Rotary

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CORE
COOPERATION OF ROTARIANS FOR EUROPE

WE IN EUROPE –
TOGETHER FOR SAVING ENERGY
THROUGH SMART HOME SYSTEMS

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ZUKUNFT GESTALTEN.

Institution Saint-Pierre
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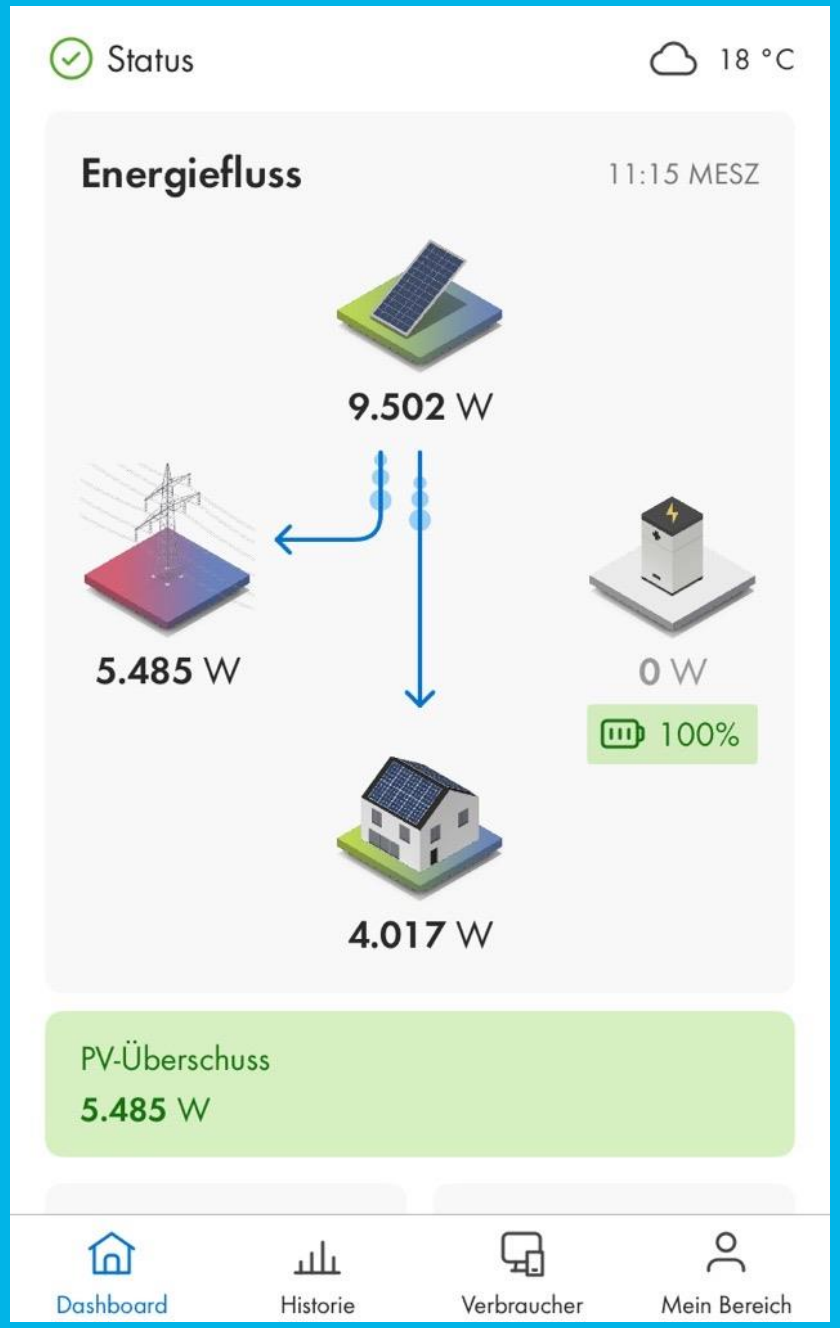

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Structure

1. Introduction: Saving energy
2. Smart home systems: The EU's goals and policies
3. Smart home systems in France, Italy and Germany
4. Smart home systems: A comparative overview
5. Ideas to improve the current situation in our countries and in the EU
6. Smart technologies and more: Ideas to reduce energy consumption in our personal life
7. Conclusion
8. Reflection about the project
9. Sources

Kick-off meeting in Bergamo
13/01 - 17/01/25

1st Online-meeting 13/03/25

2nd Online-meeting 05/05/25

Closing session in Bourg-en-Bresse
19/05 - 23/05/25

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1. Introduction: Saving energy

Introduction: Saving energy

Let's talk about energy!

