



POLITECNICO
DI TORINO



e-Lite

Aml for Sustainability

Theme of the year 2017

Fulvio Corno

Politecnico di Torino, 2016/2017



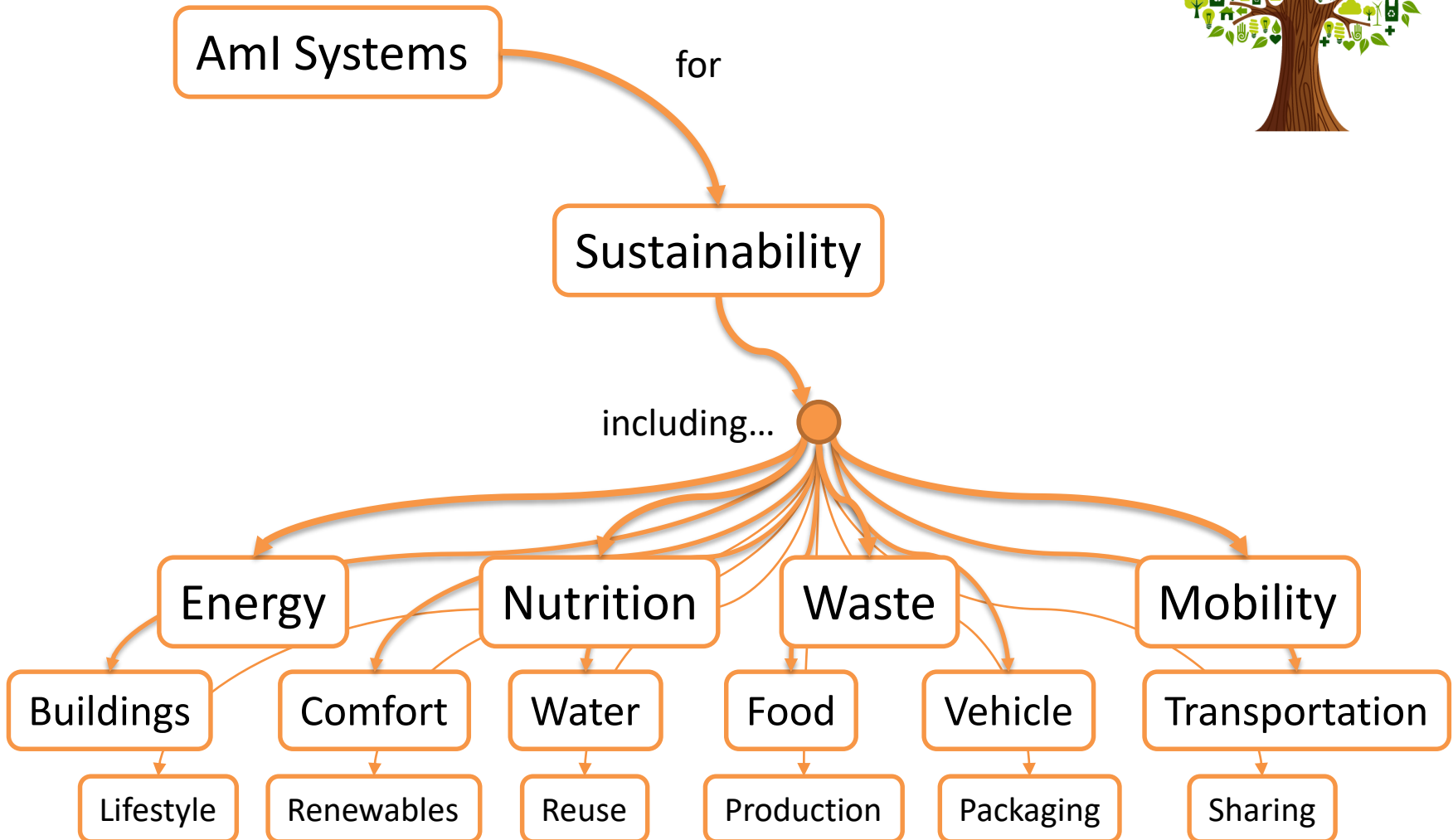
Summary

- Definition of the Theme
- Essential features
- Analysis of survey results
- Hints, ideas, suggestions
- How to proceed?

