Short presentation of LIACC to the ESF + FCT Assessment Committee

University of Porto, Faculty of Engineering
the 2nd of September 2014

(proposed) OUTLINE:

I. LIACC Structure 05 m
II. LIACC Indicators 05 m
III. LIACC Strategy 05 m

IV. Answers to previous Questions

Applied & Basic Research since 1988

Keywords: Multiagent Systems; Agents coordination and simulation
Software reliability and declarativeness
Intelligent Robotics
Text Mining

LIACC administrative management is done through the **University of Porto Rectory** services support.

FEUP

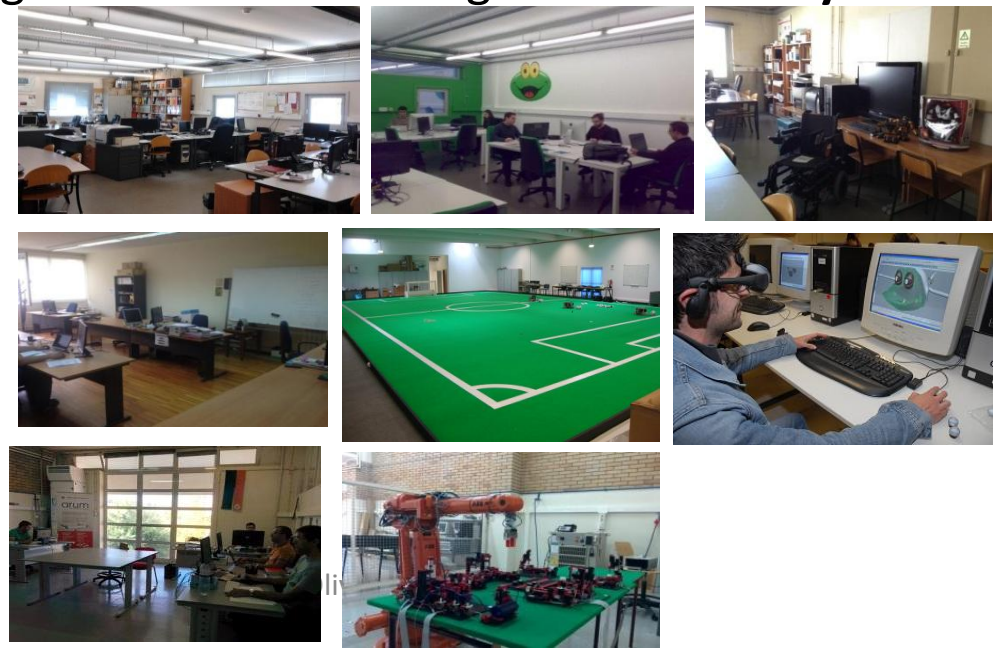
FCUP

LIACC labs at: UM

IPP

IPVC

IPB



U.PORTO LIACC

artificial intelligence and computer science laborato

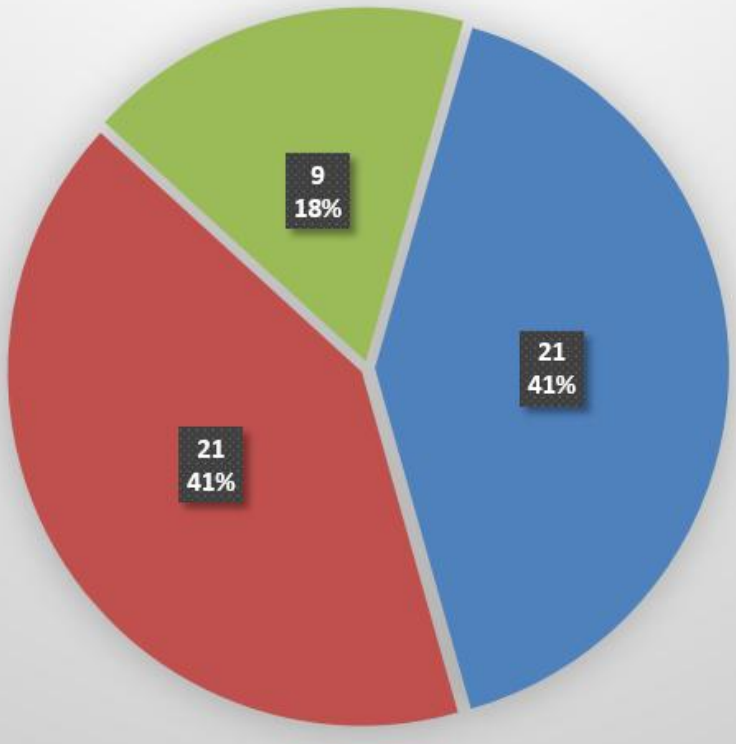
Coordinating Board: Eugénio Oliveira (Dir.)
António Porto
Luis Paulo Reis
Ana Paula Rocha
Rosaldo Rossetti

