Summary
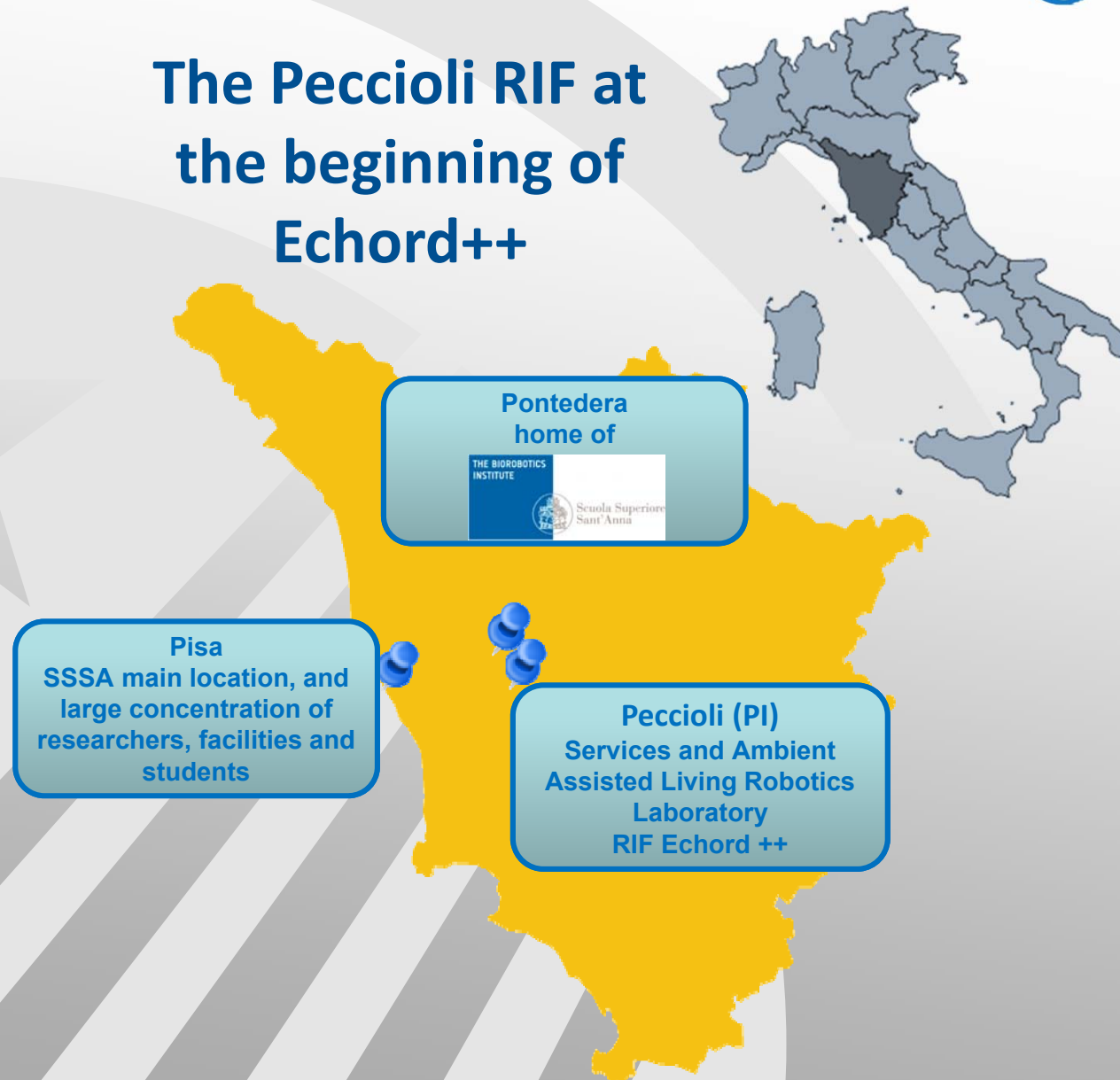
- Peccioli RIF model

- The evolution of Peccioli RIF

- Peccioli RIF in a nutshell

- Application process at Peccioli RIF

- Distribution of collaborations

- 7 self sustained projects

- Peccioli RIF & Large Enterprises

- Recent activities

- Statistics

- Plans and actions towards self-sustainability beyond ECHORD++

- Lesson learnt

Peccioli RIF model

ECH RD++

- 5000 people ONLY in Peccioli, 120.000 in Valdera (Peccioli + Pontedera)
- The strategy: STRENGTHENING the Peccioli RIF by engaging MORE research and testing infrastructures in the nearby area
- More than 1 million people in the Coast area
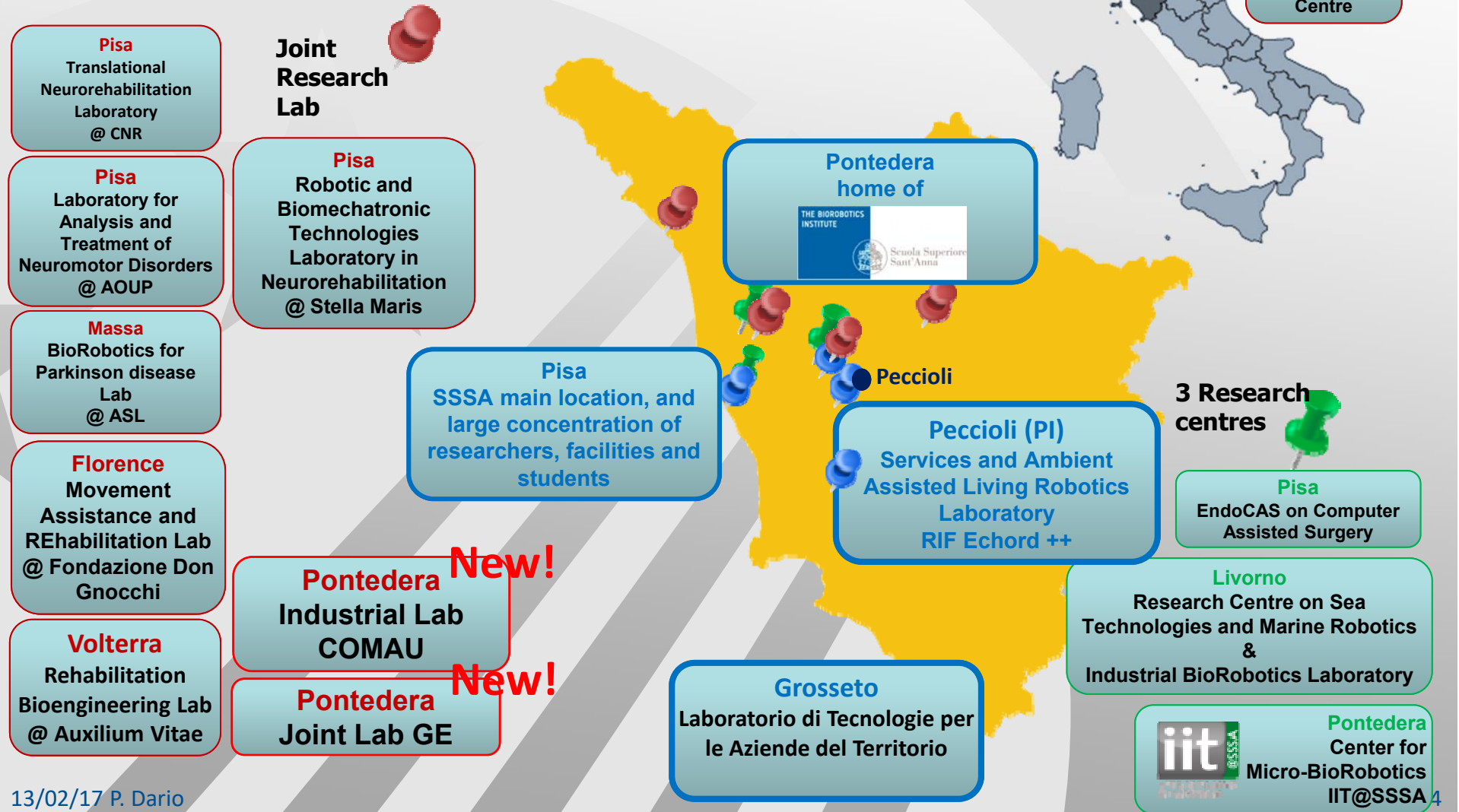- Distributed and modular RIF rather than concentrated

The Peccioli RIF at the beginning of Echord++

Pontedera home of

THE BIOROBOTICS INSTITUTE

Scuola Superiore Sant'Anna

Pisa
SSSA main location, and large concentration of researchers, facilities and students

Peccioli (PI)
Services and Ambient Assisted Living Robotics Laboratory
RIF Echord ++

Evolution of the Peccioli RIF

- MORE academic joint labs
- MORE research centers
- MORE medical research centers
- MORE industrial Joint Labs

ECH RD++

Budrio (BO)
REPAIR Lab
@ INAIL
Prosthetic
Centre

Pisa
Translational
Neurorehabilitation
Laboratory
@ CNR

**Joint
Research
Lab**

Pisa
Laboratory for
Analysis and
Treatment of
Neuromotor Disorders
@ AOUP

Pisa
Robotic and
Biomechatronic
Technologies
Laboratory in
Neurorehabilitation
@ Stella Maris

Massa
BioRobotics for
Parkinson disease
Lab
@ ASL

**Pontedera
home of**

THE BIOROBOTICS INSTITUTE

Scuola Superiore Sant'Anna

Florence
Movement
Assistance and
REhabilitation Lab
@ Fondazione Don
Gnocchi

Pisa
SSSA main location, and
large concentration of
researchers, facilities and
students

Peccioli

**3 Research
centres**

Peccioli (PI)
Services and Ambient
Assisted Living Robotics
Laboratory
RIF Echord ++

Pisa
EndoCAS on Computer
Assisted Surgery

New!

