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LIFE16 GIC/FI/000072

Organizational challenges and possibilities for the energy efficiency enhancement in the Finnish municipality sector

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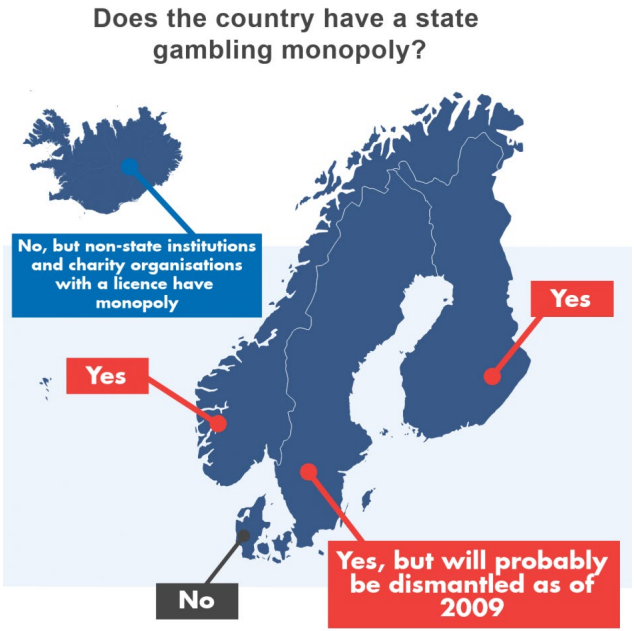
SYKLI



- Past
  - Real estate economics
    - Valuation (role of energy cost)

- Present
  - Latest larger project: Energiaväylä (energy transfer grid)
    - 4thG DH modeling (mid-scale)
  - project EconomisE
  - Other ongoing: AI assistance in energy efficiency work (KIINTEÄ)
    - New information in decision making processes
  - Co-operation with The Research Institute of Modeling and Measuring for the Built Environment (Aalto university)

- Future
  - Developing new projects all the time. Looking comparative cases for
    - ownership and economic value of excess heat (optimal storage)
    - Electrification of traffic , renovations and PV investments in real estate stock

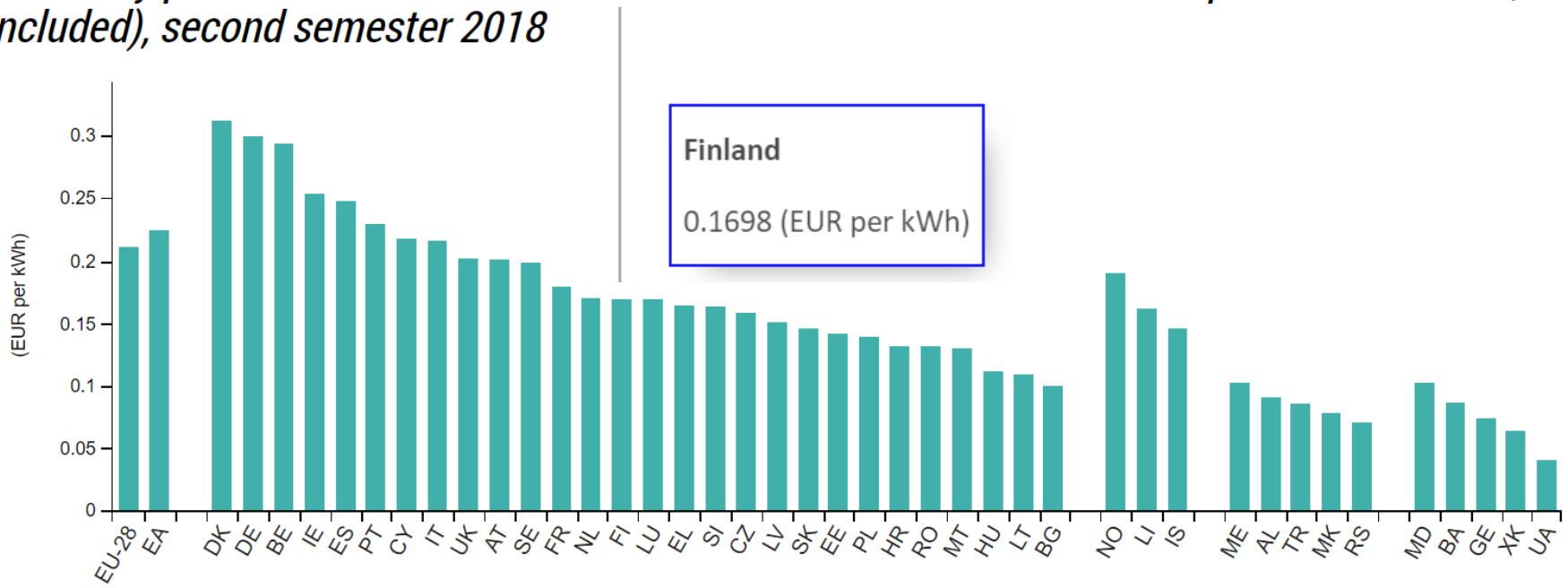
”Finnish system”

