

Evaluation seminar

Claude Kirchner

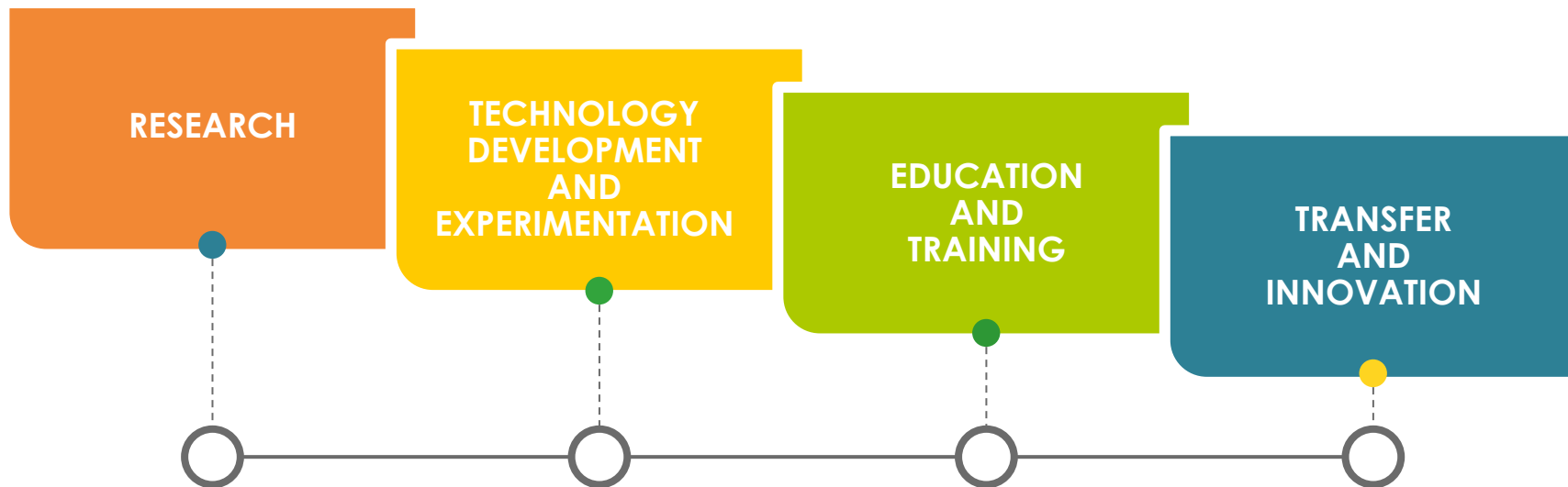
Chief Executive Officer for Science and Technology

Domain: Networks, Systems & Services, Distributed computing

- **Networks and Telecommunications**
- Distributed Systems and Services
- Distributed and High Performance Computing

