



## **GHOST - Making your smart home safer**

March 2020

*Presented by: Javier Augusto, Project Manager – TELEVES*

[www.ghost-iot.eu](http://www.ghost-iot.eu)

[www.cyberwatching.eu](http://www.cyberwatching.eu)

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Horizon 2020 – Grant # 740129



GHOST

# 5 steps in 10 minutes

- TELEVES (a bit of context)
- GHOST (a little more context)
- Exploitability-by-design
- Useful tools that we have used
- Our present-future plans

# TELEVES



**A Total Commitment To Quality,**  
Televés is the brand heading a group of technological companies with the common objective of generating value in the Telecommunications and Information Technology sectors.

**Formed by more than 20 companies, all working toward a common objective:**  
To **design, develop, manufacture and distribute** the best products and solutions to enable optimum infrastructures for buildings and homes.



### Key markets:

- Telecom and TV infrastructures
- Hospitality
- eHealth
- Professional LED lighting



**1959**  
Televés  
is founded



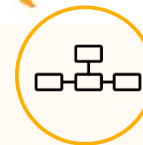
**192**  
(mill.€)  
Turnover  
2018



**7%**  
R&D yearly  
investment



**790**  
employees



**22**  
subsidiaries



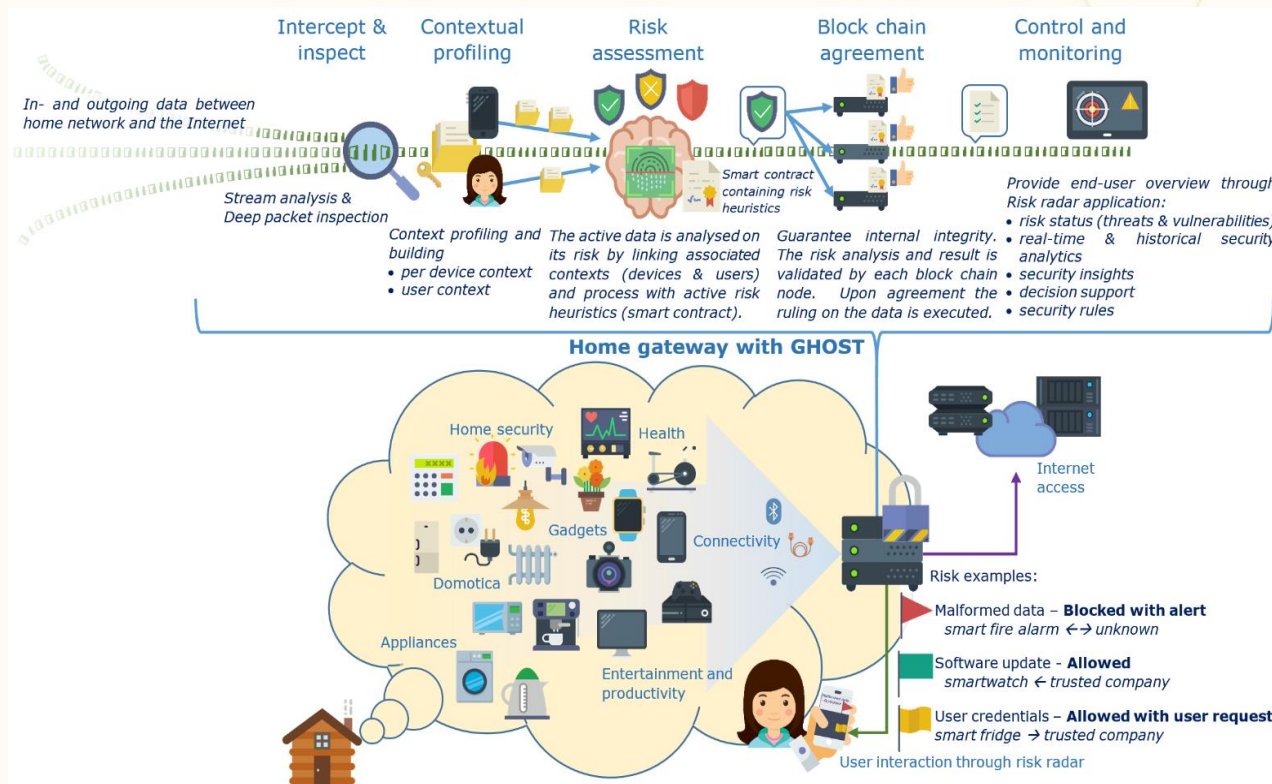
**+100**  
countries













**+75**  
patents

# GHOST

## The concept



## The consortium

	ENTITY	TYPE