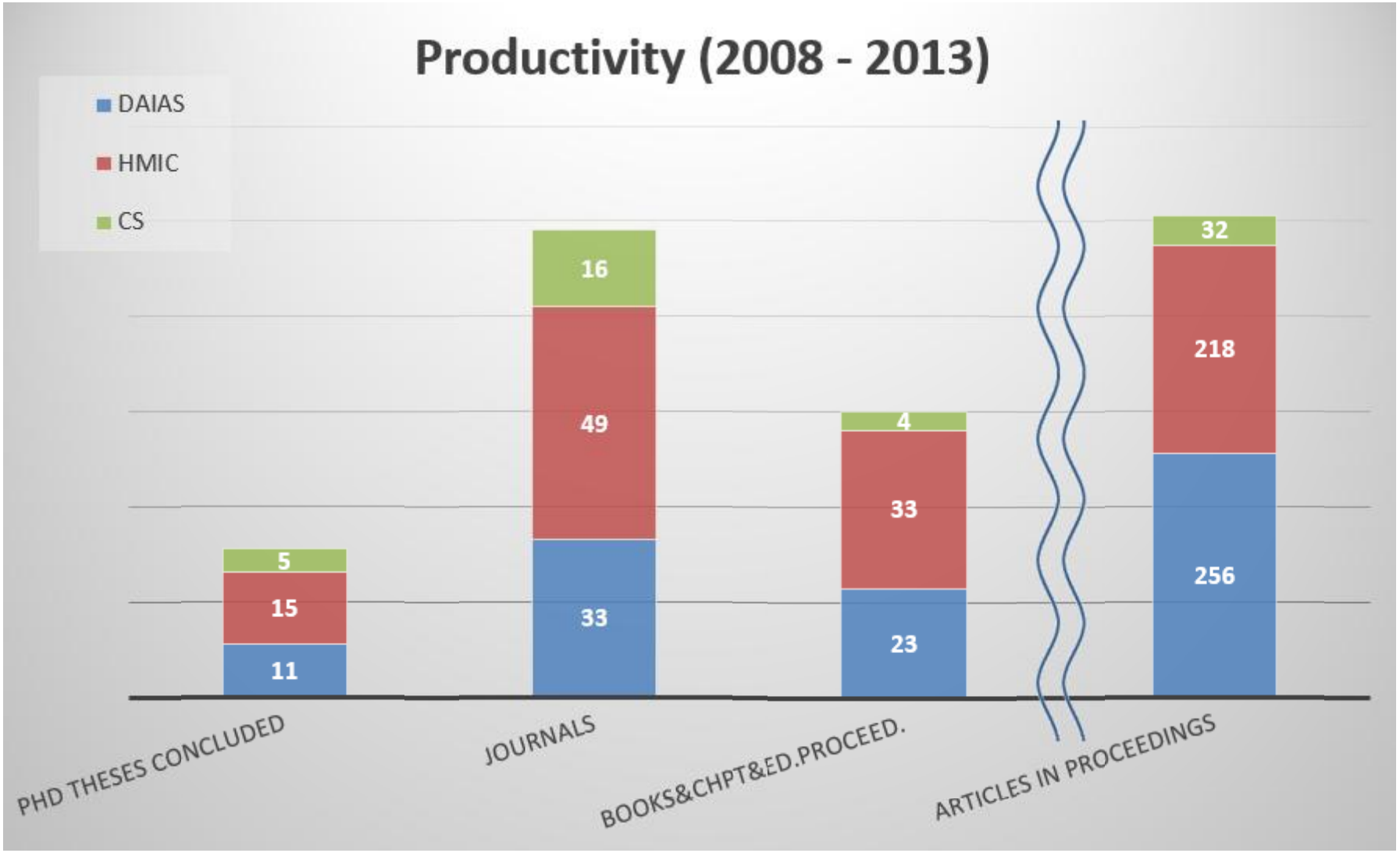
Advisory Board: Carles Sierra (IIIA Barcelona)
Claude Kirchner (INRIA, France)
3rd name from Robotics/HMI: To be invited

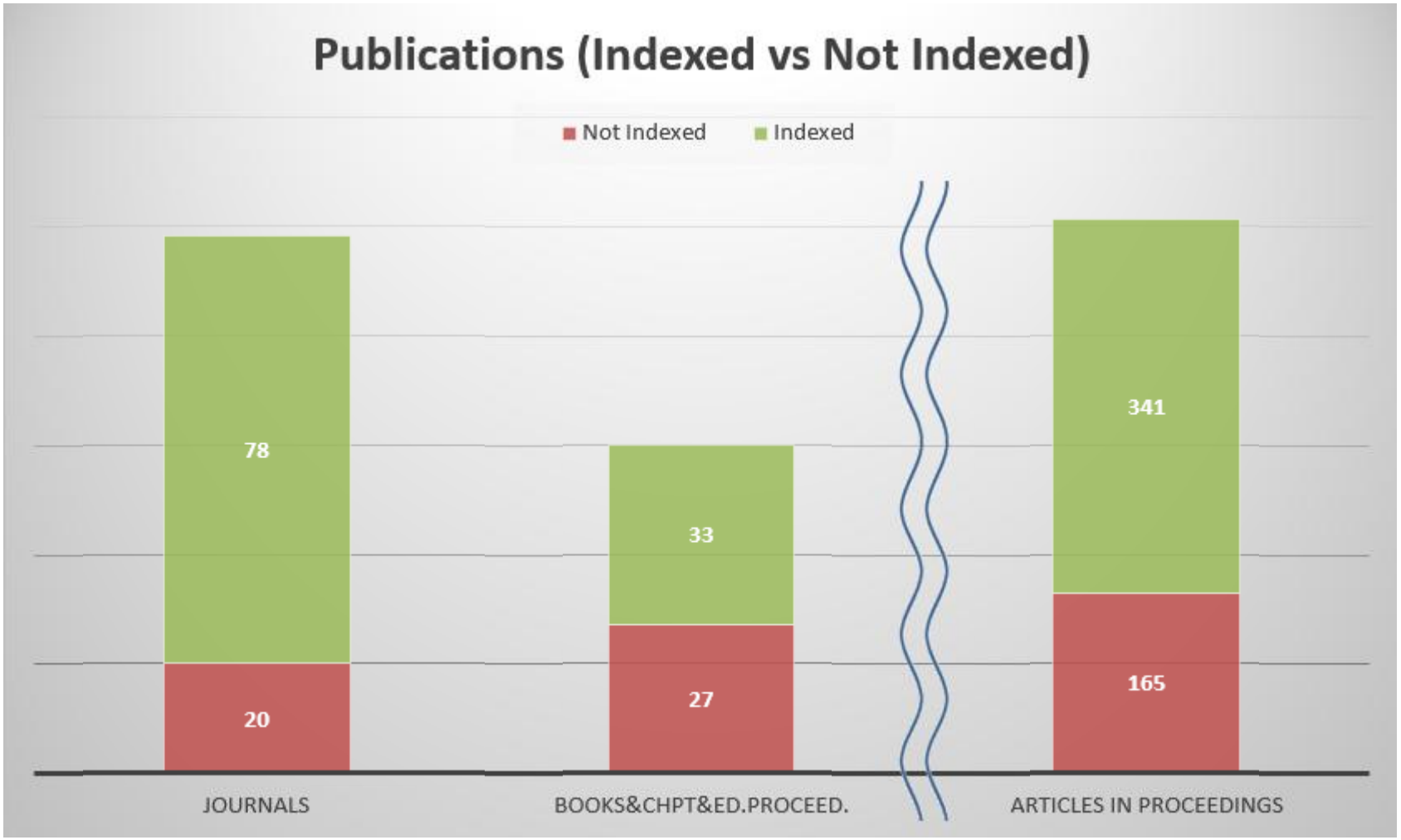
Total (Integrated)