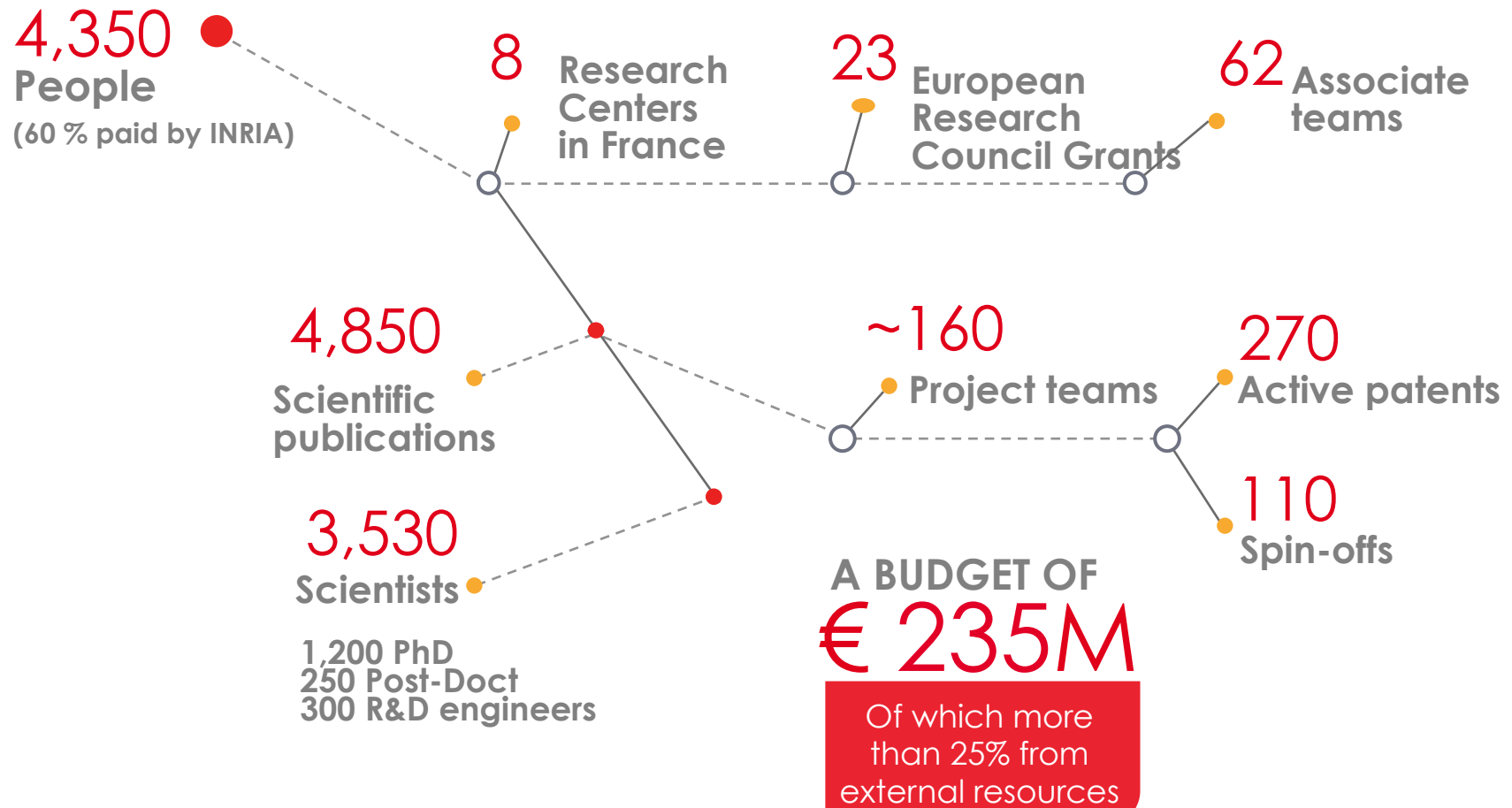
The French Institute for Research in ICST

Information and Communication Science and Technologies



A scientific and technological public institution under the dual authority of the Ministry of Research and the Ministry of Industry