Volterra
Rehabilitation
Bioengineering Lab
@ Auxilium Vitae

**Pontedera
Industrial Lab
COMAU**

New!

**Pontedera
Joint Lab GE**

Grosseto
Laboratorio di Tecnologie per
le Aziende del Territorio

Livorno
Research Centre on Sea
Technologies and Marine Robotics
&
Industrial BioRobotics Laboratory

iit

Pontedera
Center for
Micro-BioRobotics
IIT@SSSA

Peccioli RIF in a nutshell

5

Hosted E++
experiments
(+ 5 within 2018)

38

Preliminary
meetings
with
SMEs/LEs

7

External
self-sustained
projects

10

High tech
equipment
(only in Peccioli)

1+1 New!

Competitions
hosted
**(ERL Service
Robotics
Tournament 2017)**

Peccioli RIF in a nutshell

9

Consultancy Fields

Acceptability

Usability

Dependability

Safety

Benchmarks

Legal Aspects

Economic Aspects

Insurance Aspects

Ethical Aspects

8+1 New!

Research areas

Artificial hands

Creative engineering design

Neuro Robotics

Robot companions for citizens

Sensor signals and information processing

Soft Robotics

Surgical Robotics and allied technologies

Traslational neural engineering

Circular Economy

6+2 New!

Joint labs

Laboratory for Analysis and Treatment of Neuromotor Disorders

BioRobotics for Parkinson disease Lab

Movement Assistance and REhabilitation Lab

Rehabilitation Bioengineering Lab

Translational Neurorehabilitation Laboratory

Robotic and Biomechatronic Technologies Laboratory in Neurorehabilitation

Joint Lab COMAU

Joint Lab GE

36

Active very close to the RIF

8+1 New!

External infrastructures engaged

BioFarm Colombini

SpinOff
Impresa Spin-Off della Scuola Sant'Anna

Application process at Peccioli RIF

Evaluation parameter: scope, relevance, impact, innovation

Identification of different solutions

Definition of a workplan

Competences among SSSA, spin-offs, joint labs

Technical support, equipment required, etc.

First discussion: is there any potential collaboration? — No

Yes

Identification of possible solutions: any agreement? — No

Yes

Is the solution feasible? — No

Yes

Does the RIF have internal competences? — No

Yes

Agreement on resources allocation? — No

Yes

ENGAGEMENT

END OF COLLABORATION

Application process at Peccioli RIF

Collaboration

E++ experiments	Initial discussion	Self sustained project	Indirect management of the project
Equipment/ infrastructure	Brainstorming on potential collaboration	Development and exploitation process	Equipment/ infrastructure (and competences if requested)
5 Finished 5 ongoing	21 ongoing	7 developed	10 hosted