I. Much of the public energy efficiency work in Finland is organised within the frame of energy efficiency agreement system
   - ran by Ministry of Economic Affairs and Employment of Finland
   - There are different agreement sectors of which one is for the municipalities
   - Main goal of the agreement to reduce total energy consumption by 7,5 % by the end of the ongoing period at 2017 (2017-2025)

II. Heating of the buildings is organized in urban areas by district heating systems
   - It is organised locally by municipally owned energy companies
   - Oil and electricity have been used rural areas
   - More and more ground heat pumps (and air heat pumps as a complementary system)

And to take account

Electricity prices for household consumers (2 500 kWh < annual consumption < 5 000 kWh, taxes included), second semester 2018



https://ec.europa.eu/eurostat/statistics-explained/index.php/Electricity_price_statistics

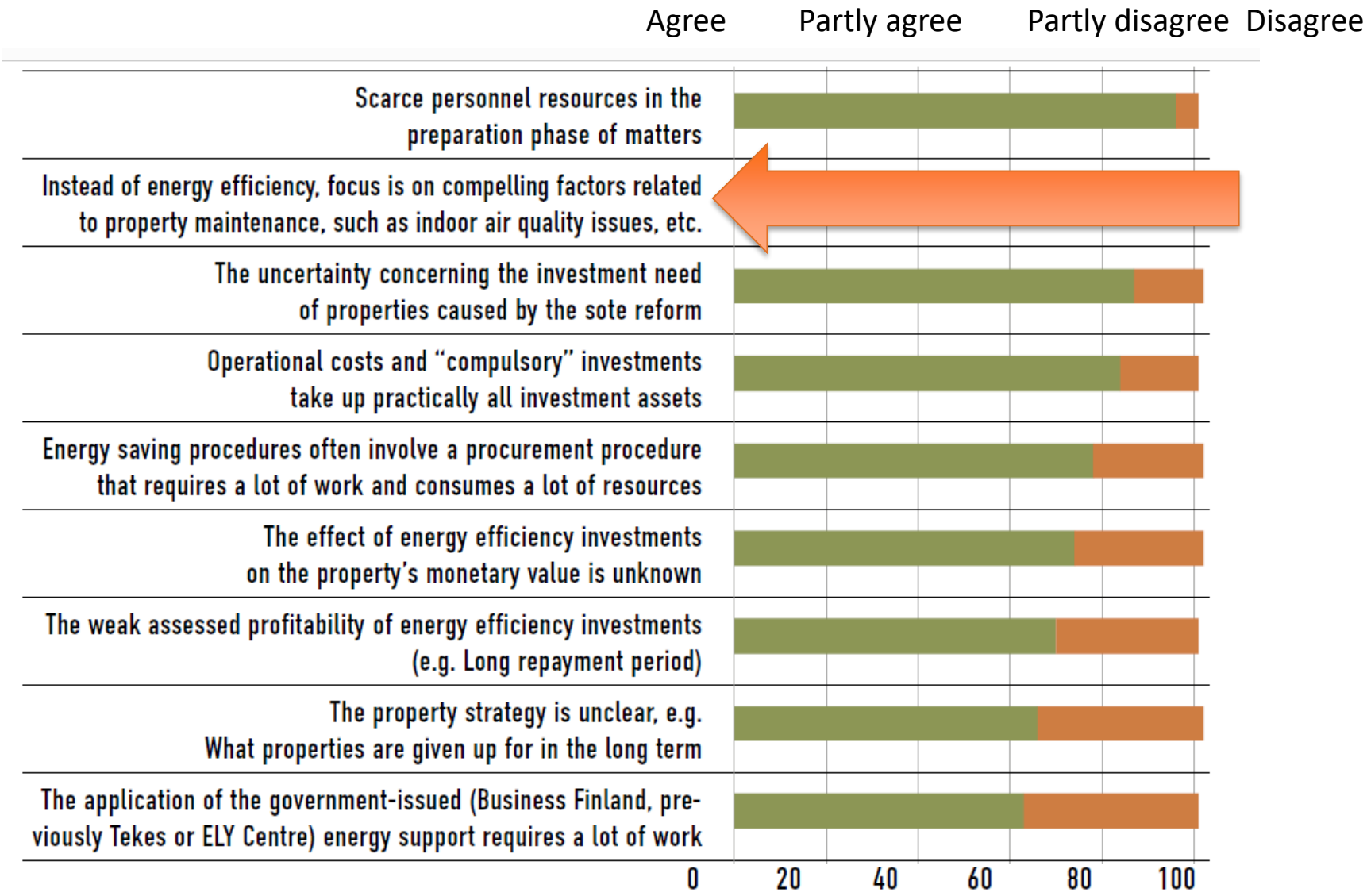
Project EconomisE

- EU (Life) funded development project
  - Value for money: unlocking the investment potential for resilient low-carbon Finnish building stock
  - https://wwf.fi/en/economise/
- Coordinated by WWF Finland and implemented in partnership with the
  - Finnish Environment Institute (SYKE)
  - SYKLI Environmental School of Finland

Research question and data

- What are bottle necks of energy efficiency work in the municipality sector?
  - Sykli performed a questionnaire in co-operation with the Association of Finnish Local and Regional Authorities in February 2018
    - Number of responses was 102 which represents app. 30 % response rate
    - Almost all the biggest municipalities answered, so the coverage of the municipal real estate stock is about 80 %

Q7. What are the worst obstacles for energy efficiency procedures and investments?