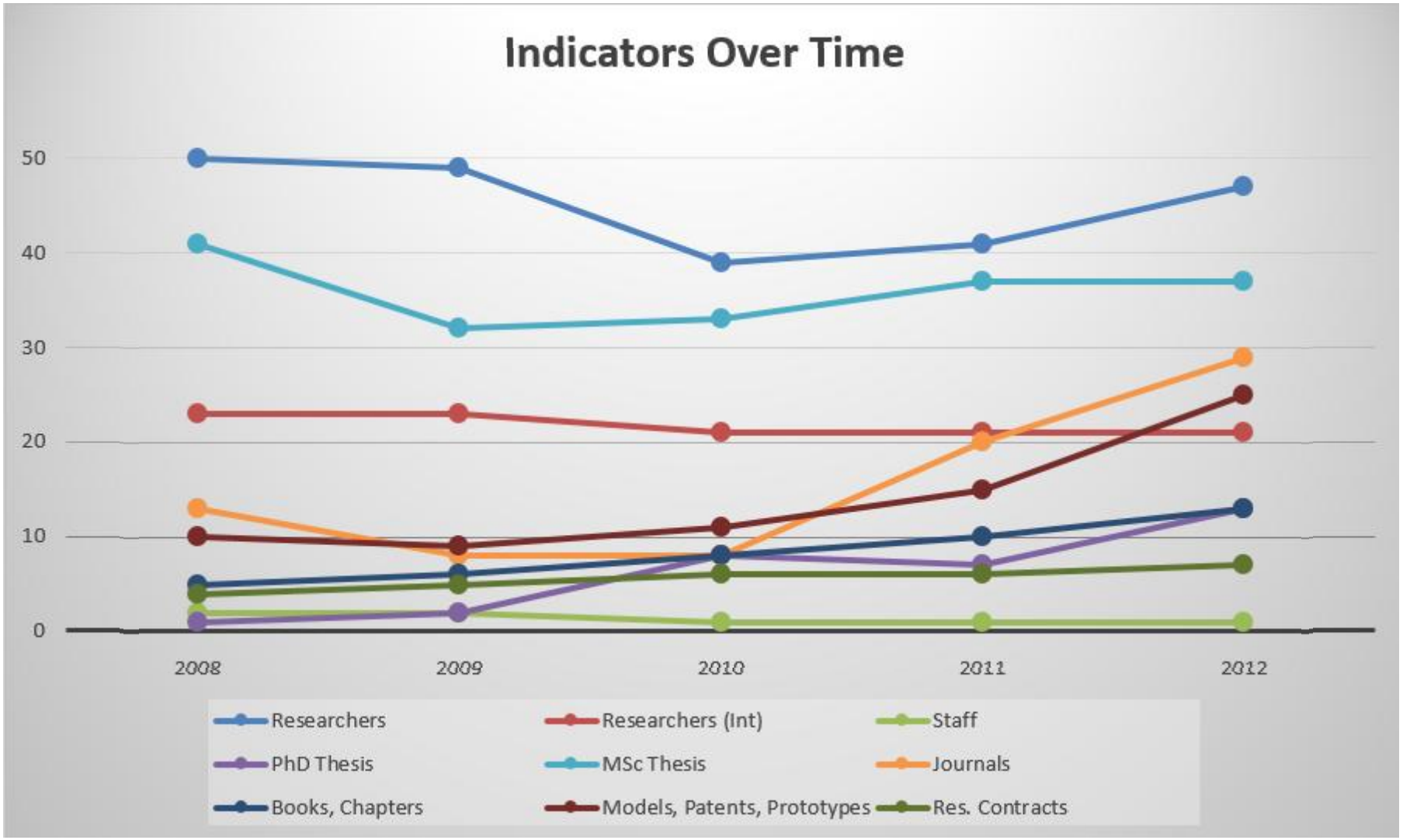
24 Integrated members
27 other (mostly PhD students),
27 more loosely connected collaborators