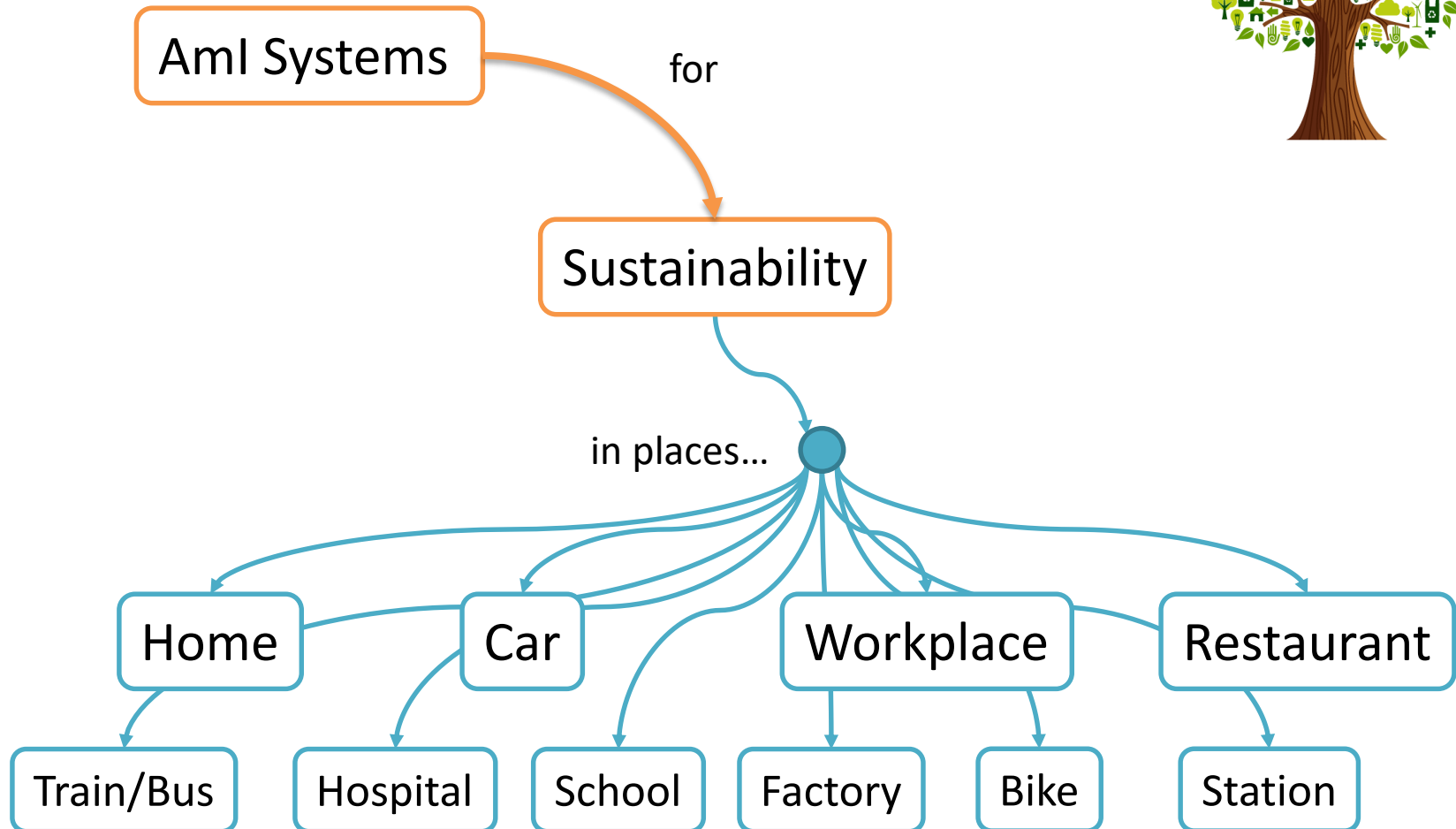
Aml for Sustainability

DEFINITION OF THE THEME

Theme of the year 2017



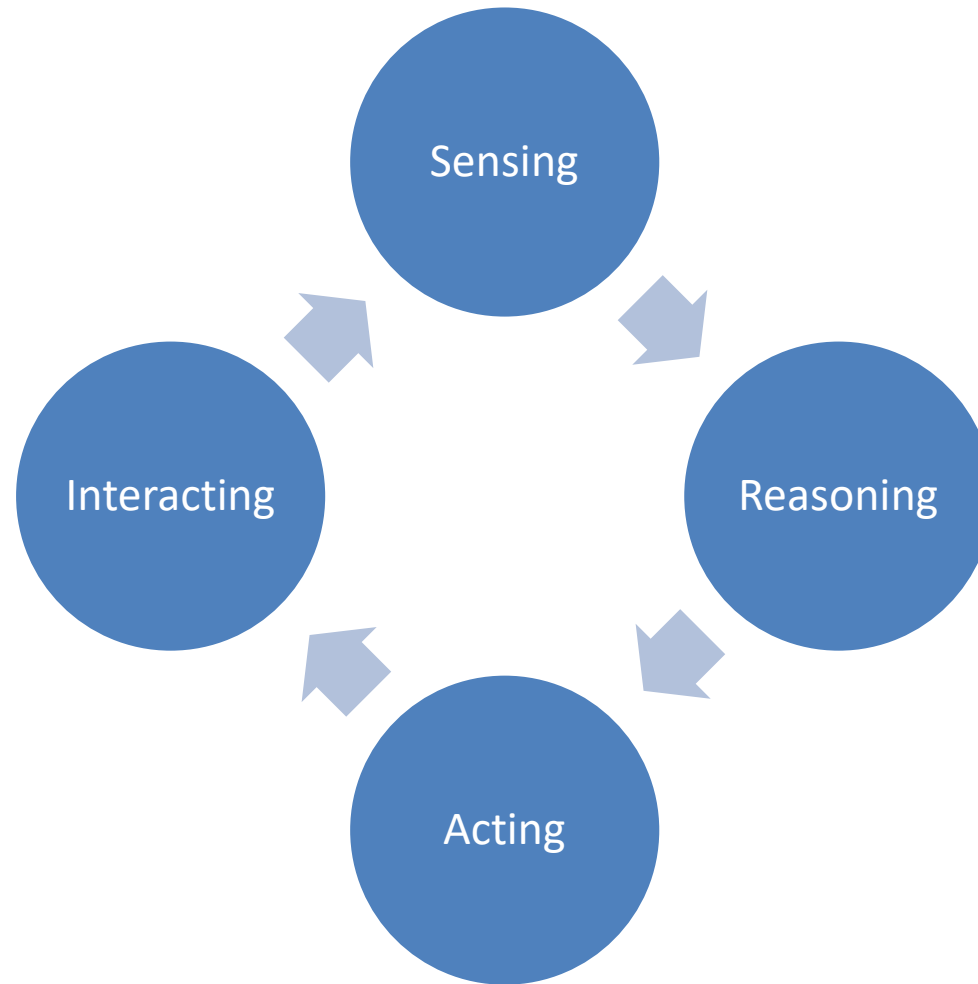
Theme of the year 2017



Aml for Sustainability

ESSENTIAL FEATURES

Include all 4 steps of Aml



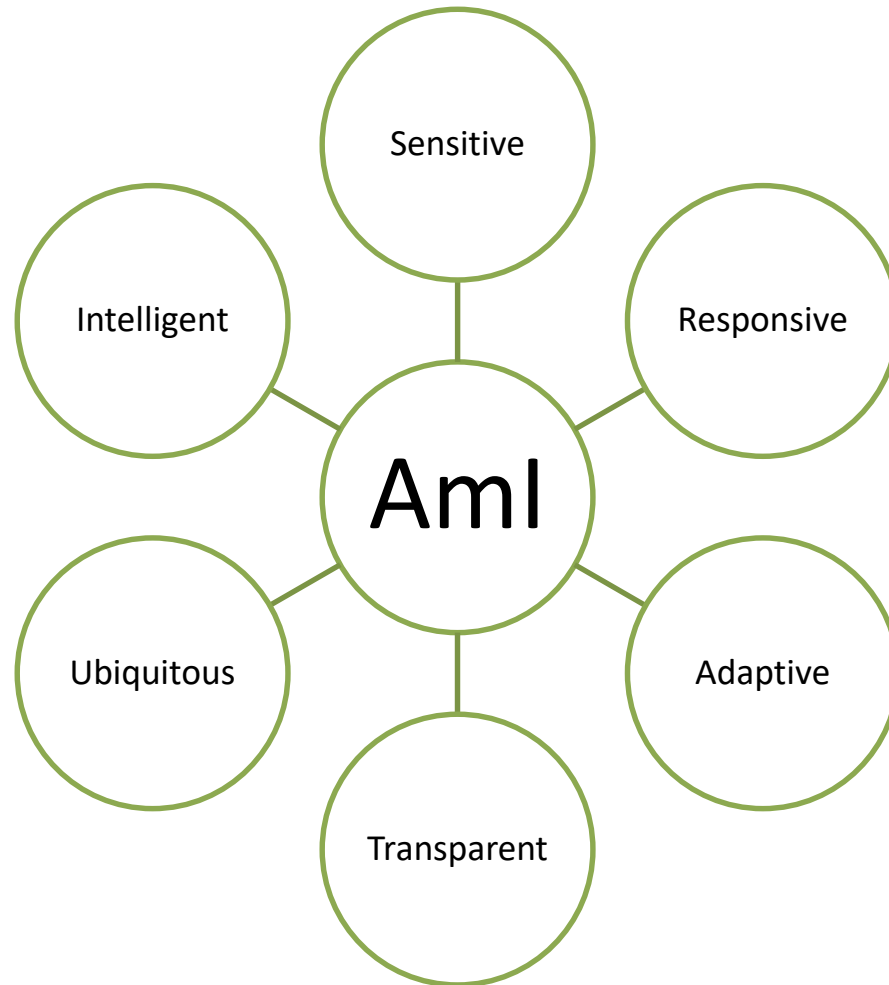
Corollary

- No **mobile**-only or **software**-only or **cloud**-only or **wearable**-only or **hardware**-only or **embedded**-only solutions
- No totally automated behind-the-scenes solutions (that don't involve the **users**)
- Should involve some **sensing** (environmental, user, social, cloud, body, ...)
- Should involve some **actuation** (on the environment, user, social, cloud, ...)
- Should not be simply deterministic (some form of **adaptation/intelligence** is needed)

About Cloud

- Integrating with cloud services (Facebook, Google Calendar, Twitter, IFTTT, ...) or mobile services (location, activity, notifications, ...) can be very useful
