Designing the future of organizations: back-casting for sustainability

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What are back-casting scenarios?

- A methodology for defining normative visions of the future and pathways to reach them

- They represent:
  - A useful instrument for political decision-making (Vergragt & Quist, 2011)
  - Useful qualitative tool in going toward alternative futures in issues of climate change (Giddens, 2009)
  - Participatory versions ensure early commitment to goals and facilitate complex problem-solving.

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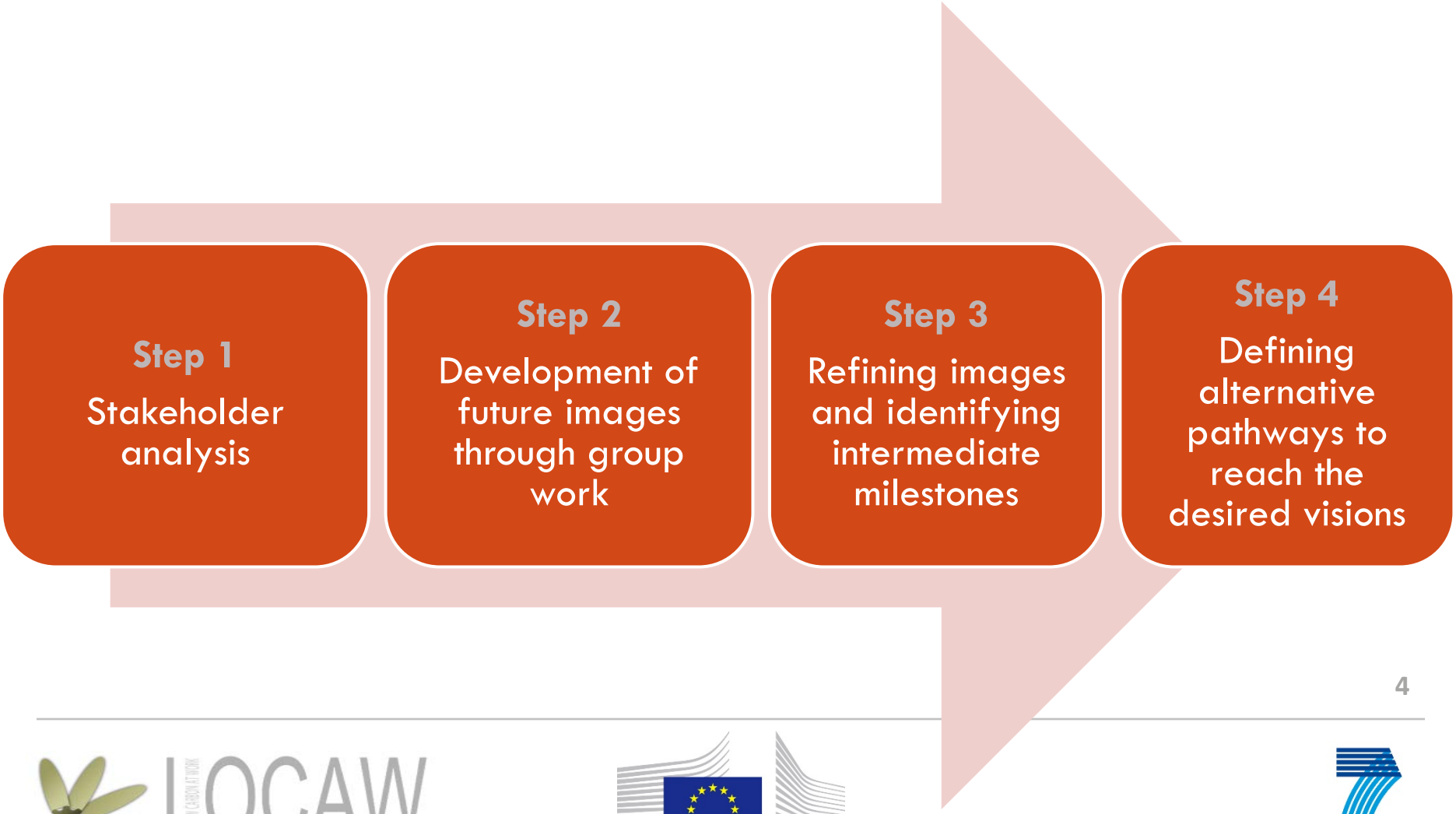
Back-casting scenarios in LOCAW