Application process at Peccioli RIF

The RIF strategy
- Exploiting the 10 E++ experiments hosted by the Peccioli RIF, the services and the evaluation methodology as tools to attract additional customers
- Contacting and negotiating with potential customers
- Hosting a few customers at nominal fee as a marketing tool for additional contracts
- Obtaining contracts

```
                          Collaboration
        ┌──────────────┬───────────────┬──────────────────┐
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E++ experiments	Initial discussion	Self sustained project	Indirect management of the project
Equipment/ infrastructure	Brainstorming on potential collaboration	Development and exploitation process	Equipment/ infrastructure (and competences if requested)
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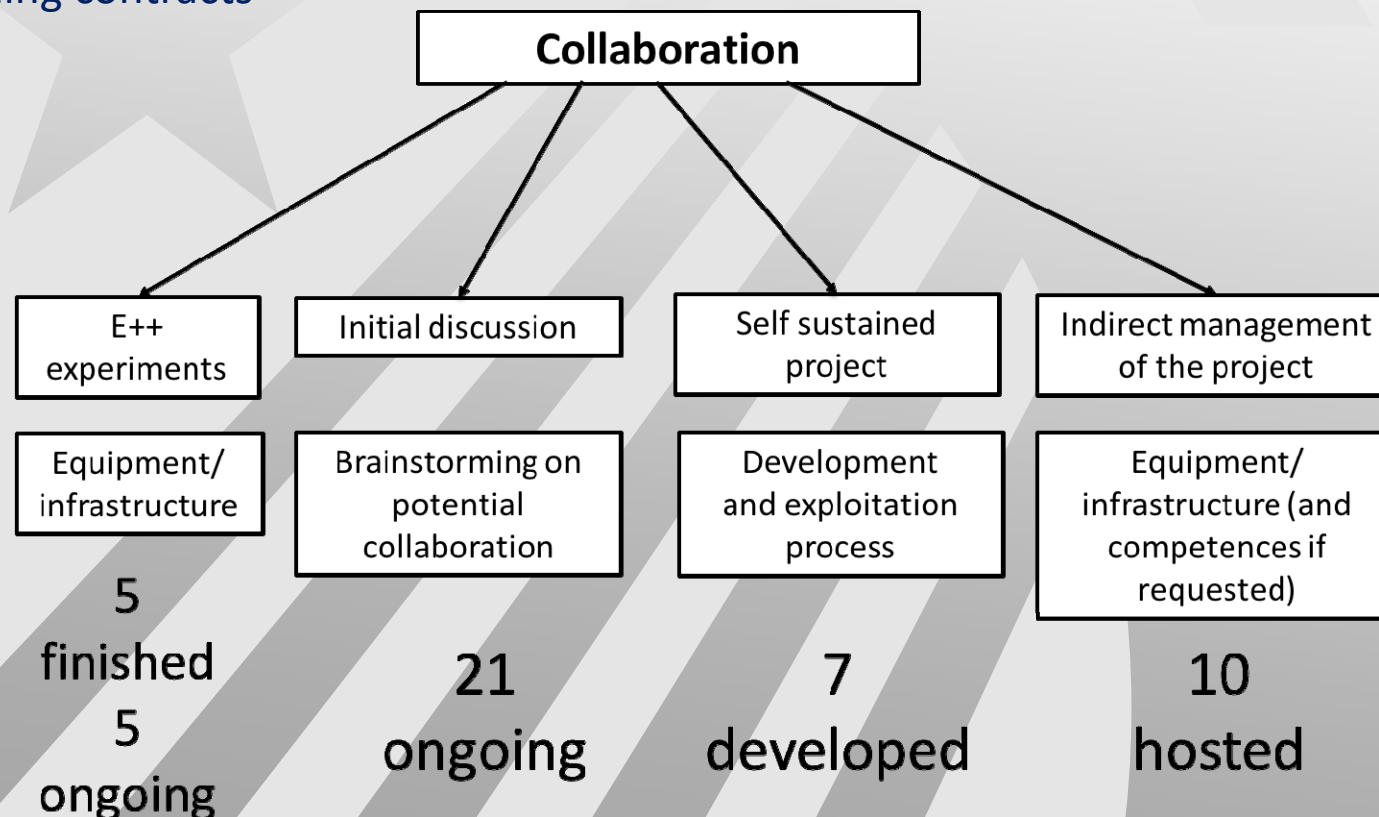
Peccioli RIF: distribution of collaborations

Peccioli RIF: 7 self sustained projects

1. **COMAU**: robotic arm for medical applications (BioAmico)

2. **KW**: smart refrigerator for plasma/blood

3. **MLR**: automated robot that analyses soil humidity, light, temperature

4. **Omniarobocare**: mobile robot for elderly assisted living

5. **Oranfresh**: automated cutting fresh fruits vending machine

6. **Whirpool**: smart refrigerator

7. **Zucchetti**: mobile platform warehouse

