

Smart Campus

Creating services **WITH** and **FOR** people

Marco Pistore

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Project Manager – Smart Campus

Trento: Smart City

Trento:

- **small city** in the north of Italy
- capital of a **mountainous region**



Trento is one of the smartest cities in Italy.

• High

- G
- L
- G
- ..

Question:

To which extent do the ICT “infrastructures” contribute to the quality of life in Trento?

• Good ICT “infrastructures”:

- Optical fiber, public wireless, open-data, ...
- Top-level university and research centers (FBK-IRST, CreateNet, Trento RISE, ...)
- ICT companies and private research institutes: Microsoft, Telecom Italia, FIAT, ...



Trento: Smart Community?

‘A Smart Community is a community that has made a **conscious effort** to use information technology to **transform life and work** within its region in **significant and fundamental**, rather than incremental, ways.’

[California Institute for Smart Communities, 2001]

A decorative graphic in the bottom right corner consisting of several overlapping, light gray curved shapes that resemble a stylized 'C' or a series of concentric arcs.

Vision

- Trento has the potential to become a “Smart Community lab”
- In such a lab:
 - **Citizens** (and companies) **are engaged, and collaborate with the city** to identify and solve problems
 - **The city opens up its systems** (not only open data, but also private data, services, devices...) to accelerate the innovation
 - A **new generation of services, created FOR and BY the citizens**, is made available by the city
- **This requires:**
 - Invest in **education** (university and high school), according to the “**Educating City**” vision
 - Strengthen the involvement of the **business** (SME in particular) **AND** of the **developer community**
 - Sharpen the (fundamental) **governance role of cities**
 - A **proof of concept**



Creating
services
WITH
and
FOR
students

Our goal...



- Our goal:
 - to **create a new generation of services** available to students in Trento...
 - ... involving a **growing community of students** in all parts of the project.

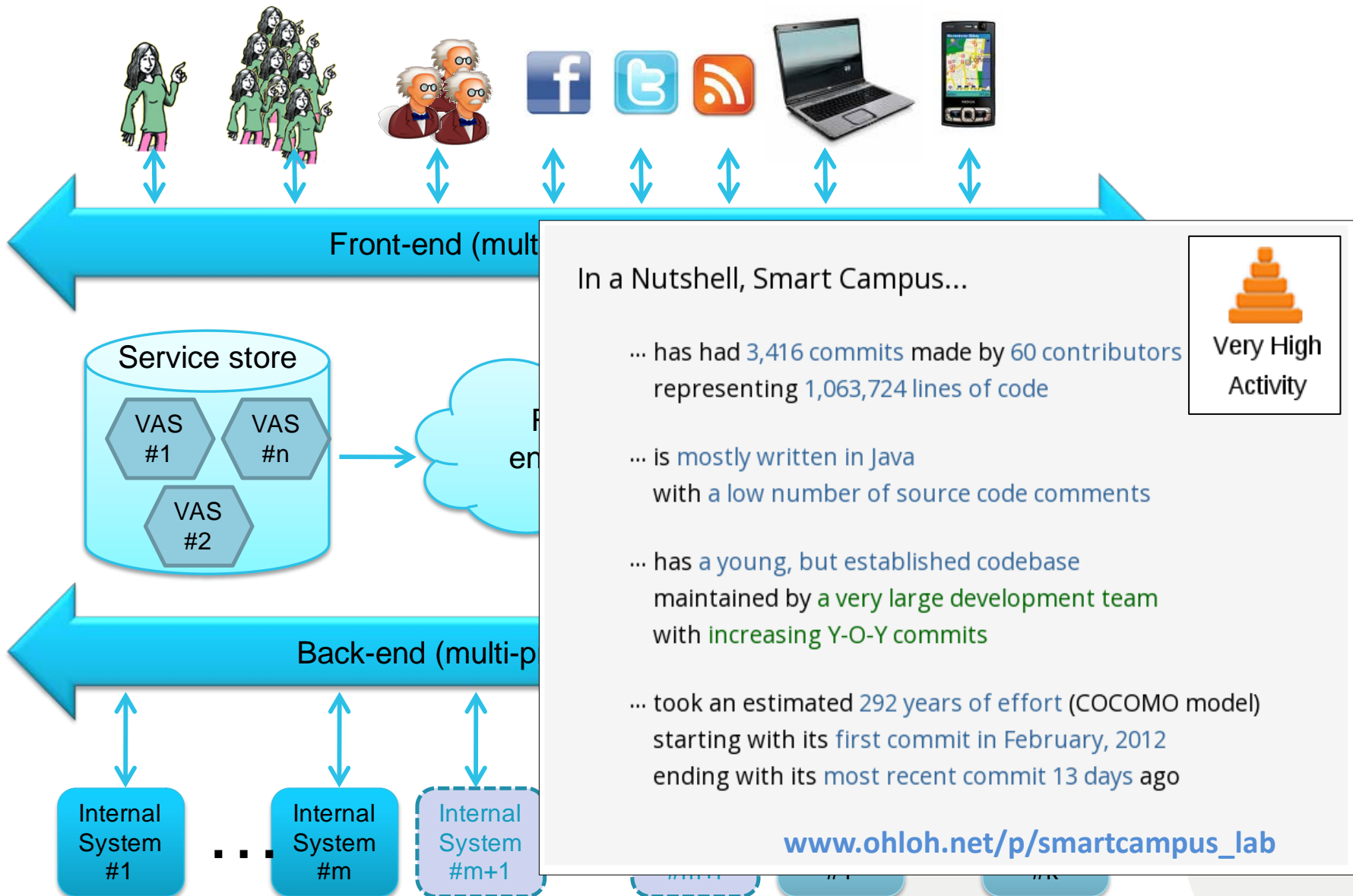
“Smart Campus empowers the community to design, develop and use innovative services they want and like.”