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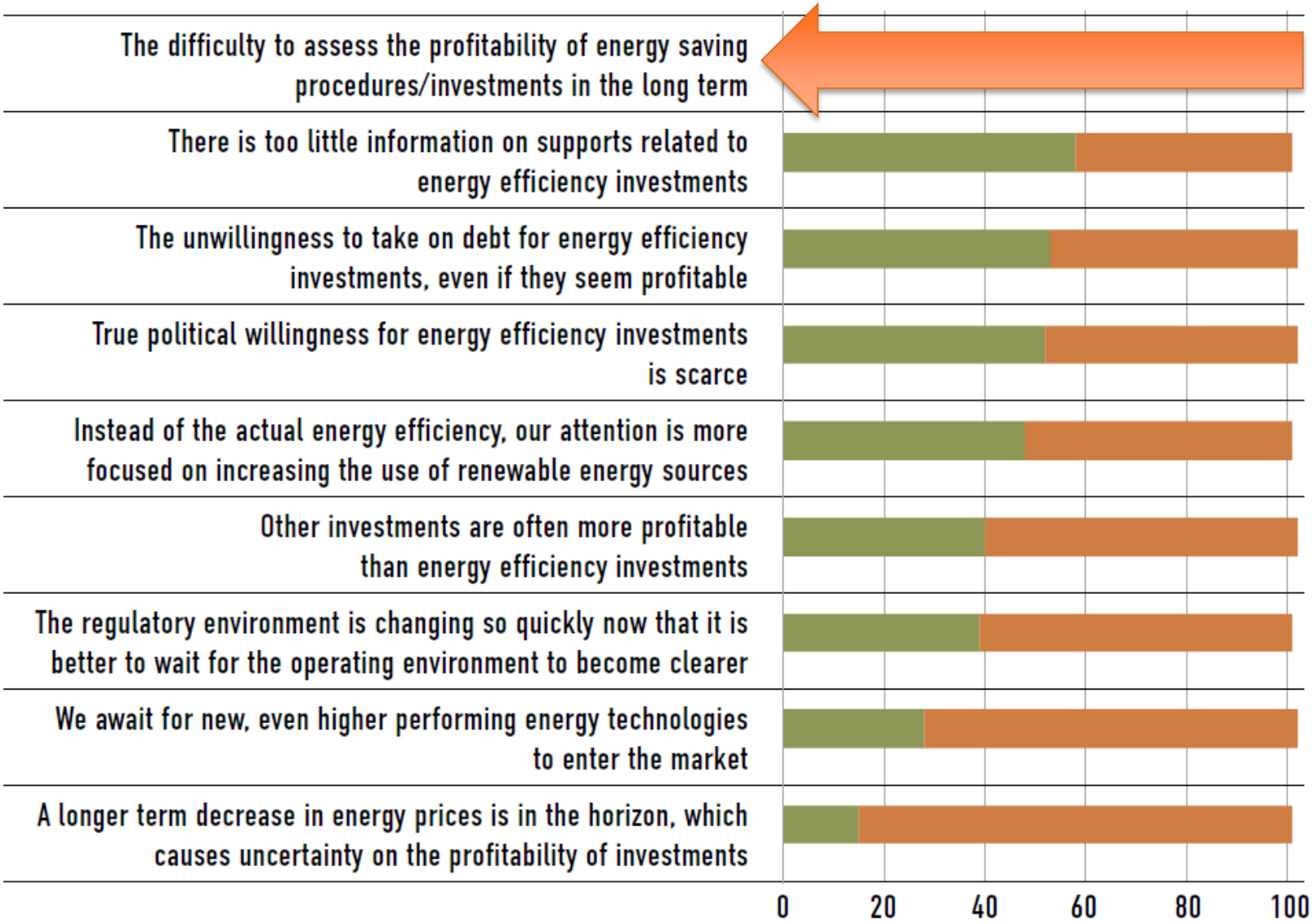
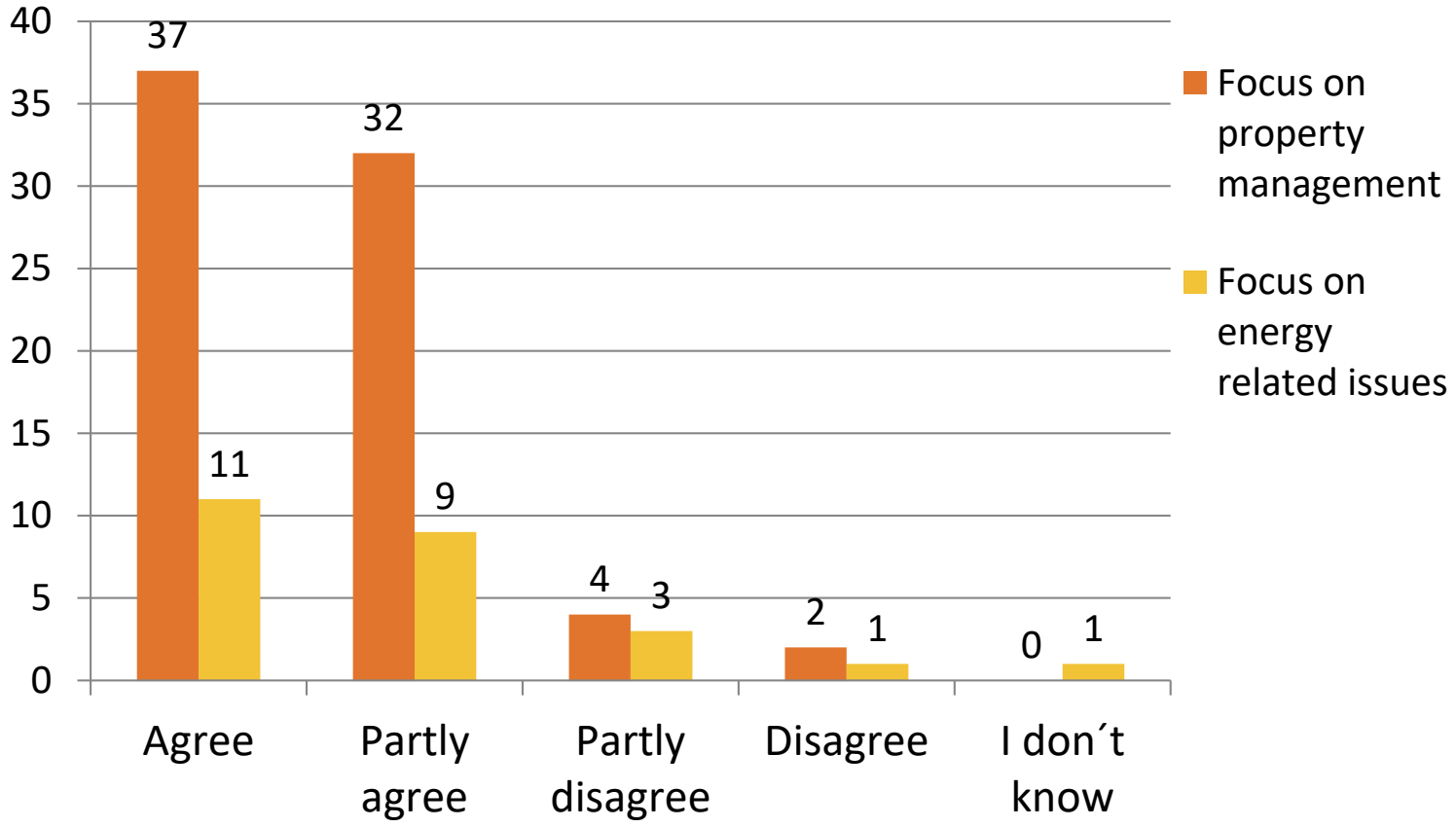


Q7/Claim: Instead of energy efficiency, focus is on compelling factors related to property maintenance, such as indoor air quality issues, etc.