- Energy is finite
- Energy is essential for daily life
- Saving energy reduces costs and saves the environment
- About 30% of the energy use of a country is for households

What are smart homes?

- Houses that use technology to save and control energy consumption
- They provide more comfort, security and especially more (energy) efficiency
- They save energy in areas like lighting or household devices using components like smart thermostats

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Introduction: Saving energy

Three fields:

1. Safety
2. Comfort
3. Saving energy

2. Smart home systems: The EU's goals and policies

Smart home systems: The EU’s goals and policies

The EU’s goals

The 2030 Agenda defines sustainable development goals, including four related to smart home systems:

- Clean and affordable energy (Goal 7)
- Innovation and smart infrastructure (Goal 9)
- Sustainable cities (Goal 11)
- Climate action (Goal 13)

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Smart home systems: The EU’s goals and policies

The EU’s laws and policies

The main laws and policies are:

- Make buildings more energy-efficient
- Set minimum standards for new homes
- Improve energy effiency by 20% until 2020

- Carbon-free buildings by 2050
- Green Homes Directive

➡ making buildings efficient

➡ general energy-saving

3. Smart home systems in France, Italy and Germany

3. Smart home systems in France

Smart home systems in France

Situation in France

- Smart home ecosystems available in France (Google Home, Alexa…)
- Smart home functions:
    - Temperature regulation with thermostats
    - Lighting and energy efficiency (home automation and voice control)

Smart home systems in France

Goals, laws and regulations

Climate Goals:

- Align with EU targets for net-zero emissions by 2050 and a 55% emissions reduction by 2030

Laws & Regulations:

- **MaPrimeRénov':** Financial support for energy-efficient home renovations, including smart home systems
- **RT 2020**: Requires new buildings to be energy-positive, encouraging smart home technologies
- **Eco-PTZ**: Interest-free loans for energy-efficient upgrades

Effectiveness:

- Boost smart home adoption through incentives and regulatory frameworks

Smart home systems in France

Pros and Cons

- **Pros**
  - Energy-saving and management optimized
  - Integration of renewable energy (solar panels)
  - Environmental benefits (respect climate goals)
- **Cons**
  - Cost of installation
  - Risk of piracy and security vulnerabilities
  - Accessibility for elderly and mobility-impaired people

Smart home systems in France

Key results related to France

- **French numbers and results:**

  - 35M smart meters
  - France accounted for 3.3% of the global smart thermostat market in 2024
  - 9.71M smart homes registered in France
  - Government subsidies to help people buy smart home devices

- **Related to the EU:**

  These results show France's contribution in EU

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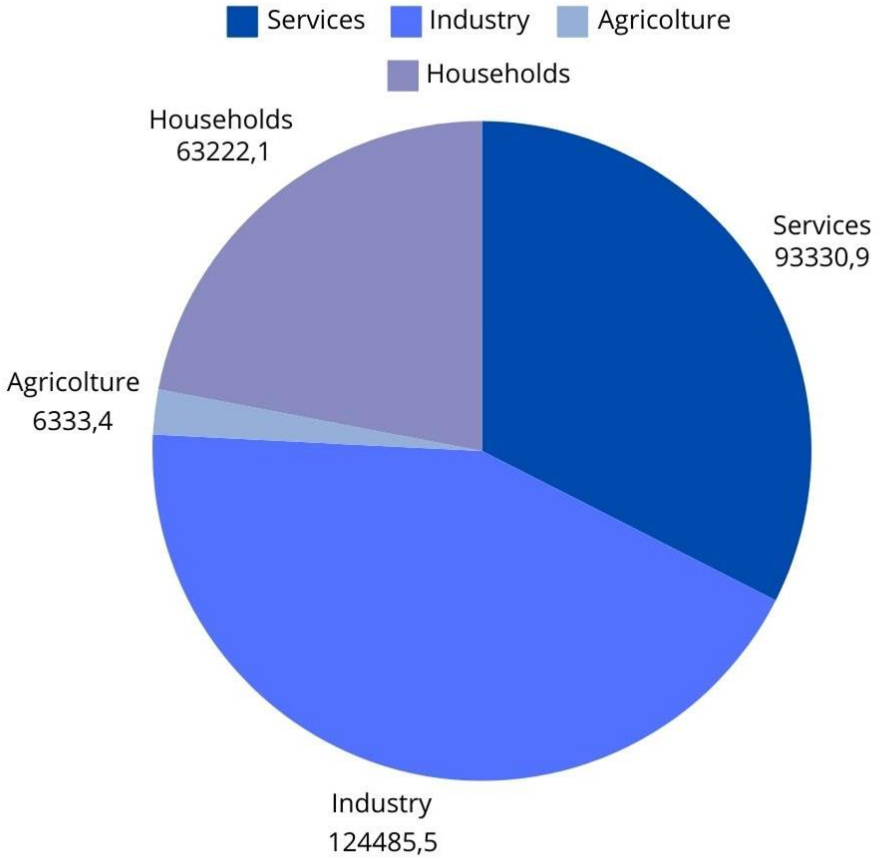
3. Smart home systems in Italy