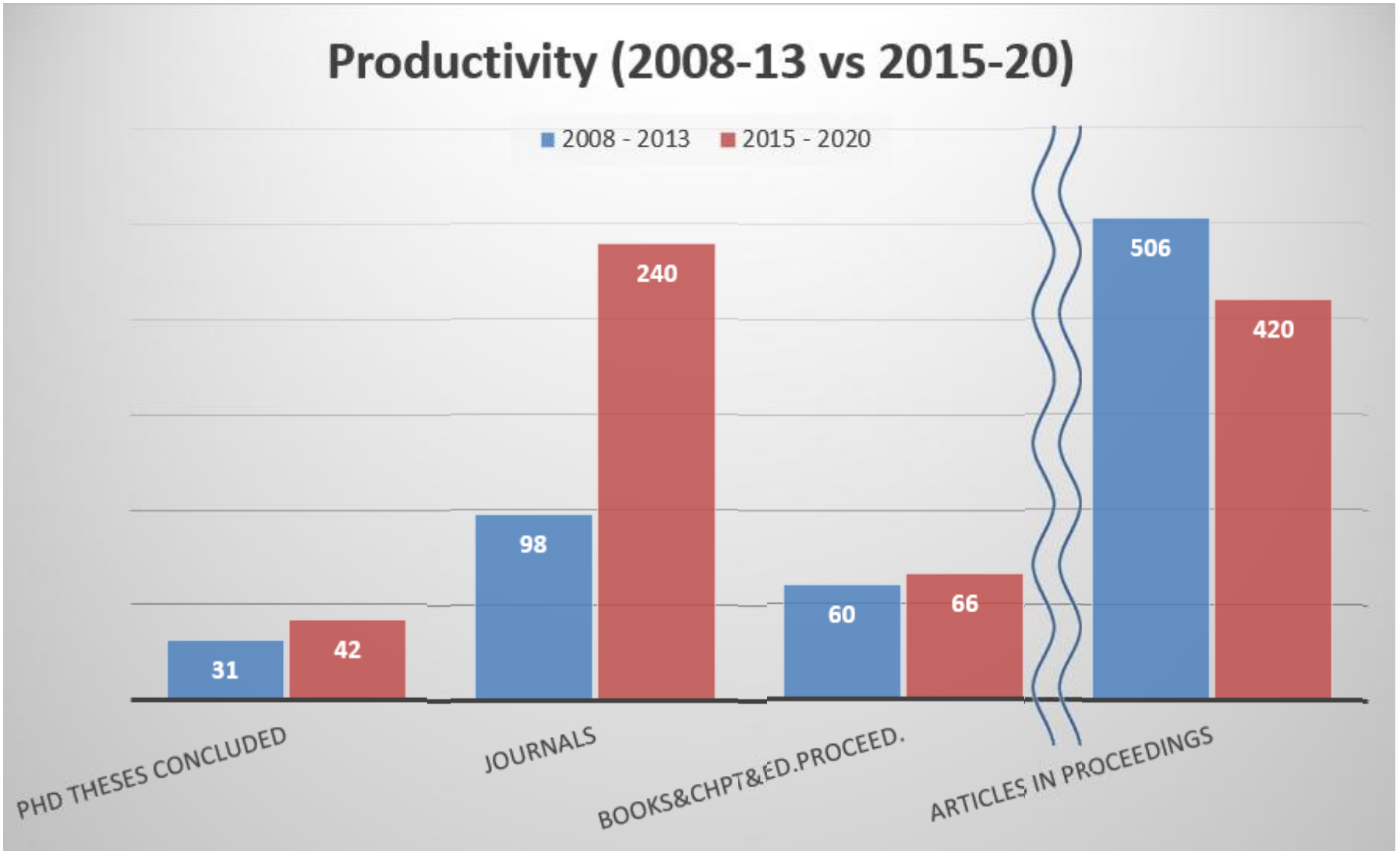
Link to graph

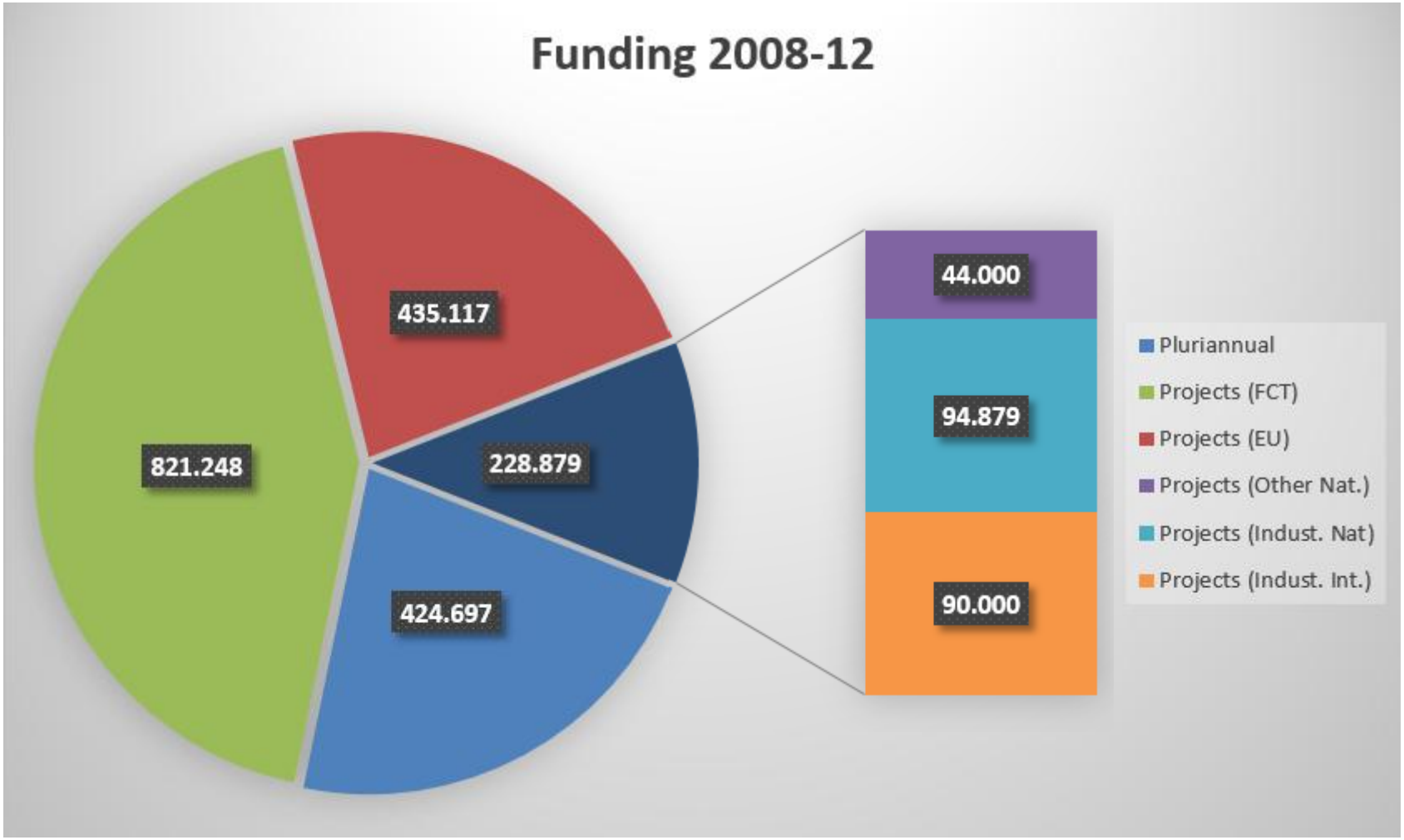


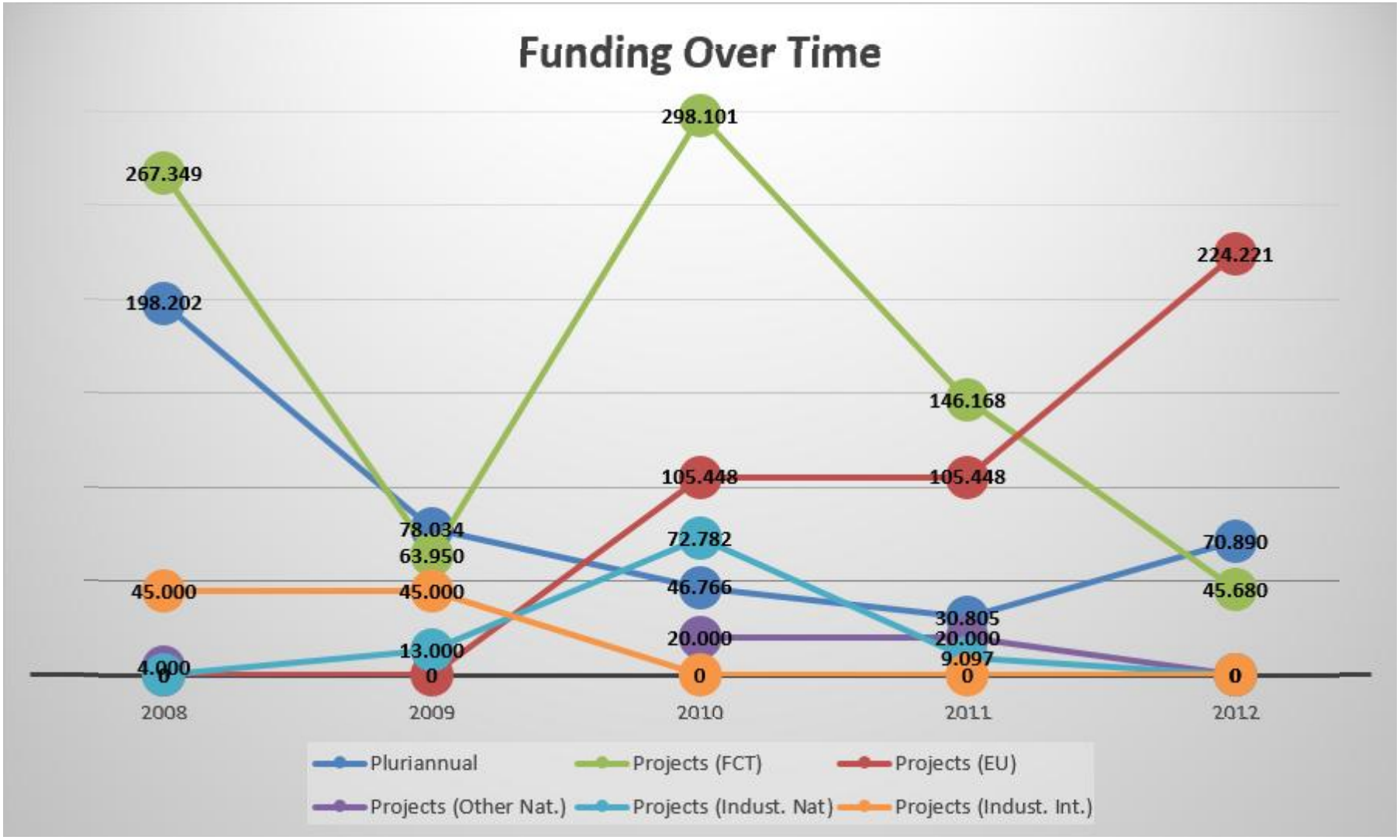

Productivity (2008 - 2013)
DAIAS
HMIC
CS
5
15
11
16
49
33
4
33
23
32
218
256
PHD THESES CONCLUDED
JOURNALS
BOOKS&CHPT&ED.PROCEED.
ARTICLES IN PROCEEDINGS


Publications (Indexed vs Not Indexed)
Not Indexed
Indexed
78
20
33
27
341
165
JOURNALS
BOOKS&CHPT&ED.PROCEED.
ARTICLES IN PROCEEDINGS


Indicators Over Time
50
40
30
20
10
0
2008
2009
2010
2011
2012
Researchers
Researchers (Int)
Staff
PhD Thesis
MSc Thesis
Journals
Books, Chapters
Models, Patents, Prototypes
Res. Contracts


Productivity (2008-13 vs 2015-20)
2008 - 2013
2015 - 2020
31
42
98
240
60
66
506
420
PHD THESES CONCLUDED
JOURNALS
BOOKS&CHPT&ED.PROCEED.
ARTICLES IN PROCEEDINGS


Funding 2008-12
435.117
821.248
228.879
424.697
44.000
94.879
90.000
Pluriannual
Projects (FCT)
Projects (EU)
Projects (Other Nat.)
Projects (Indust. Nat)
Projects (Indust. Int.)