- Combination of stakeholder input and researcher support to generate the future images or desired end states
- A back-casting scenario approach that is process-oriented and participatory
- Involved members of each organization in several workshops in order to:
  - Create a future image and enrich it with the perspectives of different actors
  - Analyze it in terms of potential emissions´ reductions
  - Map the strategic pathways to reach them, identify major uncertainties and potential blockages
  - Simulate them in an agent-based model in order to assess the effective combinations.

Stages of back-casting



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Visions of the future: UDC

Conservative scenario	A down-scaled university	A virtual university
The university will remain in the same place and will use the same infrastructure with improved energy efficiency, waste management and sustainable mobility	The university will be taken to the city in the form of small multi-functional rooms in each neighborhood, as support for online teaching	There will be one or a few European universities using online teaching; learning is done at home using advanced technology

Visions of the future: EGP

Technology efficient EGP	Green office	Virtual office
- EGP will remain in the same place, but the infrastructure will be more efficient, due to important technological changes	EGP offices (small multi-functional offices) will be situated outside of the urban environment in green areas, close to workers residence. Only energy from renewable sources will be used and high recycling rates	The office is totally virtual – telecommuting. Only a small part of the work is done at home, using advanced technology and fast telecommunications

Key elements of the future visions

- University of A Coruña (Spain):
  - Key actor for sustainability education of workers and future generations
  - Significant reductions in car use and considerable support for sustainable options of transport
  - Energy self-sufficiency and obtained from renewable sources

- Enel Green Power (Italy)
  - Sustainability as a central part of company identity
  - Investing in cutting-edge innovation and use it as a market advantage
  - Training staff for lifestyle change
  - Economic investments in sustainability

Key elements of the future visions

- Aquatim (Romania):
  - Investing in recycling water and manufacturing it - innovations
  - Adopt sustainable mobility options as an integral part of the company strategy
  - Advance sustainability and safety objectives through the use of robotized maintenance and repairing systems

- Municipality of Groningen (The Netherlands)
  - Full reliance on renewable sources
  - Changes in human behavior to transform work-related mobility
  - Facilitate transference of practices from work to home

Pathways to a sustainable future

	UDC	Aquatim	Enel Green Power
2020	Coping with crisis – improving efficiency and car sharing	Improving existing installations and efficiency; assume larger community role	Forced frugality
2030	Strategic investments; sustainability education	Decided bet on renewables and company as frontrunner	Innovation laboratory
2040	Generational change; cheaper technology	High investments in technology improving safety and sustainability	Market roll-out of innovation
2050	New practices are implemented and become routine	Roll out of new technologies for water production	Radical changes in styles of working and office settings

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Pathways to a sustainable future

- For the municipality of Groningen, we used an approach based on theory-driven pathways for behavior change
- Strengthen biospheric values
  - People who endorse values beyond their immediate interest, are more likely to engage in pro-environmental behavior (Steg & De Groot, 2012)
  - Stable over time but accesible via situational cues
- Strengthen environmental self-identity
  - The extent to which a person sees herself as a person acting in pro-environmental ways (Van der Verff, Steg & Keiser, 2013)
  - Based on values and own previous behavior (either significant or repeated)
- Create autonomy of choice

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Conclusions

- Being a frontrunner and assuming the costs
- Assume the role of key actors beyond the workplace
- Training of staff as essential
- Combine objectives and both promote and adopt technological innovations

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