Presentation Overview

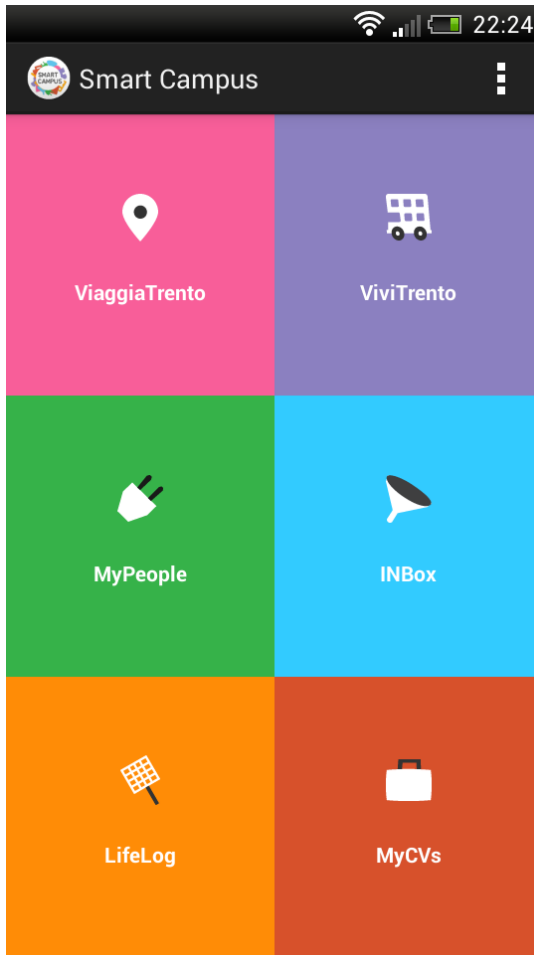
- Smart Campus: motivation & vision
- **Our initial moves**
- The results (so far)
- Conclusions