	TELEVES (Spain)	Industrial partner (Midcap)
	University of Geneva (Switzerland)	Academic partner
	CERTH (Greece)	Academic partner
	NTNU (Norway)	Academic partner
	IMPERIAL COLLEGE (United Kingdom)	Academic partner
	EXUS (United Kingdom)	Industrial partner (SME)
	Technical University of Darmstad (Germany)	Academic partner
	Kalos Information System (Norway and Romania)	Industrial partner (SME)
	CRE (Spain)	NGO
	Obrela Security (Greece)	Industrial partner (SME)



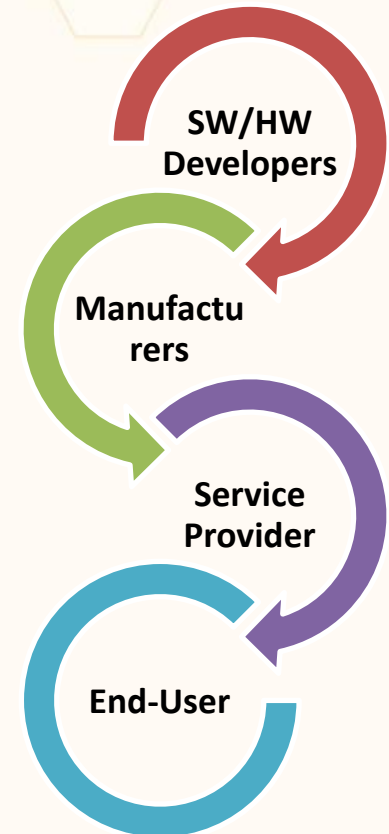
# Exploitability-by-design

◆ When do you start exploitation?

**During the proposal  
definition!!**

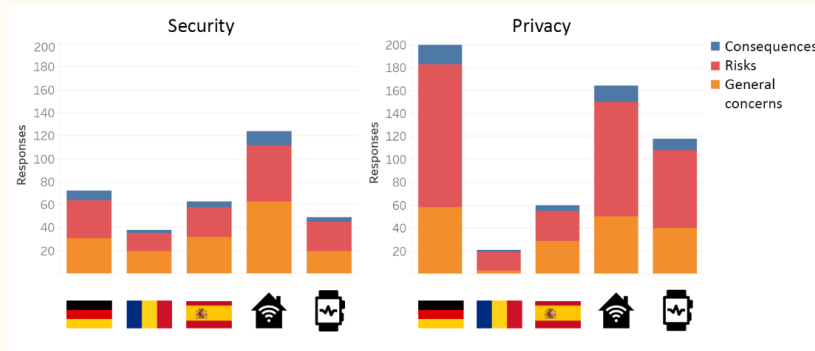
◆ Key points:

- ◆ Take a look to the consortium
  - ◆ We have the whole value chain
- ◆ Take a look to the methodology
  - ◆ User-driven iterative approach for the development



# Useful tools that we have used

- Included in our iterative end-user focused methodology
  - Online questionnaires
    - Awareness, usability of interfaces, etc.
  - Targeted focus groups
    - Review the whole concept (CS management model), multidisciplinary groups, etc.
  - Real-life trials
    - Day to day use of the system, issues during installation, etc.



# Useful tools that we have used

## Additional Tools (I)

### Product identification

- Description
- Potential clients
- Needed adaptations to reach the market
- Needed modules