Inria Key figures



Inria's Research Centres



Inria PARIS - Rocquencourt



Inria LILLE
Nord Europe



Inria NANCY
Grand Est



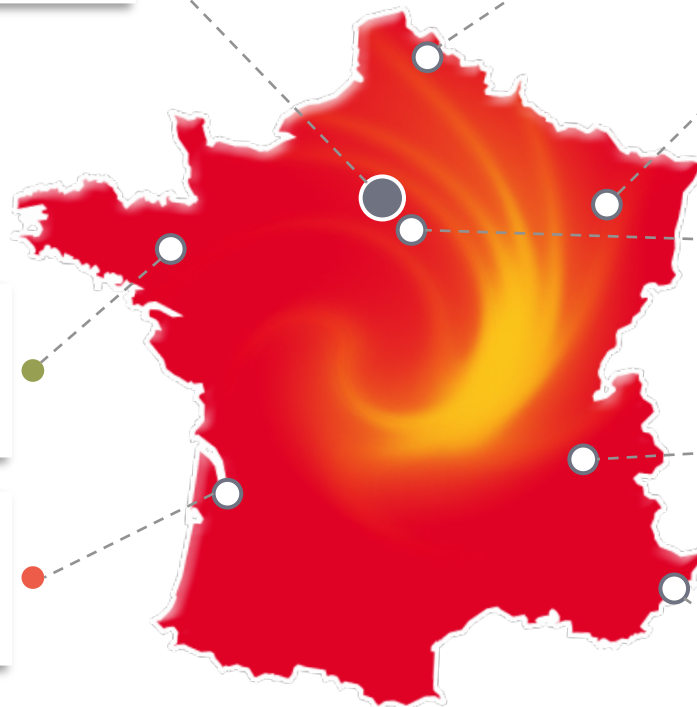
Inria SACLAY
Ile-de-France



Inria GRENOBLE
Rhône-Alpes



Inria SOPHIA ANTIPOLIS
Méditerranée



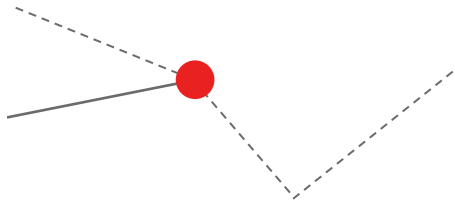
Inria RENNES
Bretagne
Atlantique



Inria BORDEAUX
Sud-Ouest



5 Main research domains (new since 2009)



1 Applied Mathematics, Computation and Simulation

Numerical analysis, stochastic methods, optimization and learning, control theory

2 Algorithmics, Programming, Software and Architecture

Cryptography, semantics, proofs, verification, embedded systems, compilation

3 Networks, Systems and Services, Distributed Computing

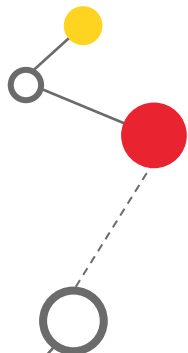
Networks and telecoms, distributed services, HPC

4 Perception, Cognition, Interaction

Knowledge representation, natural language, robotics

5 Computational Sciences for Biology, Medicine and Environment

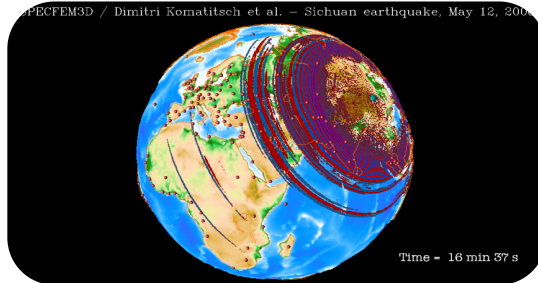
Observation and modeling, bio-maths, bio-info, neurosciences



INRIA Inside

1

Earthquake simulation (Magic-3D)



2

Factorization of large numbers RSA-768 bits (cryptography) (Cacao)



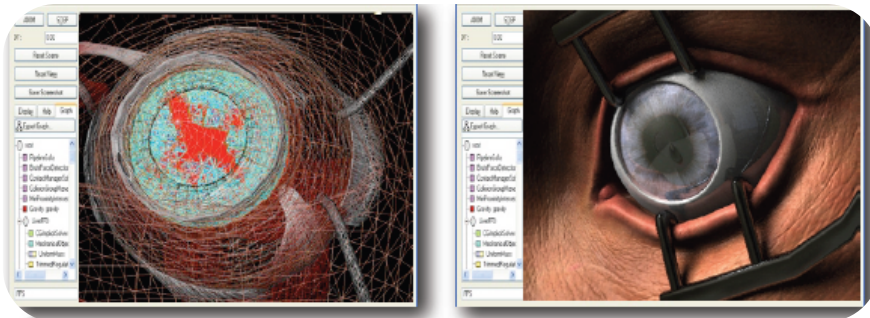
3

Human motion analysis – Innovative sensors (D-Net)



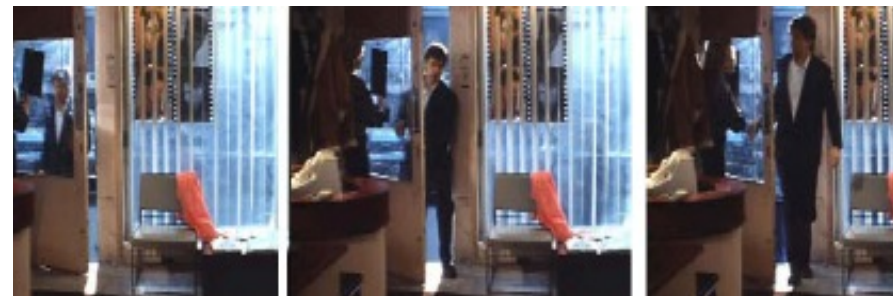
5

Eye surgery training (Sofa)