Funding Over Time
267.349
198.202
298.101
146.168
224.221
105.448
105.448
78.034
63.950
72.782
70.890
45.000
45.000
46.766
45.680
30.805
20.000
20.000
13.000
9.097
4.000
0
0
0
0
0
2008
2009
2010
2011
2012
Pluriannual
Projects (FCT)
Projects (EU)
Projects (Other Nat.)
Projects (Indust. Nat)
Projects (Indust. Int.)

Funding Asked (2015):

Equipment: 42.5 K

Servers, computers, N/5 computers=20K
Robots, sensor-based equipment = 20K
Software: Specific AI Tools and simulators = 2,5k

Missions: 24.4 K

50 (integrated members + PhD students) = ~ 0,5k/person OR ~ 1k/Int. Member

Overheads: 7.8 K

Human Resources: 8K complement salary for a part-time secretary
Administrative costs : 18K ~17 % of the budget
For each next year an increase of 2,5% due to inflation.

PhD grants are obtained at competitive calls from:
- FCT, PRODEI Doctoral Programme-FEUP , CNPq, CAPES/Braz
- scholarships from Industry (PT-SAPO, Schneider,
- Funded Projects scholarships

Total 2015-20: 651K

An increase on the budget would be helpful

Funding (cont.)

- EU FP7 ARUM (Adaptive Production Management) 2014-15 (in progress)
- QoLiS - Quality of Life System" (SI I&DT) – projct nº 34034, QREN, OPTIMIZER

Projects with Industry:

- SISCOG (Cognitive Systems) - *Plan-disruption Management*
- TAP (Portugal Airlines)- *Plan-disruption Management*
- Embraer (Brazilian Aircraft Builder)- *MAS for Logistics management (under negotiation)*
- ARMIS Information Systems- *Traffic Simulation*

Schneider Electric

Honda Labs Japan

Others:

- FCT+FAPEST

Funding (cont.)

LIACC is in the process of submitting new proposals to **H2020**

- **Innovative Training Networks** – ISE-SMART (Stocholm, Kaiserslautern, Goettingen, Milan, Porto…)

- **A new High Performance Computing architecture for Predictive Toxicology**
PHC-33-2015: (larkbio.com Austria/Hungary; unina.it Italy)

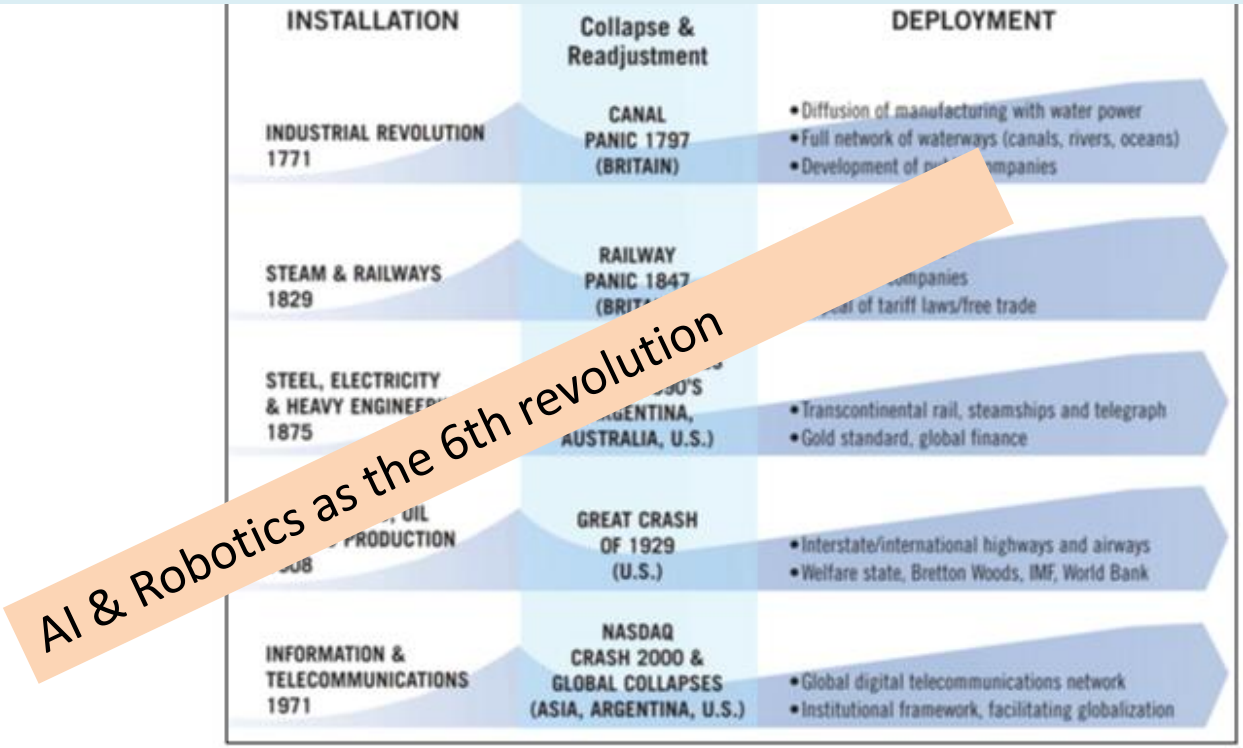
- New proposals for the call PPP **Factory of the Future**
- PHC 30 (**Personalizing Health Care**)