The Platform



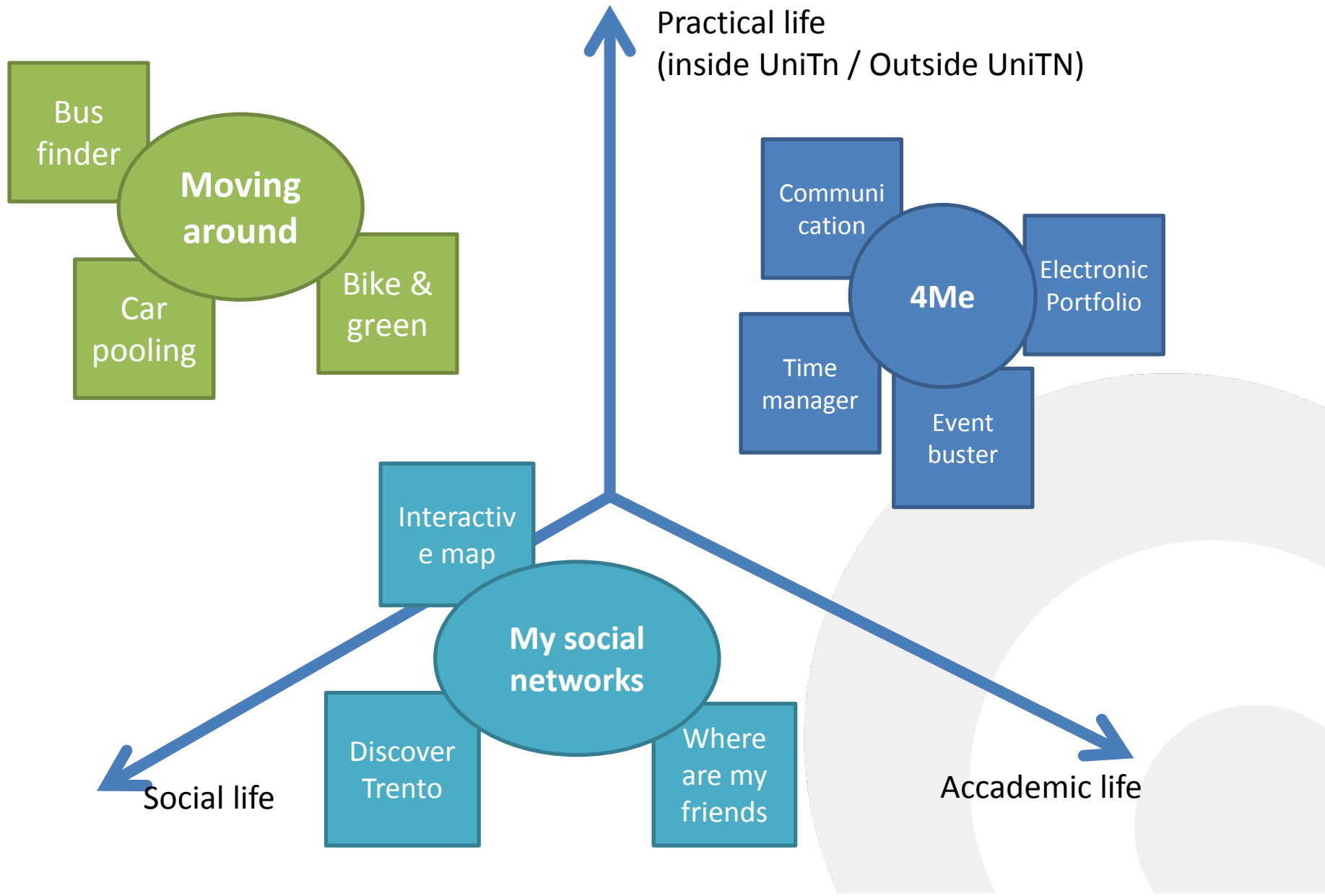
The Services



Which Services?

- **Not just services for the academic life, but also services for:**
 - Socializing
 - Moving around
 - Sharing events
 - Signaling problems
 - ...
- **Any service that makes student's life easier (and the campus more attractive) is a good candidate.**

Services: analysis



First released services



The community



The community:

- In the project, students can be **users, testers, designers, developers, ...** of the services...
- ... bringing their **vision, creativity** and **skills** ...
- ... and ensuring that services really serve **their needs**.

Channel the creativity

Ensure the sustainability

The community



Channel the creativity

Ensure the sustainability

The community:

- In the project, students can be **users, testers, designers, developers, ...** of the services...
- ... bringing their **vision, creativity** and **skills** ...
- ... and ensuring that services really serve **their needs**.

Ensure the sustainability:

- A **strong and stable community** will ensure a **continuous evolution** in the services.