### Product-IPR identification

- Expected impact in the market
- Replaceability

		Product	Product 1	Product 2	Product 3	Product 4	Product 5	Product 6	Product 7
		Description	Description 1	Description 2	Description 3	Description 4	Description 5	Description 6	Description 7
		Potential clients	Clients 1	Clients 2	Clients 3	Clients 4	Clients 5	Clients 6	Clients 7
		Needed adaptations to reach the market	Needed adaptation 1	Needed adaptation 2	Needed adaptation 3	Needed adaptation 4	Needed adaptation 5	Needed adaptation 6	Needed adaptation 7
		Expected impact in the market // Replaceability	Very High	Very High	Medium	Low	Medium	Medium	High
Module 1	Partner 1	Difficult	Mandatory	Mandatory	Optional	Mandatory	Not needed	Optional	Not needed
Module 2	Partner 2	Difficult	Mandatory	Mandatory	Optional	Optional	Not needed	Not needed	Not needed
Module 3	Partner 3	Medium	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Not needed
Module 4	Partner 4	Medium	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Not needed
Module 5	Partner 5	Impossible	Mandatory	Mandatory	Optional	Optional	Optional	Optional	Not needed
Module 6	Partner 6	Impossible	Mandatory	Mandatory	Optional	Optional	Optional	Optional	Not needed
Module 7	Partner 7	Impossible	Mandatory	Mandatory	Mandatory	Mandatory	Not needed	Not needed	Mandatory
Module 8	Partner 8	Medium	Mandatory	Mandatory	Optional	Optional	Optional	Optional	Not needed
Module 9	Partner 9	Medium	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Not needed
Module 10	Partner 10	Open source	Mandatory	Not needed	Mandatory	Not needed	Mandatory	Not needed	Not needed




# Useful tools that we have used

## Additional Tools (II)

- End-user journey by potential client and phase: customer thoughts, customer actions, customer contact with GHOST solution, potential frustrations, improvement lines

Possible drop out in this action →

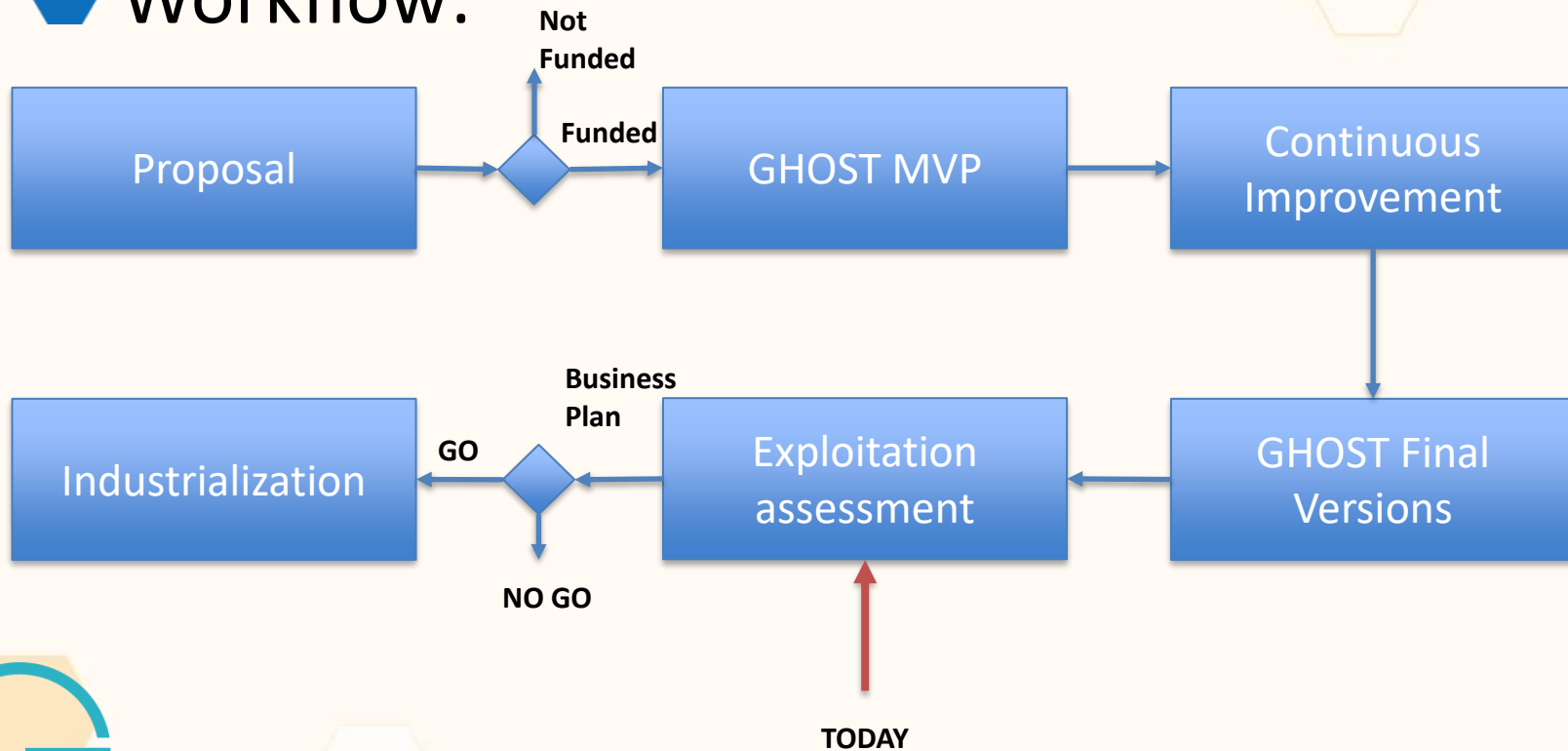
The color of the canvas is related with the feeling: green is positive feeling, yellow is neutral and orange is negative