Year	Client	Alignment with robotics and automation	Clarity and focues of proposed work	Evidence of commitment	Potential impact	Novelty of proposed work	Size of organization	Possible continuation	Presence of an exploitation strategy	Sum of scores
2016	COMAU	9	10	10	10	8	9	10	7	73
2015	KW	8	9	10	8	4	7	10	10	66
2016	MLR	9	10	9	8	2	8	10	9	65
2014	OMNIA ROBOCARE	10	10	10	8	8	5	3	3	57
2016	ORANFRESH	8	9	10	8	10	4	7	5	61
2014	WHIRPOOL	10	10	10	10	10	1	2	5	58
2015	ZUCCHETTI	10	10	6	7	2	3	3	4	45

Peccioli RIF & Large Enterprises

Industrial Labs

- **Comau (2016)**
- **Piaggio (2016)**

Collaboration with large enterprises

Ericsson and Scuola Superiore Sant'Anna collaborate on 5G technology

Joint labs with large enterprises

Joint Open Lab– Wellbeing and Healt Innovative Technologies Lab

i-Lab 4.0 – Connecting Machines and People

Joint Lab to Develop Advanced Robots and Smart Systems to Make a Difference in Life
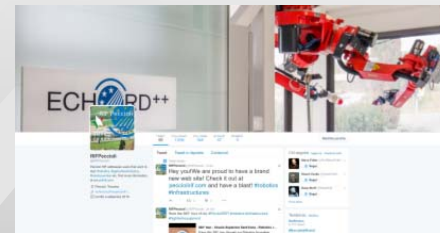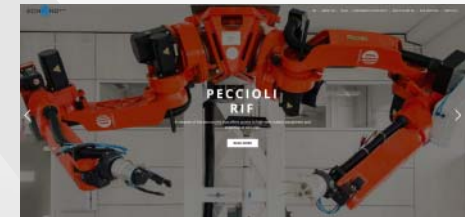
-- [3]1   questa va tolta?
--Annagiulia- -; 11.02.2017

Peccioli RIF: recent activities

Marketing activities

- **New** website: www.pecciolirif.com

- **New** account twitter: @RIFpeccioli

- **New** international event: **INTERNATIONAL ROBOTICS FESTIVAL**, Pisa, September 2017

- Certification obtained as **Official TestBed** for Rock EU^2 → **European Robotics League Service Local Tournament 2017** hosted, wide **national and regional media coverage**