The team



Marco
PISTORE

TEAM
LEADER



Andrea
MONGERA



Paolo
ZANEI



Francesca
MARANGONI



Fabio
ROMAGNOLI

UNITN
REFERE



Alessandro
TOMASI



Annapaola
MARCONI



Gabriele
ZACCO



Ilya
ZAIHAYEU



Matteo
GEROSA



Raman
KAZHAMIKIN



Giada
SCIARRETTA

PLATFORM
& SERVICE



Antonella
DE ANGELI



Semion
LAPIN



Nicolò
DE UFFICI



Sylvie
NOEL



Silvia
BORDIN



Cristina
CORE

INTERACTION
DESIGN



Oscar
ZAMBOTTI



Matteo
CHINI



Ronald
CHENU



Viktor
PRAVDIN



Mirko
PERILLO



Giordano
ADAMI



Federico
LUCCA



Dawid
POGORZELSKI

DEVELOPMENT



Luca
MICHELI



Manuel
VISENTIN



Mattia
BENEDETTI



Luca
AMADORI



Lorenzo
GHIRO



Insa
KANOLD



Francesco
MATURI



Giovanni
DE FRANCESCO



Desmond
AGYEMAN



Francesco
BONADIMAN



Stefano
BOZZI



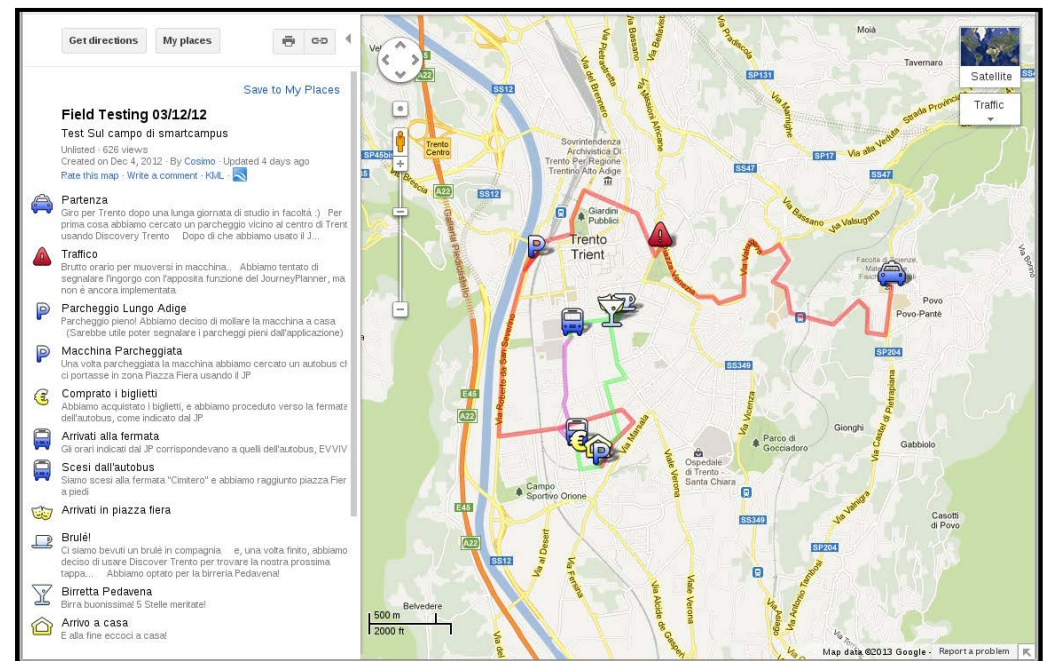
Students on the Job

“Human Computer Interaction” course of Univ. of Trento (2012-2013)

– 3rd year of the Informatics Bachelor, 90 students

“Help us in testing and improve the app”

- 1000 comments on the students’ “diaries”
- 100 “bug” / requests of improvements



“Think to the next service you would like to have”

- Each group of students has designed a new service
- At the end of the course: competition for the best idea

Students on the Job

The Winners



UNIVERSITÀ DEGLI STUDI
DI TRENTO

Dipartimento di Ingegneria
e Scienza dell'Informazione

14/03/2013

4th Smart City seminar

*“A participatory design contest:
with, for and from students”*



Desmond Agyeman
Francesco Bonadiman
Stefano Bozzi
Francesco Maturi
Nicola Parrello

Students on the Job

The Winners

Frequent problems:

Queue length depending on the time



The solution:

iFame



Frequent problems:

Sometimes food looks good but tastes bad (or maybe it is the opposite) !