4

Interpreting videos – Weakly supervised learning of action models (ERC Jean Ponce)



Inria Project-Team

10 to 30 people working under a **scientific leader supervision**

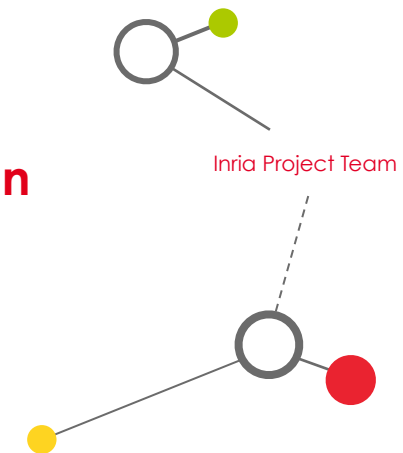
Focused scientific theme and international evaluation

A **limited** lifespan: average 8 years, maximum 12 years

Well-defined **objectives and work program**

Cooperating with **industrial and scientific partners**

in France and around the world



160+

Inria Project-
Teams

140

in partnership

with universities and academic
organizations



Inria

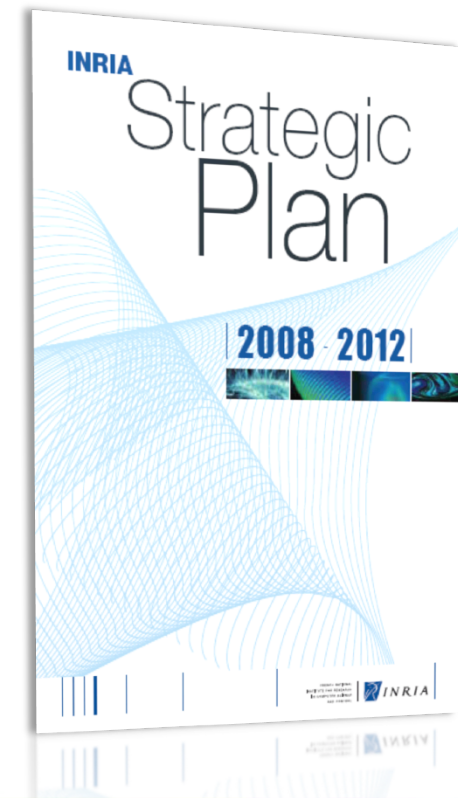
Priorities and Ambitions

A **4** year strategy