User/Customer		GHOST											
		Name	9. Home owners										
		Description	Rachel is a 45 years old journalist. She lives with her family (her husband Joe and her two children: Lucy, a 14-years old teenager and JJ, a 10-years old kid). Rachel likes the new trend of smart devices and wants to make her home more intelligent: control the lights, measure the consumed energy, some security video cameras, etc. As she is able to deal with technology, she plans to do herself but she is not closed to use a model offered by a service provider. In addition, she is worried about the possible cyber security flaws in her home, so this will be a priority. In addition, it would be great for her if the system is able to track a record of the possible webpages visited by her children, to be sure that they are being responsible. She knows that it would be hard to accept for them but it is worthy.										
PHASE	1. Evaluating options and choosing GHOST-enabled	2. Buying the GHOST system	3. Configuring the GHOST system	4. Interacting daily with the GHOST system	5. Dealing with family complains/requests	6. Maintaining and reinforcing the system							
Customer thoughts and feelings	<div style="background-color: #d9ead3; padding: 2px;">I want something to help at home</div> <div style="background-color: #d9ead3; padding: 2px;">There are tools that can help (trade off...)</div>	<div style="background-color: #d9ead3; padding: 2px;">But I don't everyone know my data</div> <div style="background-color: #d9ead3; padding: 2px;">Privacy is one of the things to evaluate</div>	<div style="background-color: #d9ead3; padding: 2px;">CS is a must in the system</div> <div style="background-color: #d9ead3; padding: 2px;">I want to be protected without actions</div>	<div style="background-color: #d9ead3; padding: 2px;">Privacy is a must in the system</div> <div style="background-color: #d9ead3; padding: 2px;">I want GHOST but not a service provider</div>	<div style="background-color: #d9ead3; padding: 2px;">This is hard to understand</div> <div style="background-color: #d9ead3; padding: 2px;">I can do it</div> <div style="background-color: #d9ead3; padding: 2px;">I do not have time</div>	<div style="background-color: #d9ead3; padding: 2px;">GHOST is helping me to protect my data</div> <div style="background-color: #d9ead3; padding: 2px;">This is hard to understand</div> <div style="background-color: #d9ead3; padding: 2px;">But it requires many interaction</div> <div style="background-color: #d9ead3; padding: 2px;">I do not have time</div>	<div style="background-color: #d9ead3; padding: 2px;">GHOST is helping me to protect my data</div> <div style="background-color: #d9ead3; padding: 2px;">My children are more protected</div> <div style="background-color: #d9ead3; padding: 2px;">But I am limiting their freedom</div> <div style="background-color: #d9ead3; padding: 2px;">I want them to be more responsible</div>	<div style="background-color: #d9ead3; padding: 2px;">GHOST is helping me to protect my data</div> <div style="background-color: #d9ead3; padding: 2px;">This is hard to understand</div> <div style="background-color: #d9ead3; padding: 2px;">Am I doing good decisions?</div> <div style="background-color: #d9ead3; padding: 2px;">I do not have time</div>					
Customer actions	<div style="background-color: #fff2cc; padding: 2px;">Evaluate non-IoT solutions (paper, smartphone only, etc.)</div> <div style="background-color: #fff2cc; padding: 2px;">Evaluate IoT DIY products without GHOST</div> <div style="background-color: #fff2cc; padding: 2px;">Evaluate IoT DIY products with GHOST</div> <div style="background-color: #fff2cc; padding: 2px;">Evaluate IoT services without GHOST</div> <div style="background-color: #fff2cc; padding: 2px;">Evaluate IoT services with GHOST</div>	<div style="background-color: #fff2cc; padding: 2px;">Buy a GHOST DIY kit and a telehealth system</div> <div style="background-color: #fff2cc; padding: 2px;">Contract with a service provider with GHOST</div>	<div style="background-color: #fff2cc; padding: 2px;">Deployment of the home automation solution</div> <div style="background-color: #fff2cc; padding: 2px;">DIY configuration of the GHOST</div> <div style="background-color: #fff2cc; padding: 2px;">Configuration supported by a service provider</div>	<div style="background-color: #fff2cc; padding: 2px;">Dealing with SI and FA</div> <div style="background-color: #fff2cc; padding: 2px;">Possible reconfiguration</div> <div style="background-color: #fff2cc; padding: 2px;">Possible assisted reconfiguration</div>	<div style="background-color: #fff2cc; padding: 2px;">Dealing with SI and FA</div> <div style="background-color: #fff2cc; padding: 2px;">Possible user account management</div> <div style="background-color: #fff2cc; padding: 2px;">Possible user account management</div>	<div style="background-color: #fff2cc; padding: 2px;">Dealing with SI and FA</div> <div style="background-color: #fff2cc; padding: 2px;">Changing devices</div> <div style="background-color: #fff2cc; padding: 2px;">Changing devices</div>							