Students on the Job

The price: “Now implement it!”

MARCH 2013:

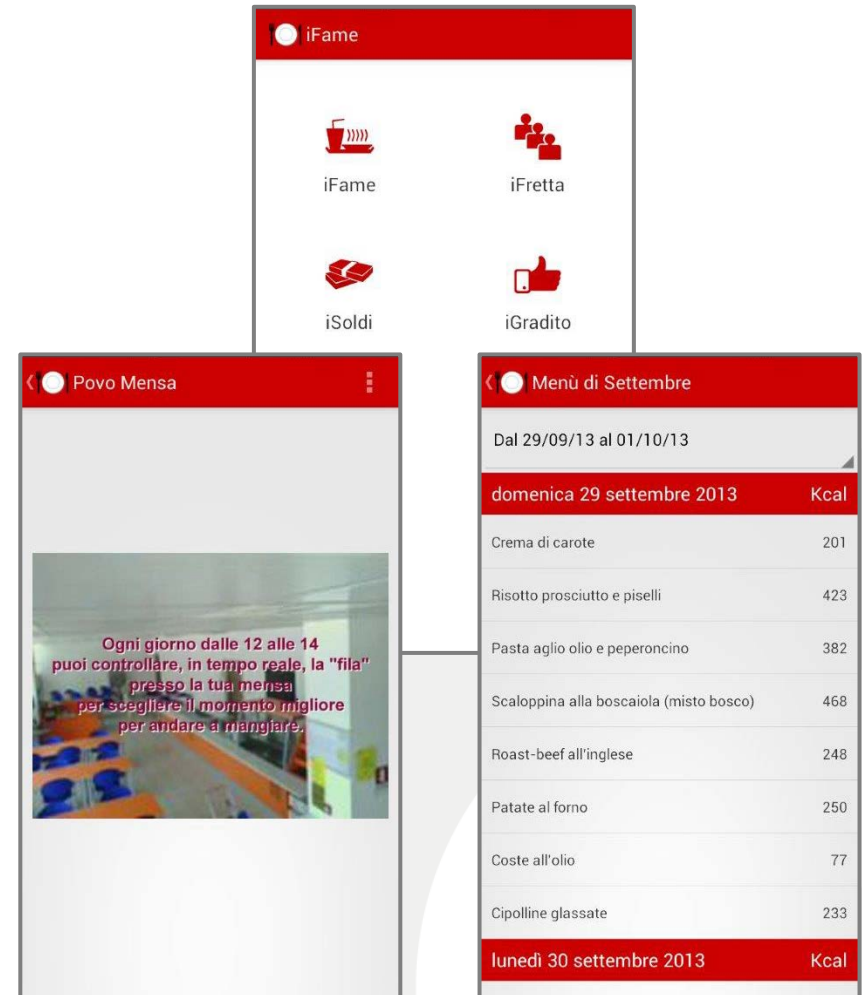
- The iFame team wins the competition

APRIL-OCTOBER 2013:

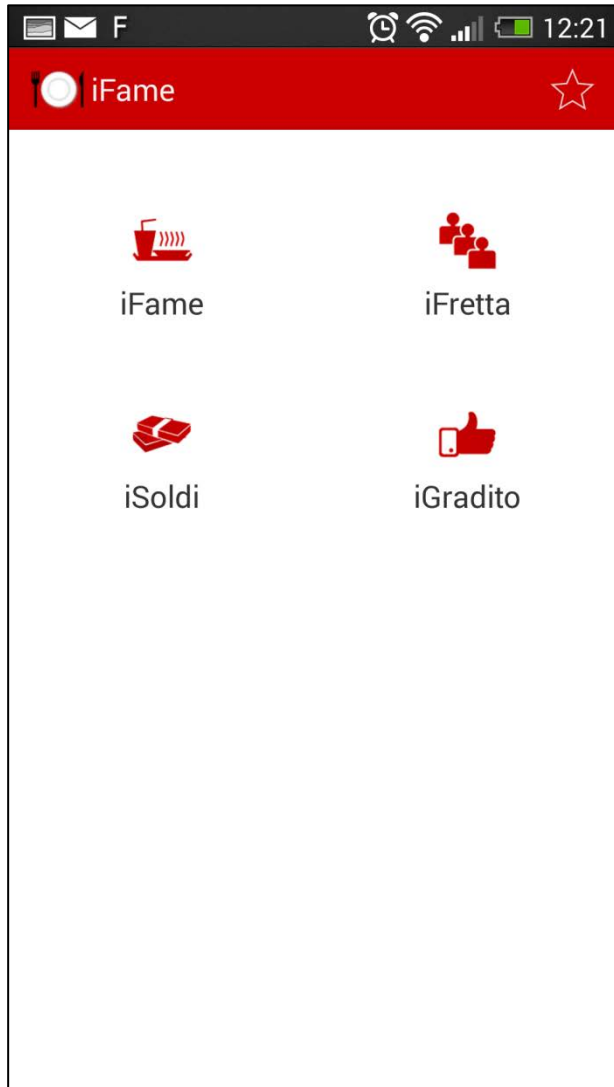
- The students develop the iFame app

NOVEMBER 2013:

- “Go Live!”



iFame: positive result



iFame:

- App stringly requested by the students
- Designed and developed by the students

Functions:

- menu & diet
- evaluation of the dishes
- length of the queues

Key points:

- based on “**open**” and **private data** (menu and card credit) of the University Canteen System
- successful **collaboration** between students and University Canteen System
- growing **community** of students using regularly the app

A negative result: StudyMate



StudyMate:

- runner-up in the student competition
- designed & developed by students

Functions:

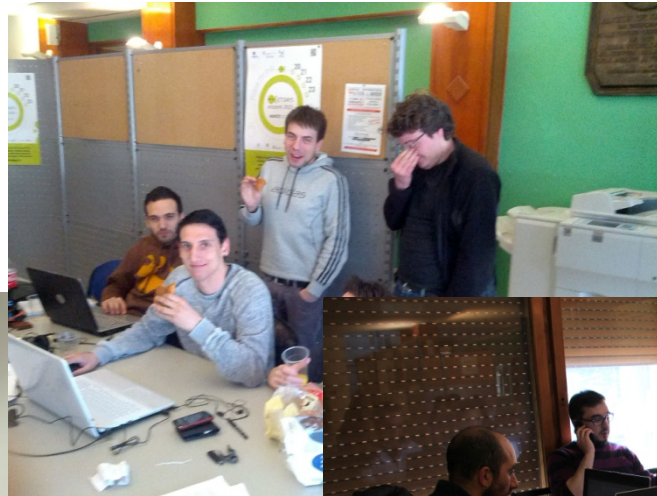
- agenda (of courses, exams, events)
- notifications of updates
- course materials
- evaluations of courses.
- study groups

Problems:

- difficulties in integrating Uni systems
- “evaluation of courses?”
- “course materials?”
- students’ commitment decreases

Students on the Job: Hackathon

- **Programming marathon**
 - Goal: develop an APP for the 2013 University games
 - ... exploiting the Smart Campus platform
 - ... in 48 hours (night included!)



Hackathon: the winners

MARCH 2013:

- Hackathon competition

APRIL-MAY 2013:

- UG app design (=> app for volunteers)
- Joint work with UG organizing committee

JULY-SEPTEMBER 2013:

- Development in the lab
- Joint work with company developing the server side

DECEMBER 2013:

- University Games

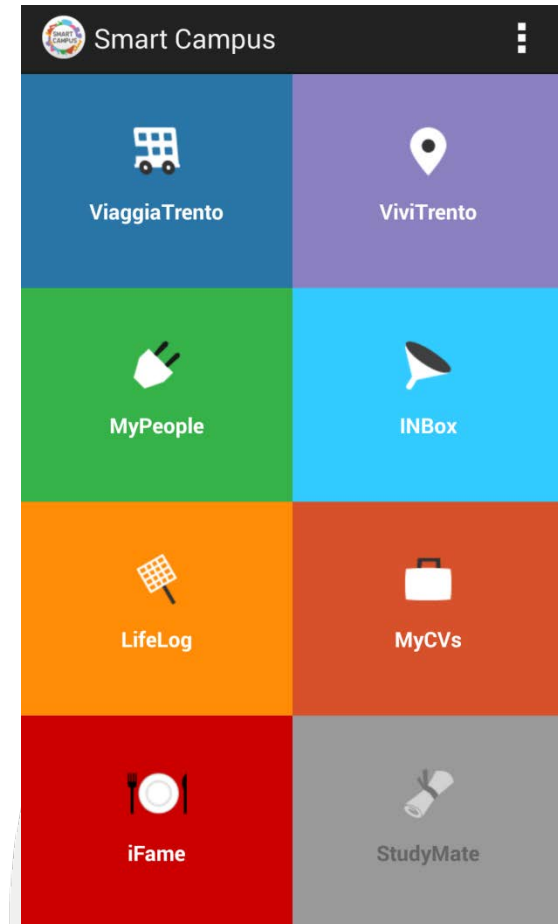
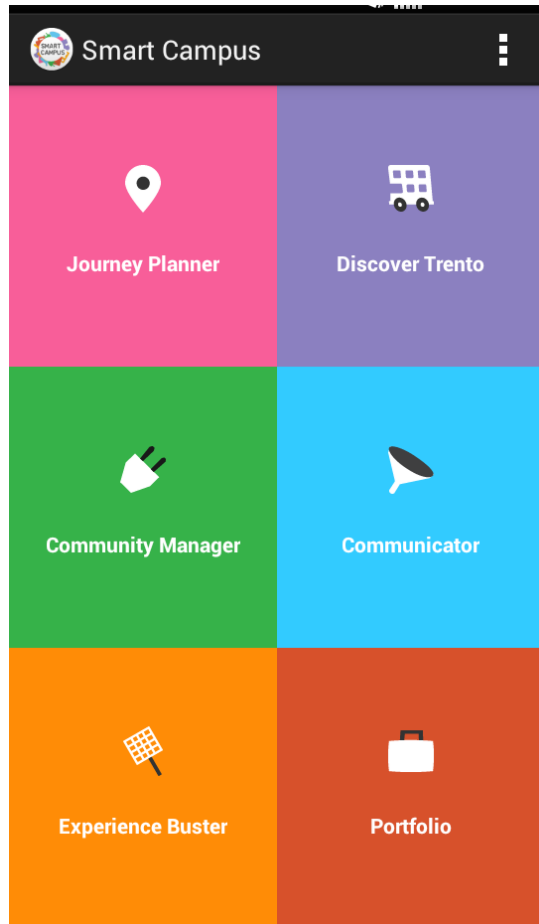
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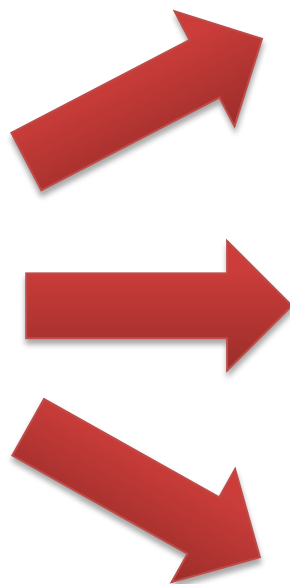
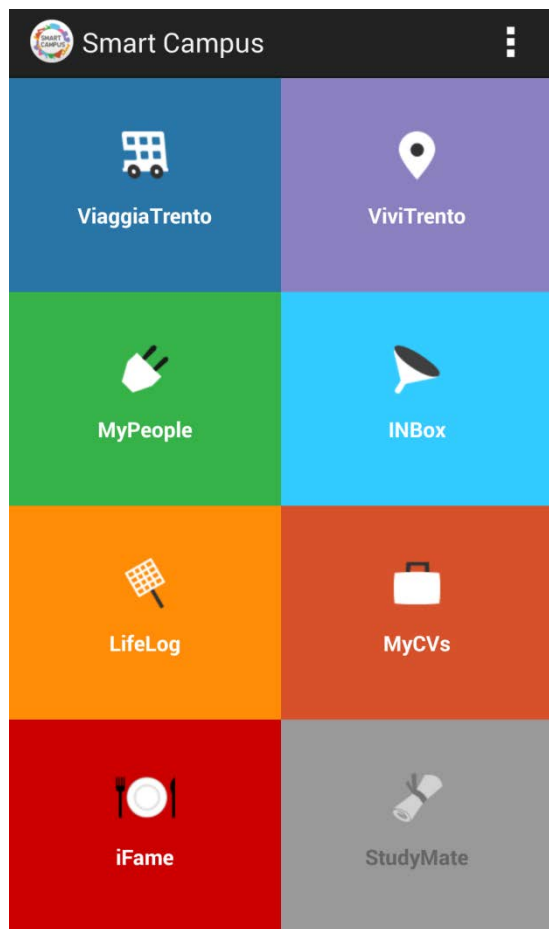
Services & Community