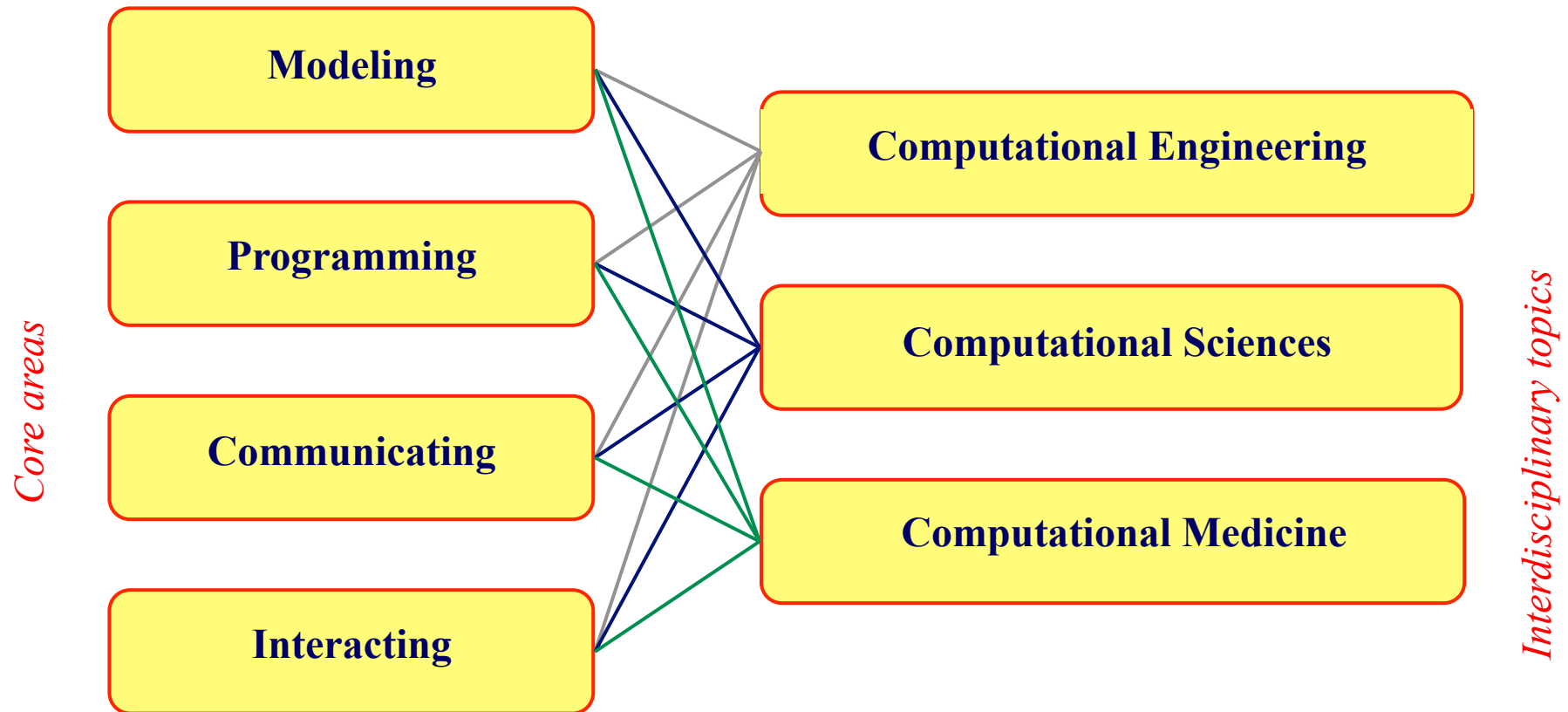
A 4 year forward vision

Priorities in our areas of excellence :

- Modeling, Programming, Communicating and Interacting
- Computational Sciences, Engineering and Medicine



Scientific Priorities



Incentive Actions for joint research projects

Extend research incentives for **collaborative** actions between project-teams

Foster **ambitious interdisciplinary** and **integrative** research projects

Encourage **risk exploratory** actions

Four programs:

- **Collaborative actions**, possibly in partnership with non Inria teams
- **Large-scale research actions**;
- **Exploratory actions**;
- **Technological development actions.**