Peccioli RIF: recent activities

Experiments activities

- **Consultancy on legal and economic aspects** provided to **SAGA** experiment; contact with **three stakeholders** (Floriddia BioFarm, Colombini BioFarm, Castellani Vineyard)

- **LINARM++ and MOTORE++** experiments hosted @Rehabilitation Bioengineering Lab, Volterra; validation by **feedback from physiotherapists**

- **TIREBOT** experiment hosted @Gruppo Pretto S.r.l., to develop test in a **different real scenario→ Gruppo Pretto** interested in **collaborating** on the **vision system** applied **to a NEW PRODUCT (an electric vehicle)**

- **Endorsement letter** developed **for SAGA** from *Colombini BioFarm and* **Questionnaire** developed from **GRAPE** Experiment and completed by *Castellani Vineyards*

Peccioli RIF: recent activities

Workshops organisations

- **26th May:** "Economic development and Robotics", Handicraft National Confederation (Pisa Branch)

28 attendees

- **1st December:** "Robotics and Prototypes", Artex (Florence)
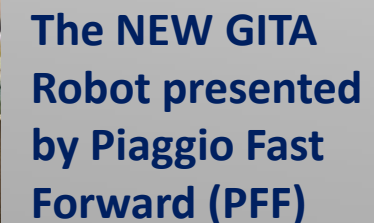
50 attendees

-- [6]1   ho aggiunto le foto dell'evento di Firenze
--Annagiulia- -; 11.02.2017

Peccioli RIF: recent activities

New project on **Urban Robotics FUNDED by the Municipality of Peccioli (3 spin-off companies involved)**

The DustBot FP6 EU Project