Services provided

- Knowledge Extraction from **Electronic News** Portugal Telecom-SAPO
- On-line Re-planning TAP SISCOG EMBRAER
- Automatic Consortia formation and monitoring
- Traffic management strategies ARMIS, Porto Town Hall
- Services oriented + Agent based architectures for Production planning & execution SCHNEIDER…
- Intelligent Health care systems S.João Hospital, APPC,
- Declarative Programming based Information Systems Universities (UNL)
- Spin-Offs from (previous/current) LIACC members: SQIMI, EZ4U, MASDIMA, LAPA, …

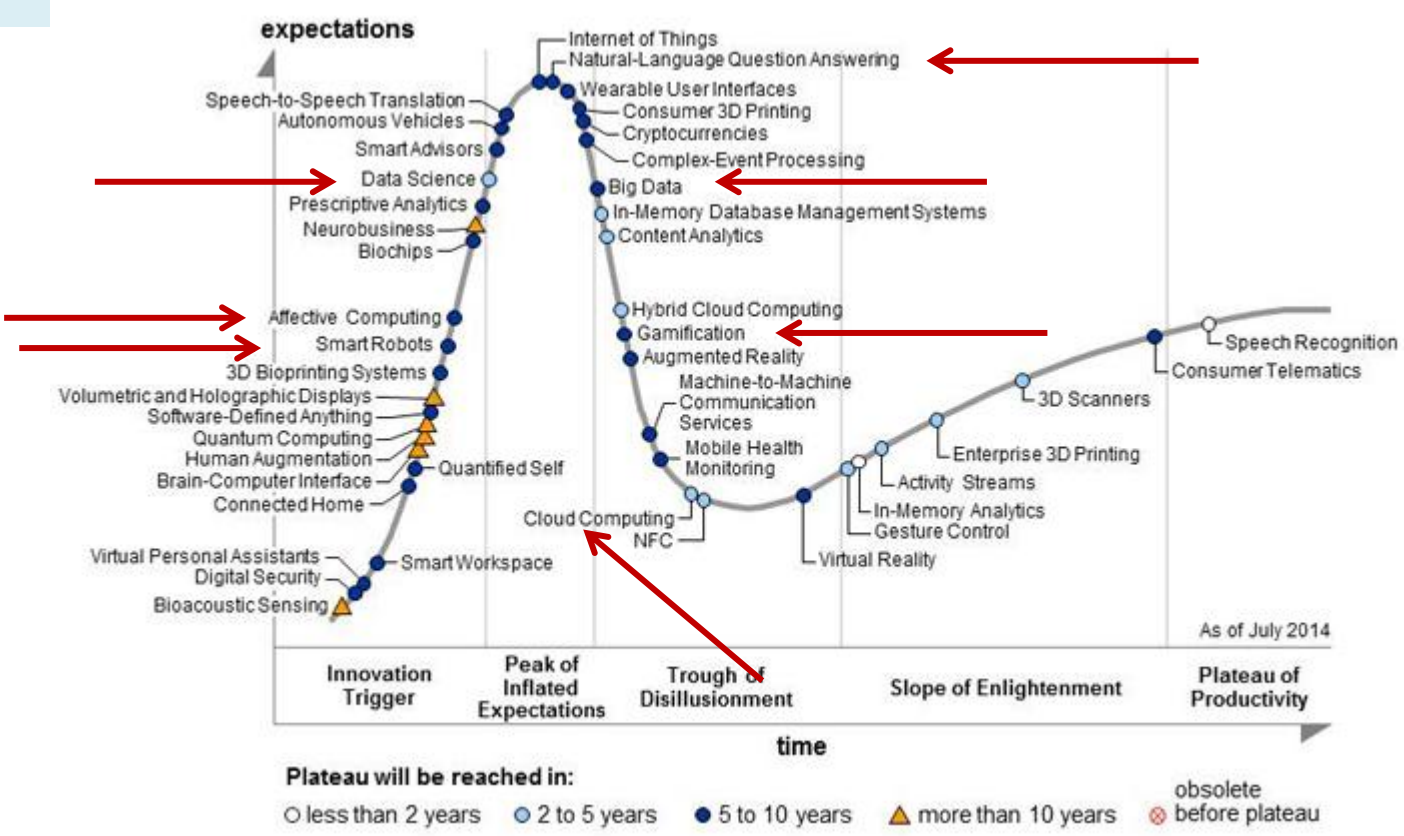
Thoughts about the future

The five major technological revolutions



http://www.amazon.com/Technological-Revolutions-Financial-Capital-Dynamics/dp/1843763311/

Hype Cycle for Emerging Technologies, 2014 by Gartner, Inc.



https://www.gartner.com/newsroom/id/2819918

Prospective on "how to get there?"