- May be used as “sensors” or “actuators”
- But: Must not be the only sensor and actuator

Try to incorporate most Aml features



Additional constraints (1)

- We can't modify the infrastructure
 - Walls, doors, hallways, ...
 - Lighting, heating, cooling, Wi-Fi, Internet, ...
 - Additional devices are ok
- Feasible with existing equipment
 - Devices available in LADISPE
 - Devices you own or you may lend
 - Cheap devices that may be purchased

Additional constraints (2)

- Easy to demonstrate
 - Easy to show in a lab setting
 - Easy to be moved, installed elsewhere
 - No permanent installations required
 - Except in special “safe” places (Ladispe, some office, some department, ...)

Aml for Sustainability

ANALYSIS OF SURVEY RESULTS

The question

- Please provide (max 3) short phrases for describing how would you create a smart environment for Sustainability.
- Try to describe them by the "end user" (student, worker, driver, runner, housewife, elderly, ...) point of view, don't focus on the technology.
- Try to include the role of the environment (i.e., not just a mobile application!).
 - 62 respondents to the survey
 - 17 provided ideas (27%)

Your responses

I would like to create an automation or augmented system for shop managers or industries. Environment: backend software or augmented reality

As a end user I would design an automated system which has low energy requirements, useful for home users but scalable to shops and small industries.

A smart environment for sustainability should be peaceful, secure and comfortable for the end user but, at the same time, it should be able to save habitat resources and improve the quality of the environment.

In order to reduce the cost of electricity bill I'm thinking of designing an intelligent ambient in the house, in which all lights and appliances are connected to movement sensors. This machines are on only when sensors detect movements.