Technological developments



R&D partnerships with industry: strategy

Partnerships with R&D departments

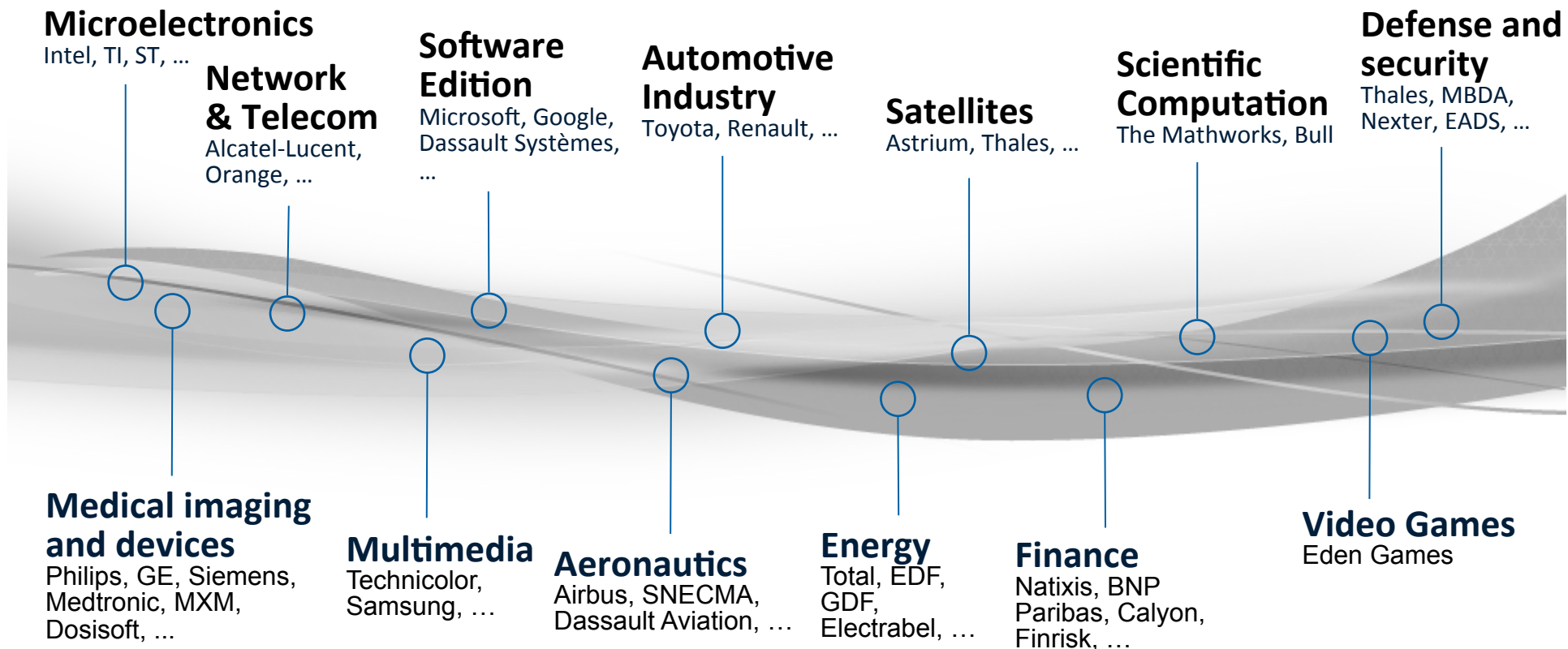
- Project teams-to-company: point-to-point: bilateral, collaborative (French national research agency, competitiveness clusters, European Framework Programme)
- Institute-to-company: « framework agreement ».

Priority: a few strategic partnerships

- Strategic for our research topics (access to « big » issues/battle field)
- Mobilization of $n (>1)$ INRIA projects
- France: « hosting territory » for R&D departments



A long tradition of R&D partnerships with Industry



A strong focus on SME : Major source of growth and innovation

Spin-off Companies

INRIA TECHNOLOGY COMPANIES

115 companies created since 1984

- One listed on the NASDAQ (Ilog)
- Some bought by worldwide IT leaders like IBM, SAP, Autodesk
- Six new spin-offs in 2010:
LYaTiss, Sysfera, Karrus ITS,
Powedia, Robocortex, Scilab
Entreprises
- Seven in 2011:
Alien, Alphability, Ambientic,
HiKoB, Lixoft, OCamlPro, Tocea

STRONG SUPPORT FROM Inria

All along the creation process

- An external advising committee for opportunity evaluation
- Specific maturation through dedicated engineers
- IT-Translation : coaching and early stage financing
- Seed-financing :
I-Source 1, 2 and 3, C-Source, T-Source

European key player

Key player in the European Research Area

- Involved in more than 150 European projects in the 7th Framework Programme
- Host of 20 grants of the European Research Council (ERC)
- 1st European Research Institution in ICT, Microsoft Academic Search Ranking 2011

A driving force of EIT ICT Labs,
the European “cluster” for the development of
the Future Information Society in Europe