Customer touchpoints with GHOST team/solution	<div style="background-color: #d9ead3; padding: 2px;">Telehealth and tech webpages</div> <div style="background-color: #d9ead3; padding: 2px;">Service provider's webpage</div>	<div style="background-color: #d9ead3; padding: 2px;">GHOST Awareness flyer</div> <div style="background-color: #d9ead3; padding: 2px;">GHOST webpage</div>	<div style="background-color: #d9ead3; padding: 2px;">GHOST webpage</div> <div style="background-color: #d9ead3; padding: 2px;">Contact with sales team</div> <div style="background-color: #d9ead3; padding: 2px;">Contact with service provider</div>	<div style="background-color: #d9ead3; padding: 2px;">GHOST configuration interface</div>	<div style="background-color: #d9ead3; padding: 2px;">GHOST SI interface</div> <div style="background-color: #d9ead3; padding: 2px;">GHOST FA interface</div>	<div style="background-color: #d9ead3; padding: 2px;">GHOST configuration interface</div> <div style="background-color: #d9ead3; padding: 2px;">GHOST CoU webpages</div>	<div style="background-color: #d9ead3; padding: 2px;">GHOST SI interface</div> <div style="background-color: #d9ead3; padding: 2px;">GHOST FA interface</div>	<div style="background-color: #d9ead3; padding: 2px;">GHOST configuration interface</div> <div style="background-color: #d9ead3; padding: 2px;">GHOST CoU webpages</div>	<div style="background-color: #d9ead3; padding: 2px;">GHOST SI interface</div> <div style="background-color: #d9ead3; padding: 2px;">GHOST FA interface</div>	<div style="background-color: #d9ead3; padding: 2px;">GHOST configuration interface</div> <div style="background-color: #d9ead3; padding: 2px;">GHOST CoU webpages</div>			
Potential frustrations	<div style="background-color: #f4cccc; padding: 2px;">Home automation costs money</div> <div style="background-color: #f4cccc; padding: 2px;">Complexity of the systems</div>	<div style="background-color: #f4cccc; padding: 2px;">Too many options</div> <div style="background-color: #f4cccc; padding: 2px;">I am not able to understand the benefits</div>	<div style="background-color: #f4cccc; padding: 2px;">GHOST is not compatible with XXX system</div> <div style="background-color: #f4cccc; padding: 2px;">The proposed pricing model does not fit</div>	<div style="background-color: #f4cccc; padding: 2px;">I want GHOST but not a service provider</div> <div style="background-color: #f4cccc; padding: 2px;">It is too complicated</div>	<div style="background-color: #f4cccc; padding: 2px;">This is too complicated</div> <div style="background-color: #f4cccc; padding: 2px;">I don't know what to decide</div> <div style="background-color: #f4cccc; padding: 2px;">Limited functionality due GHOST</div>	<div style="background-color: #f4cccc; padding: 2px;">I don't know what to decide</div> <div style="background-color: #f4cccc; padding: 2px;">The system is too slow</div>	<div style="background-color: #f4cccc; padding: 2px;">GHOST is too freedom restrictive</div> <div style="background-color: #f4cccc; padding: 2px;">I don't know how to engage them</div>	<div style="background-color: #f4cccc; padding: 2px;">Educate before prohibit</div>	<div style="background-color: #f4cccc; padding: 2px;">This is too complicated</div> <div style="background-color: #f4cccc; padding: 2px;">I don't know what to decide</div> <div style="background-color: #f4cccc; padding: 2px;">Limited functionality due GHOST</div>	<div style="background-color: #f4cccc; padding: 2px;">I don't know what to decide</div>			
Improvement and business opportunities	<div style="background-color: #d9ead3; padding: 2px;">Clear pricing in the website</div> <div style="background-color: #d9ead3; padding: 2px;">Demo video and demo for request</div>	<div style="background-color: #d9ead3; padding: 2px;">Presence in relevant web portals</div> <div style="background-color: #d9ead3; padding: 2px;">Support material for using GHOST</div>	<div style="background-color: #d9ead3; padding: 2px;">Smartphone version</div> <div style="background-color: #d9ead3; padding: 2px;">SaaS in delegated mode</div>	<div style="background-color: #d9ead3; padding: 2px;">Create joint models with service partners</div> <div style="background-color: #d9ead3; padding: 2px;">Support material for using GHOST</div>	<div style="background-color: #d9ead3; padding: 2px;">Delegated mode</div> <div style="background-color: #d9ead3; padding: 2px;">Always possible reconfiguring</div>	<div style="background-color: #d9ead3; padding: 2px;">Non-expert support material</div> <div style="background-color: #d9ead3; padding: 2px;">Community of users</div>	<div style="background-color: #d9ead3; padding: 2px;">Community of users</div> <div style="background-color: #d9ead3; padding: 2px;">Advices of reconfiguring</div>	<div style="background-color: #d9ead3; padding: 2px;">Possible hardware upgrades</div>	<div style="background-color: #d9ead3; padding: 2px;">Community of users</div> <div style="background-color: #d9ead3; padding: 2px;">CS score for gamification</div>	<div style="background-color: #d9ead3; padding: 2px;">Community of users</div> <div style="background-color: #d9ead3; padding: 2px;">CS score for gamification</div>	<div style="background-color: #d9ead3; padding: 2px;">Community of users</div> <div style="background-color: #d9ead3; padding: 2px;">Statistics of use and satisfaction</div>	<div style="background-color: #d9ead3; padding: 2px;">Focus on adaptability</div>	