The ORO Robot, EU-Robot-Era FP7 Project

The NEW GITA Robot presented by Piaggio Fast Forward (PFF)

Peccioli RIF: statistics

Organization type of Peccioli RIF collaborations

- Research Institute 5%
- Large Business 34%
- SME 61%
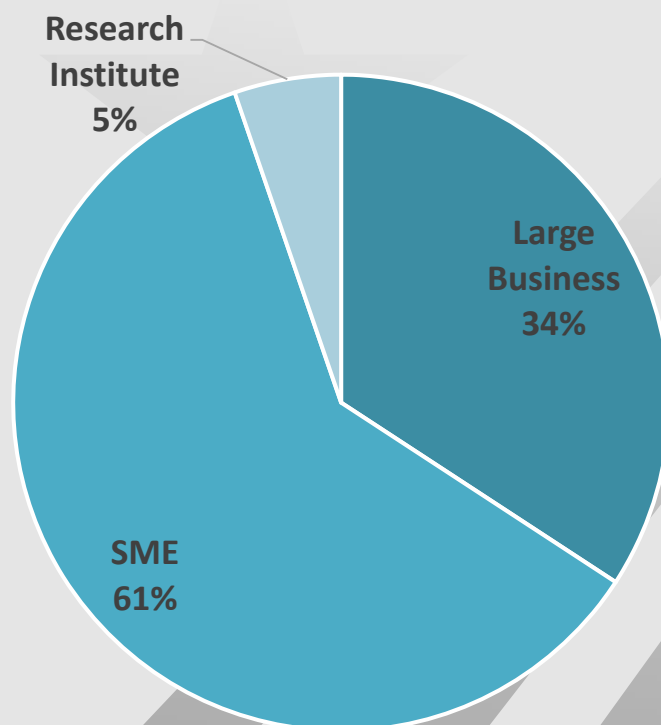
Total number: 38

Organization type of Peccioli RIF workshops attendees

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- SME 61%
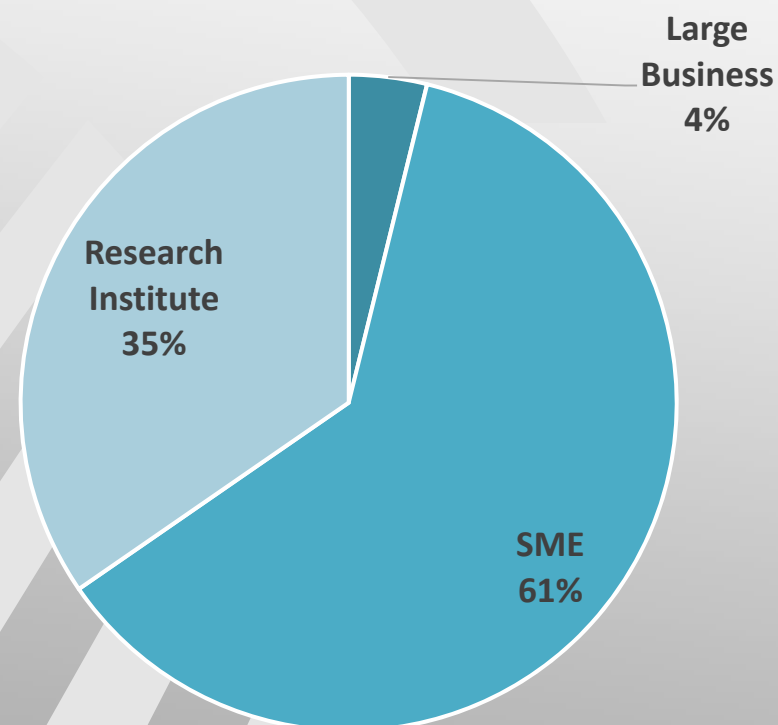
Total number: 78

Peccioli RIF: website statistics
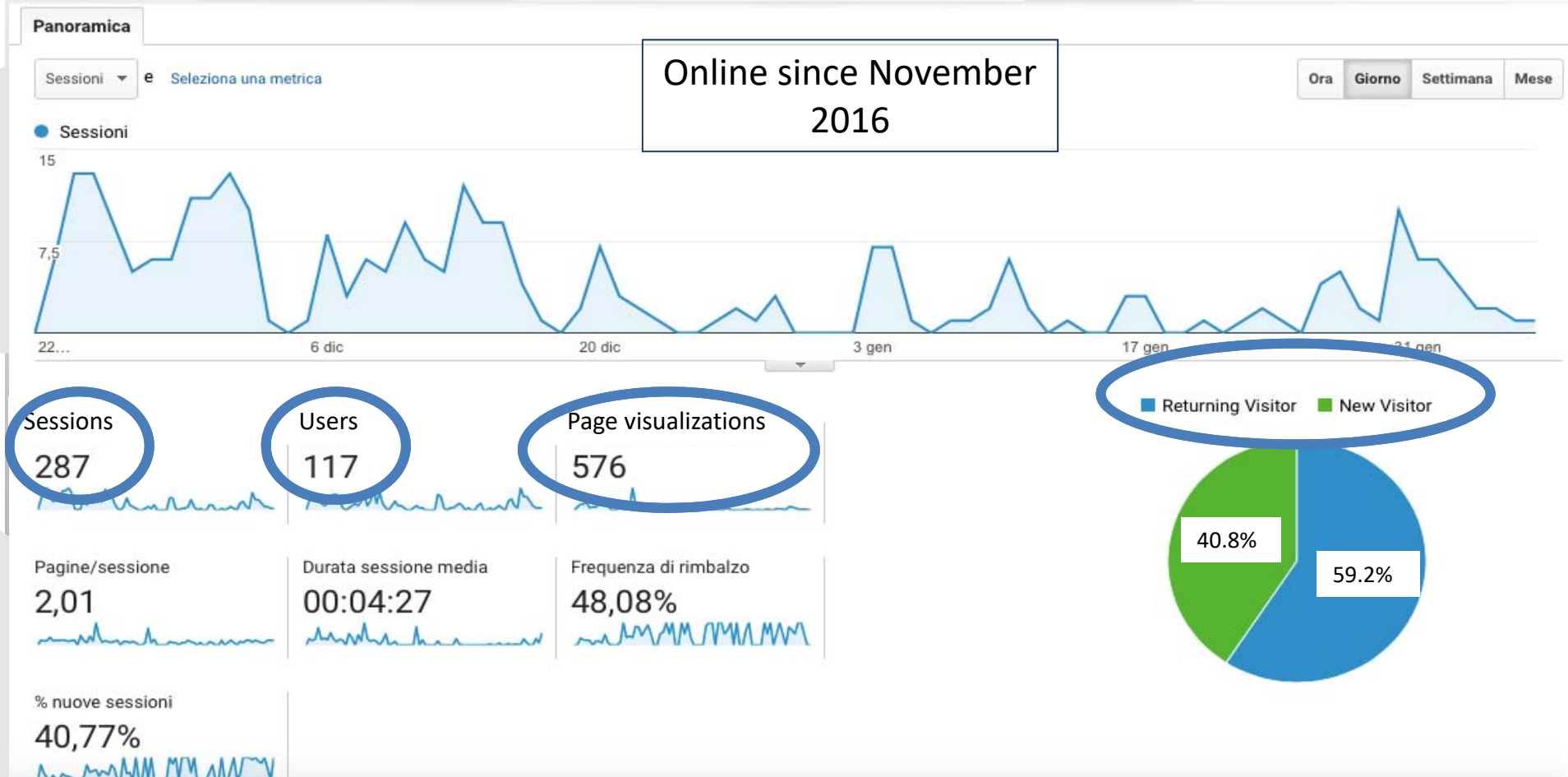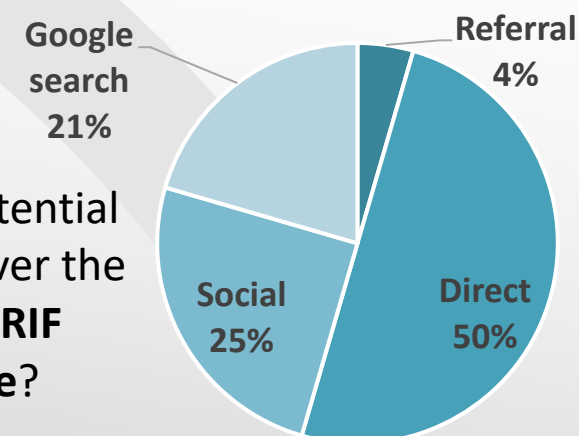
Peccioli RIF: website statistics

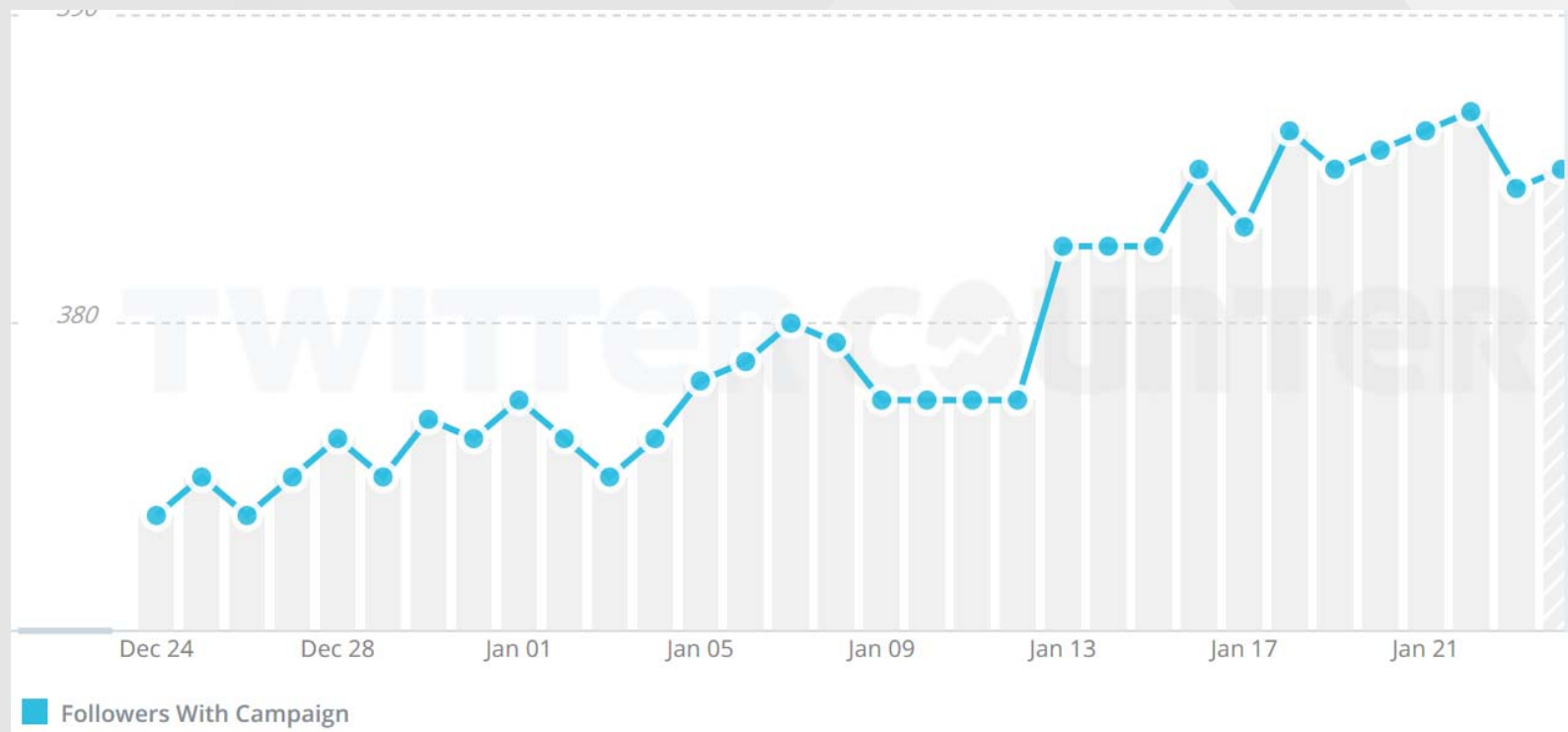| Country		Page views	% Page views
1.	Italy	133	46,34%
2.	Russia	110	38,33%
3.	United Kingdom	12	4,18%
4.	United States	11	3,83%
5.	Germany	7	2,44%
6.	Spain	3	1,05%
7.	India	2	0,70%
8.	Netherlands	2	0,70%
9.	Belgium	1	0,35%
10.	Brazil	1	0,35%

How do potential users discover the **Peccioli RIF website**?

Google search 21%

Referral 4%

Social 25%

Direct 50%

1   133
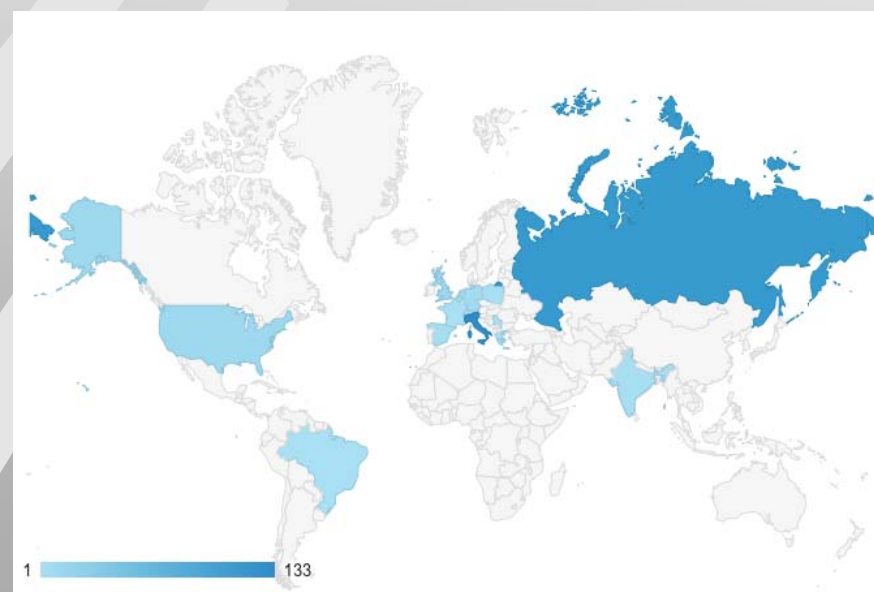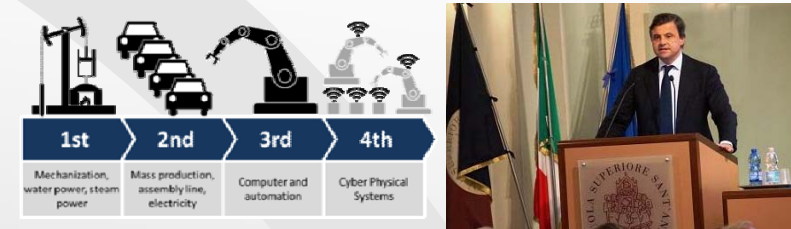
Peccioli RIF: Twitter

Online since October 2016

400 followers

Followers With Campaign

Plans and actions towards self-sustainability beyond ECHORD++

- **Tuscany Region Factory 4.0: CENTAURO FUNDED Project** Cowork, Efficiency, preveNtion in the motor vehicles factory via Technologies with AUtomation and Robotics, Budget 4.8 M€ (2 years)