Evolution of Services



Services & Community

From the Campus to the City



ViaggiaRovereto



ViaggiaTrento



Vivi Trentino



Trentino Family



Percorsi dell'Arte 2.0



Unversiades 2013
Voluntaries App



Teaching perspective

The HCI course – 1 year after

- **“Human Computer Interaction”** course of Univ. of Trento (2013-2014)
 - Optional course of the 3rd year of the Informatics Bachelor
- **120 students**
 - +30% w.r.t. 2012-2013
 - More than the students enrolled in the 3rd year of the Informatics Bachelor
- **Approach**
 - Each student has to **involve a “friend”** from another faculty (**120+120**)
 - Team work among students and friends for:
 - Designing new services
 - Crowdsourcing
 - Evolution of the apps: new functionalities, new designs, ...
- **Very positive first results, to be better analyzed**

Forum:

- > 400 users, ~400 topic, ~2000 posts, 200.000 views, bi-lingual interactions
- ~ 450 posts on ideas for new services

Social networks:

- Facebook: 509 likes
- Google+: 307 “+1”
- Twitter: 154 followers

Student feedback:

- > 1000 comments in student diaries
- > 100 error reports

Software repository:

- 60 contributors
- > 3000 commits
- ~ 250 error reports

Statistics & analytics:

- App usage & student usage profile

➤ **Very large data set** on a complex and extensive participatory design and community building experiment

➤ **Hard to access and to analyze**

- **Privacy** issues
- Multiple **users identities** (how large is our community?)
- **Replications** (of bugs, of messages)
- **Correlations** among entries (e.g., bug report on forum -> fix on repository; request for feature -> new release)
- Lack of **automation** in the analysis

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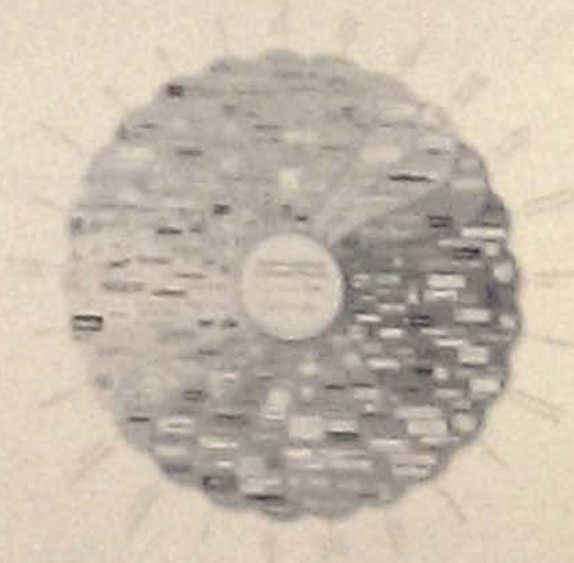


Assessment

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Science 2.0?

Science 2.0 is concerned with the use of modern internet technologies in all stages of research



- ✓ Social media tools and platforms are finding their way into science and will fundamentally change existing research and publishing processes:
 - New ways for collaboration ✓
 - Easier communication ✓
 - Participation in research processes ✓
 - More transparency and open discourse ✓

... at least as far as we agree that research on Smart Communities is not an exclusive concern of the scientists!

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