Founding member and driving force within ERCIM

European Research Consortium for Informatics and
Mathematics



Contacts with major European industrial groups

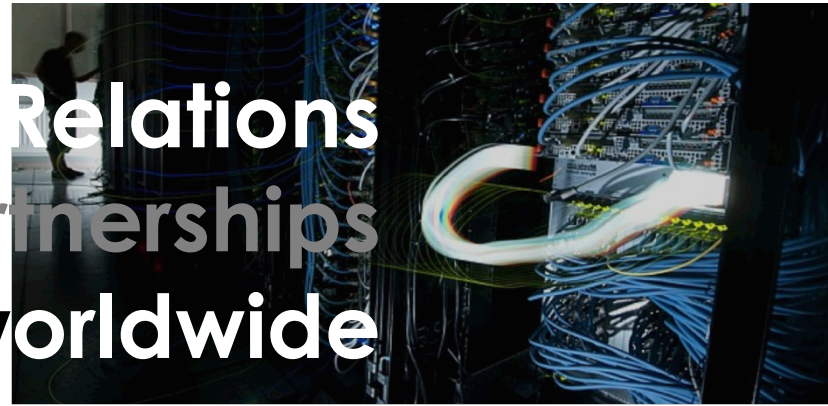
International Relations

Develop strong partnerships in priority places:

- ***Joint research laboratories***
In **USA, China, Africa, Chili**
- ***Joint research programs***
around **Méditerranée, in SiliconValley**
- ***Jointly with CNRS***
in **Brazil, Japan, India and Russia**
- ***Associate Teams***
62 active Associate Teams in 2012.



International Relations Develop partnerships worldwide



Grid 5000 node in Inria Rennes

➤ Inria Joint research laboratories :

- International Laboratory for Research in Computer Science and Mathematics in **Africa (LIRIMA)**
- Joint Laboratory for Petascale Computing - Urbana Champaign, **USA (JLPC)**
- French-Chinese computer science, control and applied mathematics laboratory – Beijing, **China (LIAMA)**
- Communication and Information Research and Innovation Center, **Chile (CIRIC)**

International Relations

Develop partnerships worldwide

➤ Tailored joint research programs

- EuroMediterrannée 3+3

(multi-lateral projects with mediterranean partner countries)

- INRIA@SiliconValley

(Joint research projects with Berkeley and Stanford)

➤ Associate Teams Program

Supports **scientific exchanges** between Inria's project-teams and excellent research teams throughout the world (30 to 50.000 Euros funding per project for 3 years)



Cybercars at Inria Rocquencourt (Imara team)

International Relations Incentives for mobility

➤ **Sabbatical**

Supports Inria scientists for a long research stay in a lab abroad

➤ **Explorer**

Supports a young Inria scientist for a research stay in a lab abroad

➤ **Internships**

Hosting students for a 3 to 9 months experience at Inria

➤ **Invited researchers**

Invitation of international scientists in one of the 8 Inria research centers in France

Project-teams evaluation: A crucial step

- Project-teams are created by Inria president after an international evaluation
- Each project is evaluated every 4 years
 - **Evaluation seminar and report**
 - Project committee advice (local to each of the 8 research centers)
 - Evaluation committee review (national)
 - Inria scientific committee review (national)
 - Decision of Inria's president
 - Continue for 4 years
 - Stop
 - Evolve

Domains

*Applied Mathematics,
Computation &
Simulation*

*Algorithmics,
Programming, Software
& Architecture*

*Networks,
Systems & Services,
Distributed computing*

*Perception, cognition,
interaction*

*Computational Life and
Environment Sciences*

Themes

- Computational models and simulation
- Stochastic Methods and Models
- Optimization, Learning and Statistical Methods
- Modeling, Optimization, and Control of Dynamic Systems

- Programs, Verification and Proofs
- Algorithms, Certification, and Cryptography
- **Embedded and Real Time Systems**
- **Architecture and Compiling**

- **Networks and Telecommunications**
- Distributed Systems and Services
- Distributed and High Performance Computing

- Vision, Perception and Multimedia Understanding
- Interaction and Visualization
- Knowledge and Data Representation and Management
- Robotics
- Audio, Speech, and Language Processing

- Observation and Modeling for Environmental Sciences
- Observation, Modeling, and Control for Life Sciences
- Computational Biology and Bioinformatics
- Computational Medicine and Neurosciences

Project-team distribution (2010)