# Our present-future plans

## Workflow:



# Our present-future plans

## Business Plan:

- Key assumption: we will create a shared legal entity for exploitation
- Key points addressed (currently under discussion):
  - Mission and vision
  - Short, mid and long term objectives with specific market, tactical, strategic KPIs
  - Shareholder distribution based on the product and product IPR identification
  - Location and facilities (average costs, resources availability, maturity of entrepreneurship ecosystem, geographical placement, international projection)
  - Current product and services identification (filtered from previously presented)
  - Future product and services identification
  - Market segmentation and analysis
  - Value proposition definition
  - Team definition (CEO, Sales, Developers, etc.)
  - Key financial indicators (annual expenses, annual expenditures, annual revenues, break-even point projection, profit and losses model)



GR	ES	NO	CH	DE	SI
Green	Green	Red	Red	Yellow	Green
Yellow	Green	Red	Yellow	Orange	Green
Red	Green	Green	Green	Green	Green
Yellow	Green	Yellow	Green	Green	Green
Red	Yellow	Green	Green	Yellow	Yellow
Yellow	Green	Green	Green	Yellow	Yellow

# Our present-future plans

- Finalizing our exploitation workflow
- Pitching our business plan:
  - Internally in the different partners
  - Externally with potential investors (EC, private, etc.)



## Contact

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TELEVES

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Safe-Guarding Home IoT  
Environments with  
Personalized Real-time Risk  
Control

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