Increasing Communication facilities

Gigantic data collections

Global Interaction business/Social/Education

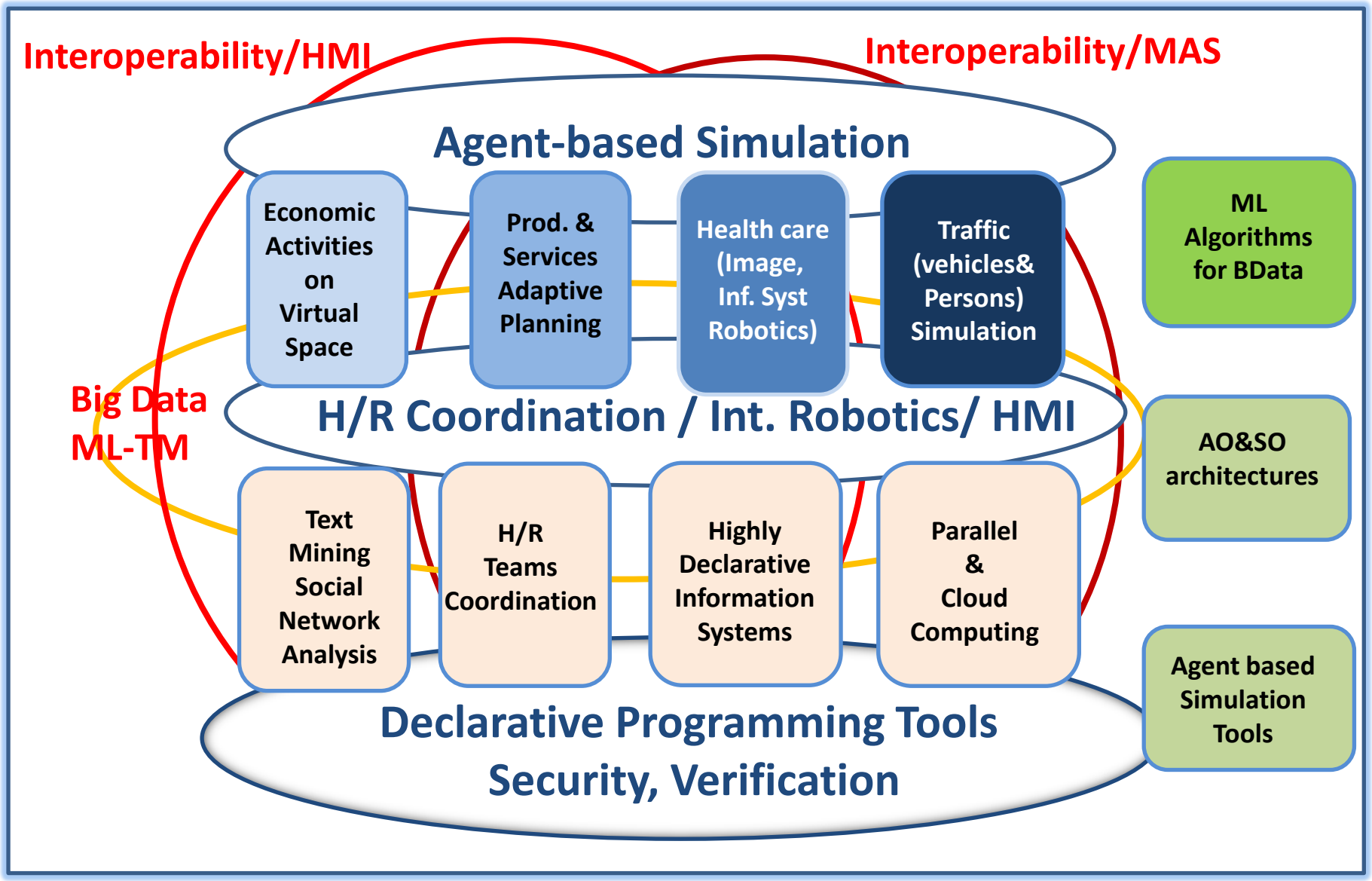
interoperability and semantics, privacy, visibility and **security**, H/R **Coordination**

Learning Alg., Social net and big **data Analysis**

That is what LIACC core business is about !!

Recommender systems, empowered on-line **e-business**; **Adaptive Planning** for Services & Production, Distributed Simulation; H/R Teams

Intelligent Systems R&D



Conclusions:

LIACC is facing the future

LIACC needs adequate support

LIACC tries to impact both academic and non-academic environments

the END

R&D Story Line Examples that are going to continue …

ANTE:

Negotiation & Learning | Ontology | Normative Environments | Trust & Reputation Models → Economic activities B2B

INTELWHEELS:

Planning | Learning | Sensor fusion | Simulation → Robotic Chair

Agents &Emotions

BDI Ag Architectures | Emotion-like Arch. | Ag-based simulation | PyroSim → Firefighting

Emotion-like Arch. → ε BDI Formalization

Emotion-like Arch. → Human Emotions

Human Emotions | Interactive Games → BioStories | Immersive Games

International Visitors to LIACC in 2012-14:

Marco Dorigo/ULBrussels; 2014
Gabriel Abend/NYU; 2014
Juan Burgillo/U. Vigo; 2014
Prof. Halis Altun , Mevlana University, TurkeyJuly; 2014 ·
Dr. Peter Sherar, Cranfield University, UK; January, 2014
Miguel Araujo, PhD student at CMU; January 2014
Ana Bazzan/URGS;2014
João Fabro/PUC; 2014

Using other funds: ERASMUS, PRODEI, ...

Michael Rovatsos/U.Edinburgh; 2013
V.Dignum/Delft; 2013
Laurent Vercouter/INSA Rouen; 2013
Josemar Sousa/URecife; 2013
Alberto Fernandez/URJC,Madrid; 2013
Dr. Achille Fonzone, Edinburgh Napier University, UK; September, 2013
Prof. Rafael H. Bordini, PUC-RS, Brazil; May, 2013
Prof. Jaroslav Janácek , University of Žilina, Slovakia; September 2013
Dr. Michal Koháni University of Žilina, Slovakia; September 2013

International Visitors to LIACC in 2012-14:

Kazuhiro Nakadai/Honda labs, Jp 2012
Udo Zoelzer/ HSU, Hamburg 2012
Carles Sierra/Barcelona; 2012
Jordi Sabater Mir/ IIIA, Barcelona, 2012
Ramon Hermoso/URJC, Madrid; 2012
Olivier Boissier/ENMSE, Fr;2012
Claud Kirchner/INRIA, 2012
Vicente Garcia/ UValencia, 2012
Dr. Peter Sherar, Cranfield University, UK; January, 2012
Prof. Paolo Rosso Universidad Politecnica de Valencia, Spain; October 2012
Dr. Cristia Olaverri Monreal, Technical University of Munich, Germany; May 2012