In my opinion you could have a sustainable system mainly focusing your attention on the short lifespan problem. So you should realise something which is not strongly related with the last technology but that can do every automatic and routine action instead of a human. I think a domotic system can be a nice answer for sustainability. Something that "reminds" me what I have to do in order to optimize the energy used. For instance through a voice that asks to me if I have taken, daily, the necessary proteins..and it can also elaborate all these informations,giving greater awareness

something user-friendly, which communicates, using sensors, with the ambient and the end-user.

A smart system for sustainability should be simple to use, it should make user's life easier and at the same time it has to be good for the environment. In order to create it, I would try to understand which are the principal user's needs or which are our more frequent failings when it comes to the environment, and then I'd come up with the idea that fits them the most. From a technologic point of view,, the system could be anything, as long as it doesn't get to be cumbersome, or impractical.

-electronic receipt sent from the cash register to the phone when you buy something. -a smart entryphone which allows you to see, talk with and open the door to whoever ringed the bell from your pc or smartphone.

Traffic light where downtime is also calculated on the number of cars in the queue. Where there are more cars downtime lasts less seconds. For citizens means a reduction of pollution. Semaforo nel quale il tempo di fermata si calcola anche in base al numero di automobili in coda. Dove ci sono più automobili il tempo di fermata dura meno. Per la popolazione di una città significa una riduzione dell'inquinamento nel tempo.

A system able to keep track of the amount of waste generated for example in our University. It will track the amount of waste in the recycling bins and in the general one, to encourage the reduction of the last one and the use as a norm of the recycling bins. The student will be able daily to know how much her environment is changing in terms of waste reduction.

It's usefull to have the basic information about what we're going to work in case we haven't seen something similar before, to help us to study it and do projects better.

I'd improve and financially support new ecological way of transport: electric cars, electric buses as well as bike. I'd like to know where the nearest ecological area is. I'd also look for a system which can manage the use and the waste of electricity in the houses, offices, schools ecc.

the idea of solving the problem of air pollution in metropolises

Domestic machinaries that turn waste into energy or items. Self-driving cars, whom indoor is comfortable like a living room. Accurate cooking-machine that prepares food and that provide from waste it.

I would like to use a smart rucksack, using solar energy mounted into it to recharge electronic equipment internal and external.

Manage the heating through sensors in order to have the optimal solution when user will not be in the building for long time. Creating a way to collect almost expired food or leftovers from people in order to help who needs them. Create an app where workers can organize themselves in order to use the minimum number of cars.

Aml for Sustainability

HINTS, IDEAS, SUGGESTIONS

Ideas

- Warning: these are NOT Aml systems, they don't qualify as projects. However, they may inspire, or be included, in your project
 - <http://www.campus-sostenibile.polito.it/>
 - http://www.almanac-project.eu/viewpage.php?page_id=15
 - <http://rd.csp.it/archives/2567>
 - <http://rd.csp.it/archives/2586>
 - More ideas will be shared on Facebook
 - ...Google is your friend!

Aml for Sustainability

HOW TO PROCEED?

Immediate next steps

- By 22/03 (upload on Google Docs)
 - Group composition
 - Submitting ideas
 - Title
 - [very] short description
- Already think at Aml steps & Aml features
- Teacher validation during 23/03 class
- Final version on Google Docs by 24/03



<https://docs.google.com/document/d/10orfYLMcwOOKPujClaht-Bme2FQoXBWyKAUcewMldJU/edit?usp=sharing>

Submission Format

GROUP NUMBER XX

Team Members

- Team member 1, email, GitHub username, role in the project
- Team member 2, email, GitHub username, role in the project
- Team member 3, email, GitHub username, role in the project
- [Team member 4, email, GitHub username, role in the project]

Project Acronym: XXXYYYZZZ

Project Title

this is the title

Description

5-10 lines describing the project from the user's point of view. Don't mention technologies nor devices.