- **The recently launched Italian Plan "Industry 4.0":** extending the impact of the RIF model to a Regional and National initiative by being designated **Competence Centre I4.0**
- **The European Robotics Research Infrastructures Network – TERRINet:** 2nd stage Deadline: 29 March 2017 17:00
- **Circular economy (2M€ investment on the 'FACTORY OF THE FUTURE' approved a few days ago by the Tuscany Region)**

FACTORY 4.0: CENTAURO PROJECT SCENARIOS
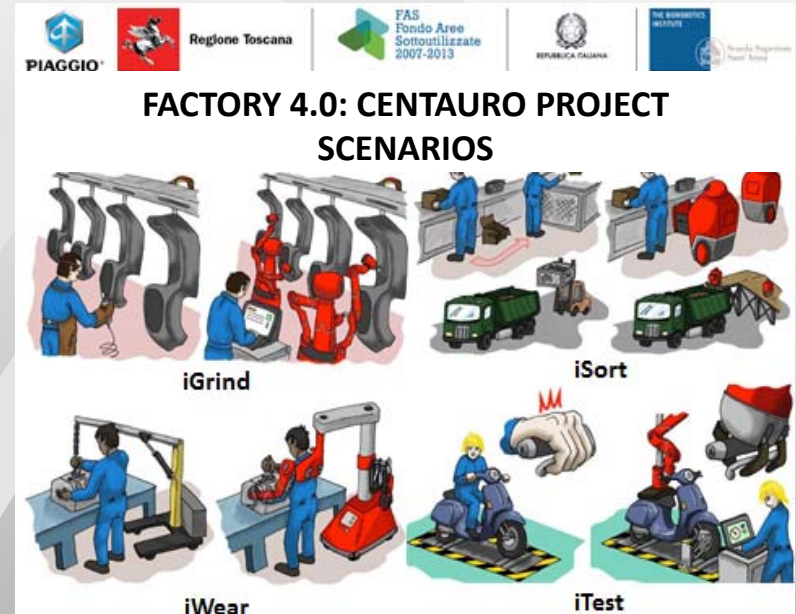
Peccioli RIF: lessons learnt and plans

- Peccioli **RIF Model well established** and running
- **Procedures to assist and evaluate E++ experiments** quite well established
- **10 E++ experiments** have already or will be hosted at the Peccioli RIF
- **Methodology to contact, select, engage and assist** other users being consolidated
- The Peccioli RIF system **attracting an increasing number of large companies and SMEs**, **generating contracts** and **moving towards self-sustainability**
- The **Regional Network on Educational Robotics** (more than 350 classes and more than 600 teachers in Tuscany) to **create awareness and invest on the future of robotics**
- Peccioli RIF a**lready working towards even more ambitious initiatives**, including the **creation of a Consortium to manage the RIF after** the end of the **E++ Project**