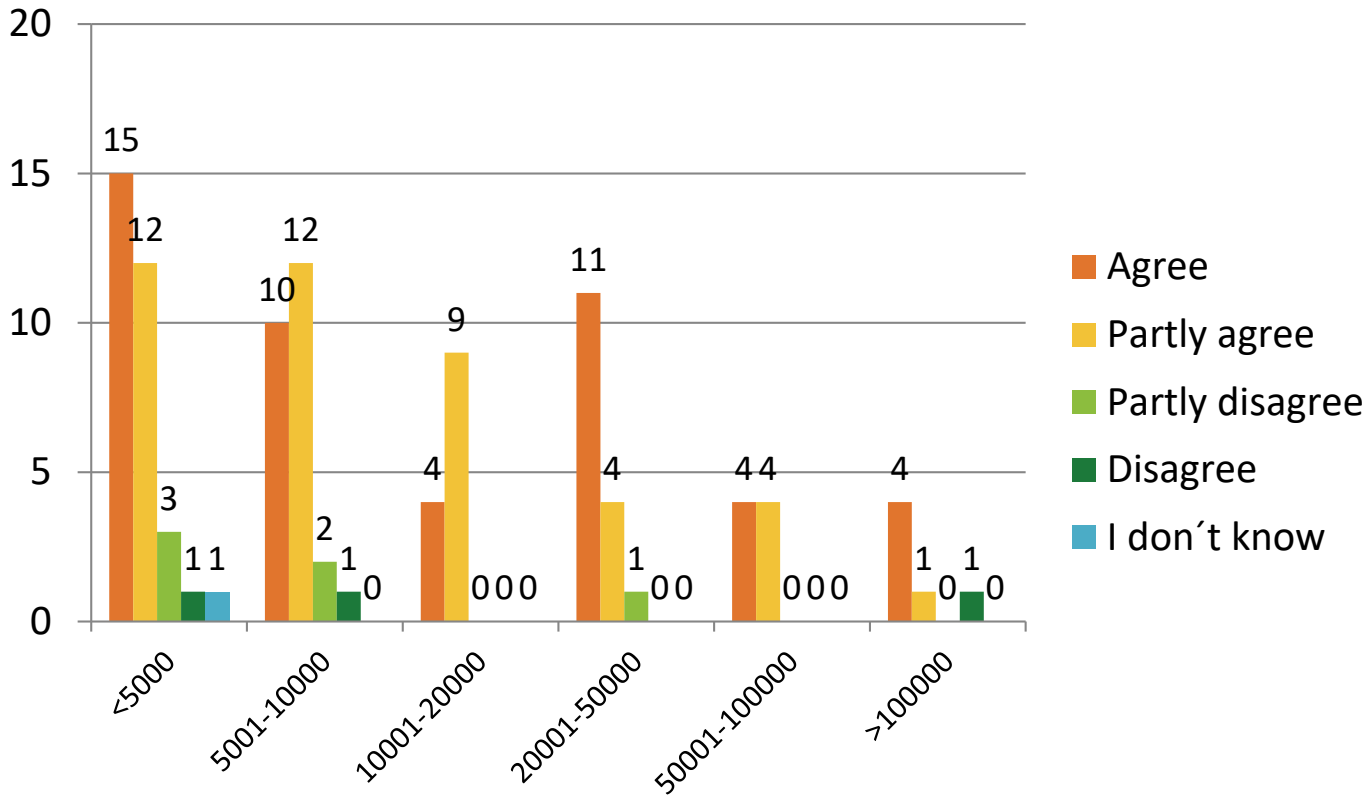


Is the profile of the answers same in the whole population?
- Mann-Whitney (α=0,05)

Sig. 0,356

Yes!

Q7/Claim: Instead of energy efficiency, focus is on compelling factors related to property maintenance, such as indoor air quality issues, etc.