Smart home systems in Italy

Energy use per year

- **Total consumption**: 287,732 GWh divided into four sectors
- **Largest consumer**: Industry (124,485.5 GWh)
- **Other sectors**: Services (93,330.9 GWh), households (63,222.1 GWh)
- **Lowest consumption**: Agriculture (6,333.4 GWh)



Households using smart energy systems

- **Market growth**: €0.6B in 2019 (+34%), 1.8M smart homes
- **Device adoption**: 63% of Italians own at least one smart device (vs. 54% in 2019)
- **Future outlook**: 88% find smart homes useful; EU regulations may boost adoption

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Smart home systems in Italy

Laws and regulations

- CEI 205-14
- Ecobonus 65%
- Superbonus

These are very useful to promote energy efficiency and encourage the integration of innovative energy management.

Goals

- Increase safety
- Increase energy efficiency
- Increase reliability

Smart home systems in Italy

Pros and Cons

Pros:

- Environmental impacts
- Security
- Comfort

Cons:

- Costs
- Privacy and security
- Obsolescence

Smart home systems in Italy

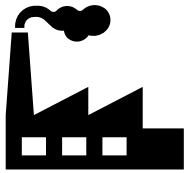
Key results related to Italy

- 1.8 M smart homes and the number is growing
- Energy-saving systems are used in a variety of ways: heating, cooling, lighting and safety
- New solutions also thanks to the laws (Superbonus 110%, Ecobonus 65%, CEI 205-14)
- Italian buildings with efficient and smart technologies can reduce annual energy consumption by 20-24% and water consumption by 4-5%
- High costs, security and privacy concerns, device obsolescence and a possible unhealthy dependence on technology

3. Smart home systems in Germany

Smart home systems in Germany

Distribution of electricity usage



industry: 44%

private households: 29%

services: 24%

transport: 3%

Smart home systems in Germany

Goals, laws and regulations

Goals:

- Climate neutrality by 2045

Laws and regulations:

- Smart meter mandatory in all new and renovated houses by 2032
- Data protection to ensure the safety of smart homes owners
- Funding programs

Smart home systems in Germany

Pros and Cons

Pros

- Lower energy costs
- Energy savings
  - Optimized energy consumption
  - Reduced standby power

amortization

Cons

- High initial costs
- Social inequalities
- Complexity
  - Setting up
  - Difficulties with rental apartments
  - Managing
- Fear of hacking, abuse of personal data and a blackout
- Shortage of skilled workers

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Smart home systems in Germany

Key results related to Germany

- Accepted and used by more and more households
- Actively supported by government subsidies
- Key element to reach Germany's climate goals for 2045
- Challenging, as it directly affects people's daily lives

- Where does the money for the subsidies come from and will our generation have to pay the debt that Germany currently takes on?
- Could this widen the gap between the rich and the poor?

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4. Smart home systems: A comparative overview

Smart home systems: A comparative overview

Situation in the countries

	FRANCE	ITALY	GERMANY
Household energy consumption compared to other sectors	25.8%	22%	29%
Energy efficiency score (buildings)	21	17	20
Households that have at least one smart device	35%	63%	44%

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Smart home systems: A comparative overview

Goals, Laws and Regulations

	FRANCE	ITALY	GERMANY
Climate neutral by (EU by 2050)	2050	2050	2045
Financial support	Yes	Yes	Yes
Regulations on new buildings	Yes	Yes	Yes

Smart home systems: A comparative overview

Pros and Cons

Pros:

- Lower energy costs
- Save energy
  ➔ achieve climate goals
- Developing economic sector

amortization

Cons:

- High initial costs
- Create social inequalities
- Privacy risks

Smart home systems: A comparative overview

Key Results

- Government subsidies in all countries
- Rules and regulations in all countries but different ones
- Economic growth in all countries

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5. Ideas to improve the current situation in our countries and in the EU

Ideas to improve the current situation

- Promote awareness among students about ecological issues
- Create a certification seal that guarantees safety for smart homes
- Incentivize restauration of older houses
- Provide assistance to old or disabled people who use smart homes
- Subsidize start-ups
- Promote smart homes companies
- Subsidize smart homes
- Implement a common smart home standard
- Public demo houses to show how they work

6. Smart technologies and more: Ideas to reduce energy consumption in our personal life

Smart technologies and more: Ideas to reduce energy consumption in our personal life

At home

- Install more smart homes applications
- Using renewable energies
- Only use heating and air conditioning when necessary

In our everyday life

- Unplug devices
- Inform all generations
- Take shorter showers
- Use more public transport

At school

- Using energy-efficient devices
- Switching off devices when not needed
- Improve insulation and heating systems
- Raise awareness

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7. Conclusion

Conclusion

What did we learn about the topic?

- Everybody can make the difference in their home, their country and in Europe
- Energy saving is underrated and needs to be discussed in more detail
- There are many ways to improve the situation

What was surprising?

- Nations can be so different and yet so similar
- People of different nationalities may have different opinions and attitudes even when dealing with the same subject

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Conclusion

What did we learn about our countries and the EU?

- Households use more energy than we think
- Each country has a lot of regulations but we need common policies

Benefits of the EU

- Common rules and goals
- No tariffs
- Open borders
- Common currency
- Single market

What are the challenges?

- Many different opinions
- Hard to find an agreement
- Defining priorities
- Being helpful to less developed countries

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Conclusion

What is our conclusion?

- We should raise awareness
- More smart home devices should be implemented
- We need common policies about energy management
- Investing in the EU as a leader for the future
- We need to gather our ideas to improve the situation
- Everything can be changed, we just have to start

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8. Reflection about the topic

Reflection about the project

What made this project special?

- It brings three nations together
- We discussed everything
- We practiced and experienced **democracy**
- We worked in trinational groups
- We became **friends**
- We dealt with very important issues that may define our **future**

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Reflection about the project

What are the highlights of the project?

- Presentation
- Visits abroad
- Support from teachers

What would we suggest for the future?

- Prolong the kick-off and closing meetings
- Do the project again
- Share our knowledge

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Reflection about the project

What are our benefits?

- Present and speak in front of an audience
- Improve our language skills
- Learn more about the EU and its topics
- Meet new friends from other countries

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9. Sources

Sources

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- Energy efficiency score: Europe Smart Homes Market Size & Share Analysis - Industry Research Report - Growth Trends

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Behind the scenes ...

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Bergamo:

It‘s time to work

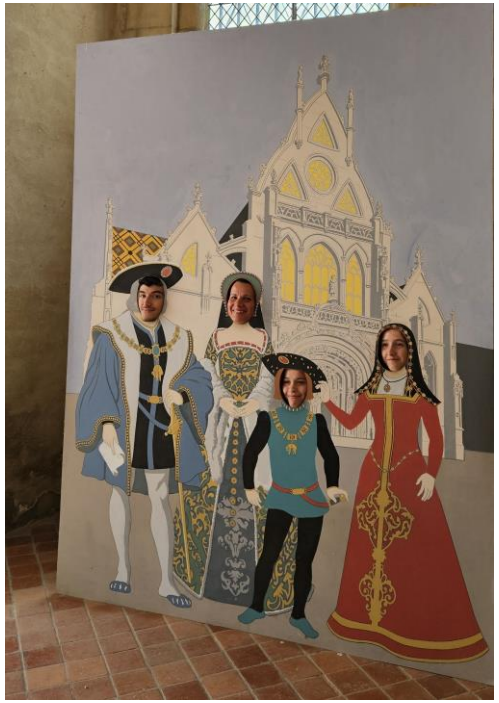
Bergamo:

Good moments together

Bourg-en-Bresse:

Time to focus

Amazing visit of
Monastère de Brou



Having fun at the Lac de la Plaine Tonique

This was an amazing opportunity, and we've learned a great deal!

Dear Rotarians, thank you very much!

Institution Saint-Pierre Lycée

Istituto Superiore Lorenzo Lotto

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