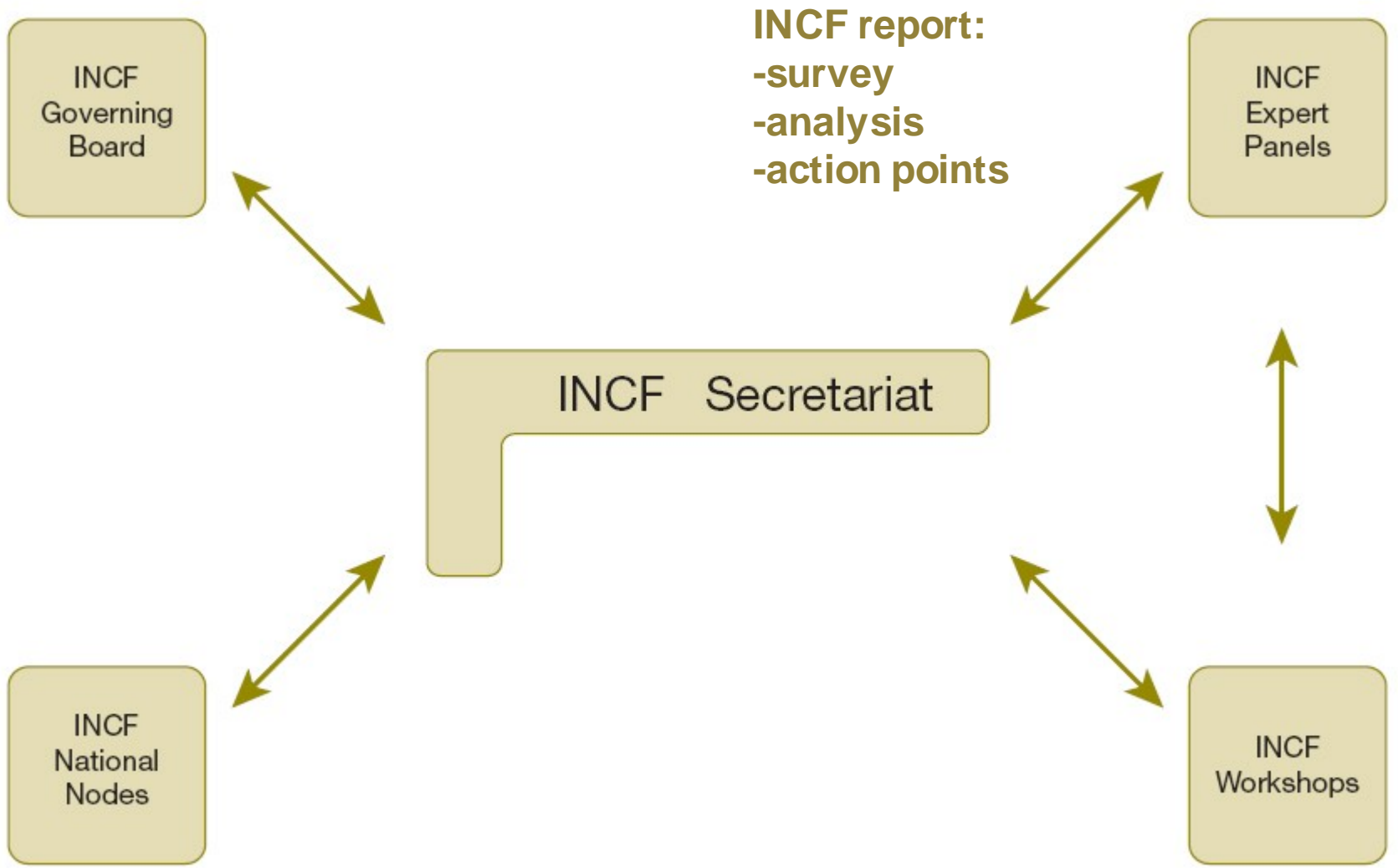
Status of the INCF Secretariat



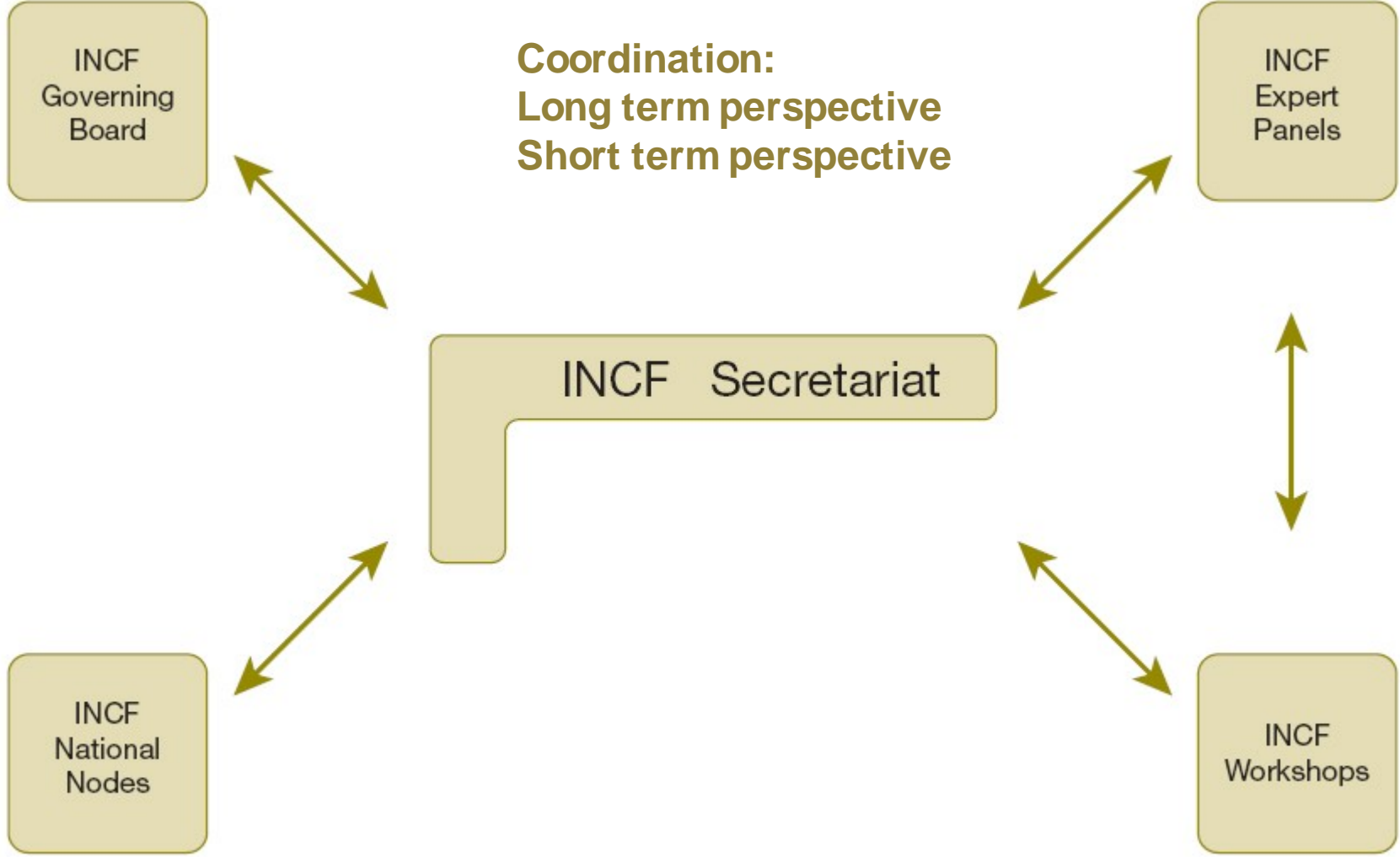









Coordination:
Long term perspective
Short term perspective






Member countries

- Czech Republic
- Finland
- France
- Germany
- Italy
- Japan
- Norway
- Sweden
- Switzerland
- United States

Membership is in preparation
for several more countries



where
when
what
why

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NEWS

November 2006: Belgium will join the INCF from 2007