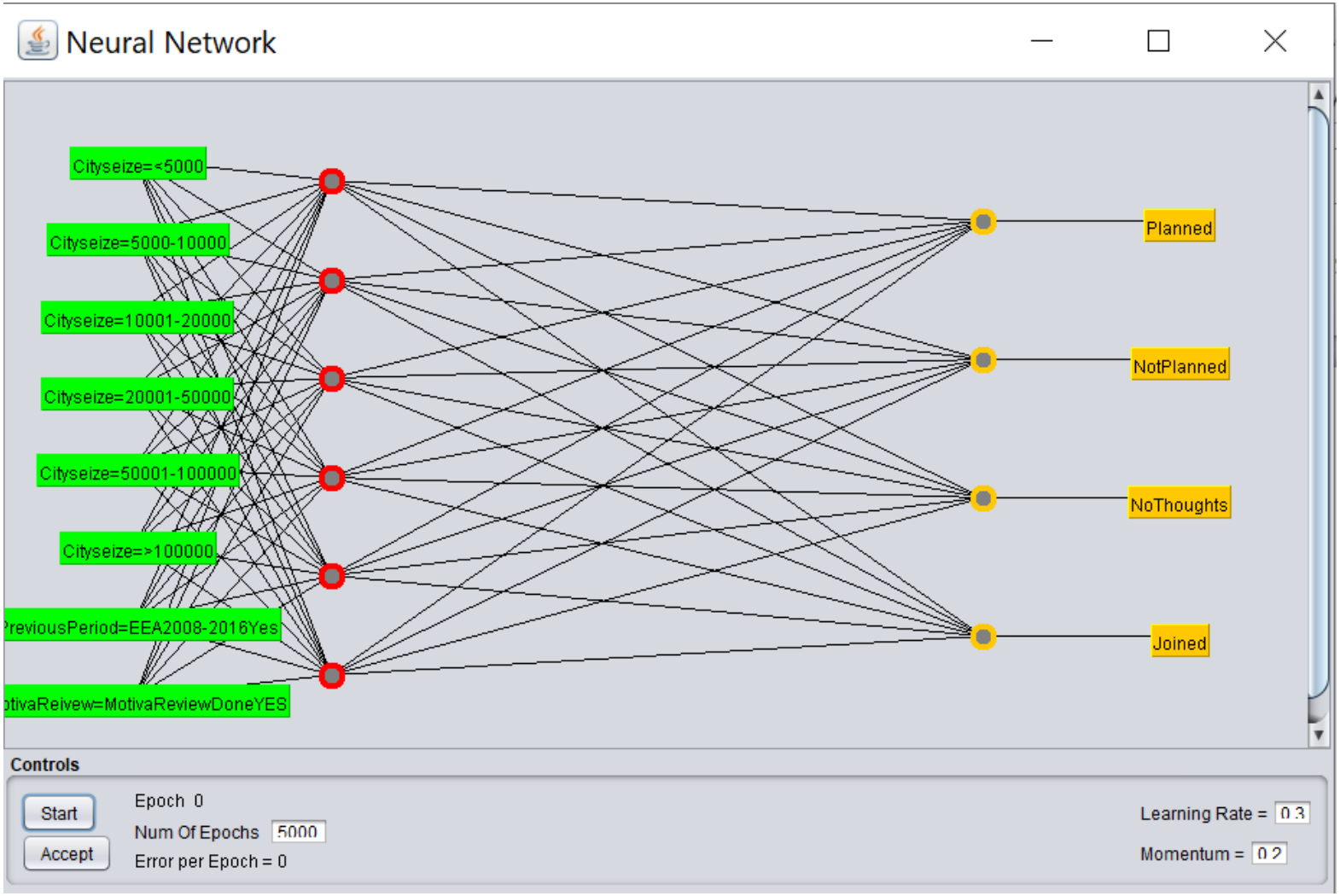
Is distribution of the opinions same between all the groups?

Kruskal-Wallis (α=0,05)

Sig. 0,153

YES!

Can we see to the future?



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Results of the prediction

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=== Confusion Matrix ===

  a   b   c   d   <-- classified as
  8   9   3   2 |   a = Planned
  9  11   4   2 |   b = NotPlanned
  4   4   8   5 |   c = NoThoughts
  4   2   9  18 |   d = Joined
```

22
26
21
33

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Conclusions?

- Focus is somewhere else than in energy efficiency issues
  - Indoor air challenges

- Not analysed yet
  - Maybe too much attention is put to the Payback time calculations (How about NPV?)
  - Price development of future energy is not taken account properly?

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You can contact

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