Submission Format

GROUP NUMBER XX

Team Members

- Team member 1, email, GitHub username, role in the project
- Team member 2, email, GitHub username, role in the project
- Team member 3, email, GitHub username, role in the project
- [Team member 4, email, GitHub username, role in the project]

s123456
Corno
Fulvio

Polito mail
or
Personal mail
(that you'll
check
regularly)

@fulcorno

One or more of:

SW developer (front-
end, back-end,
mobile, ...)
HW developer
Physical designer
Etc.

Submission Format

GROUP NUMBER XX

Team Members

- Team member 1, email, GitHub username, role in the project
- Team member 2, email, GitHub username, role in the project
- Team member 3, email, GitHub username, role in the project
- Team member 4, email, GitHub username, role in the project

What are the benefits for the user?
What are the main features?
Why should they want it?
How does it blend in their life?

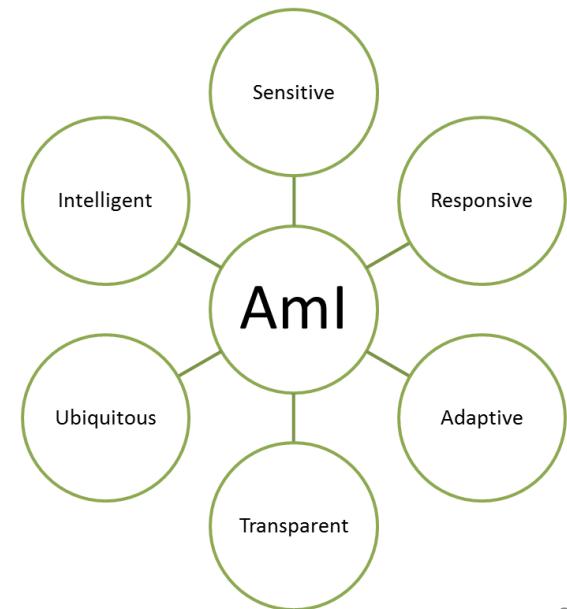
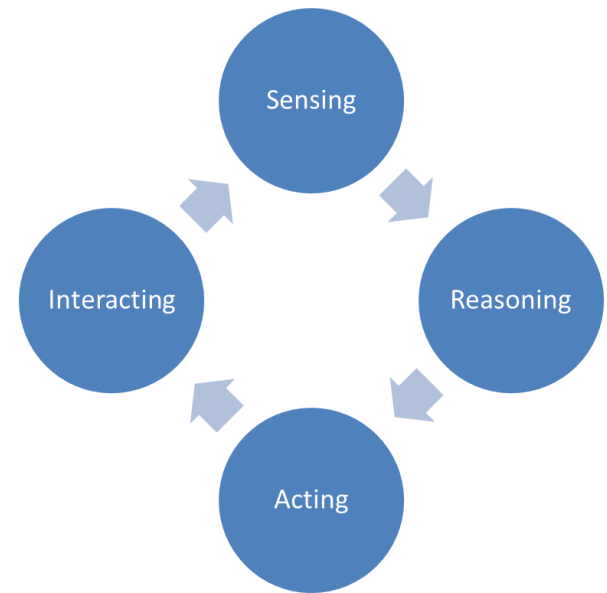
Description

5-10 lines describing the project from the user's point of view. Don't mention technologies nor devices.

Really!

Final tips

- Be creative
- Exploit your skills or passions
- Concentrate on 2-3 key features
- What will your users like?
- Avoid too much “integration” or “device support” or “data processing” work



License



- These slides are distributed under a Creative Commons license “**Attribution – NonCommercial – ShareAlike (CC BY-NC-SA) 3.0**”
- **You are free to:**
 - **Share** — copy and redistribute the material in any medium or format
 - **Adapt** — remix, transform, and build upon the material
 - The licensor cannot revoke these freedoms as long as you follow the license terms.
- **Under the following terms:**
 - **Attribution** — You must give [appropriate credit](#), provide a link to the license, and [indicate if changes were made](#). You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use.
 - **NonCommercial** — You may not use the material for [commercial purposes](#).
 - **ShareAlike** — If you remix, transform, or build upon the material, you must distribute your contributions under the [same license](#) as the original.
 - **No additional restrictions** — You may not apply legal terms or [technological measures](#) that legally restrict others from doing anything the license permits.
- <http://creativecommons.org/licenses/by-nc-sa/3.0/>

