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# “FORESIGHT FOR SKILL NEEDS IDENTIFICATION: BASICS”

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Predicting Future Skill Needs, LMI for All Webinar Series,  
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of Warwick Institute for Employment Research (IER)

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# OUTLINE

Definitions and features

Main foresight stages

- > Pre-foresight
- > Recruitment
- > Generation
- > Action
- > Renewal

Further reading

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# DEFINITION(S)

“Foresight:

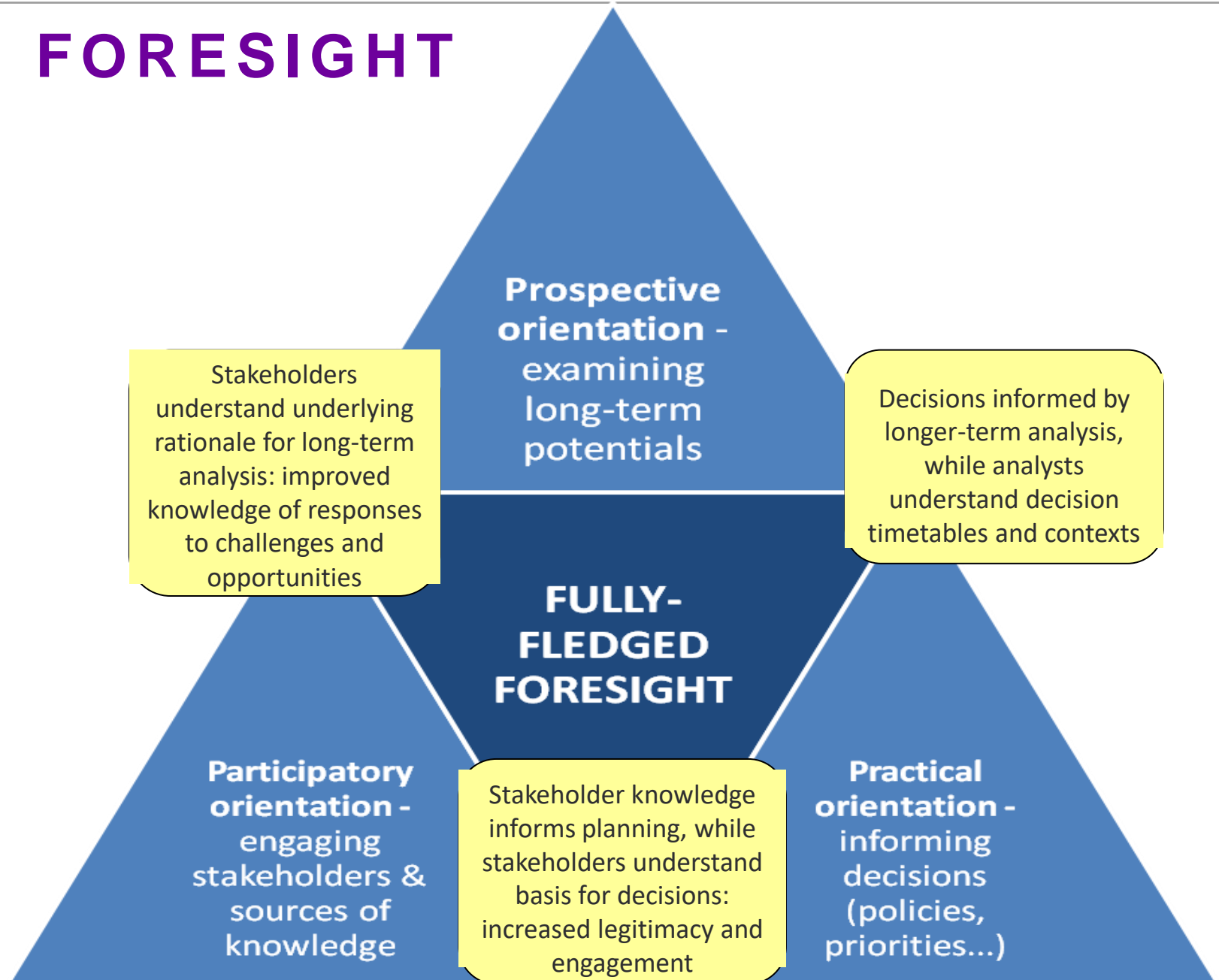
A process by which one comes to a **fuller understanding of the forces shaping the long-term future** which should be taken into account in policy formulation, planning and decision making ... includes **qualitative and quantitative means** for monitoring clues and indicators of **evolving trends** and developments and is best and most useful when **directly linked to the analysis of policy implications**.

Prepares us to meet the needs and opportunities of the future.

Foresight in government **cannot define policy, but it can help condition policies to be more appropriate, more flexible, and more robust** in their implementation, as times and circumstances change... It is not planning – merely a step in planning”

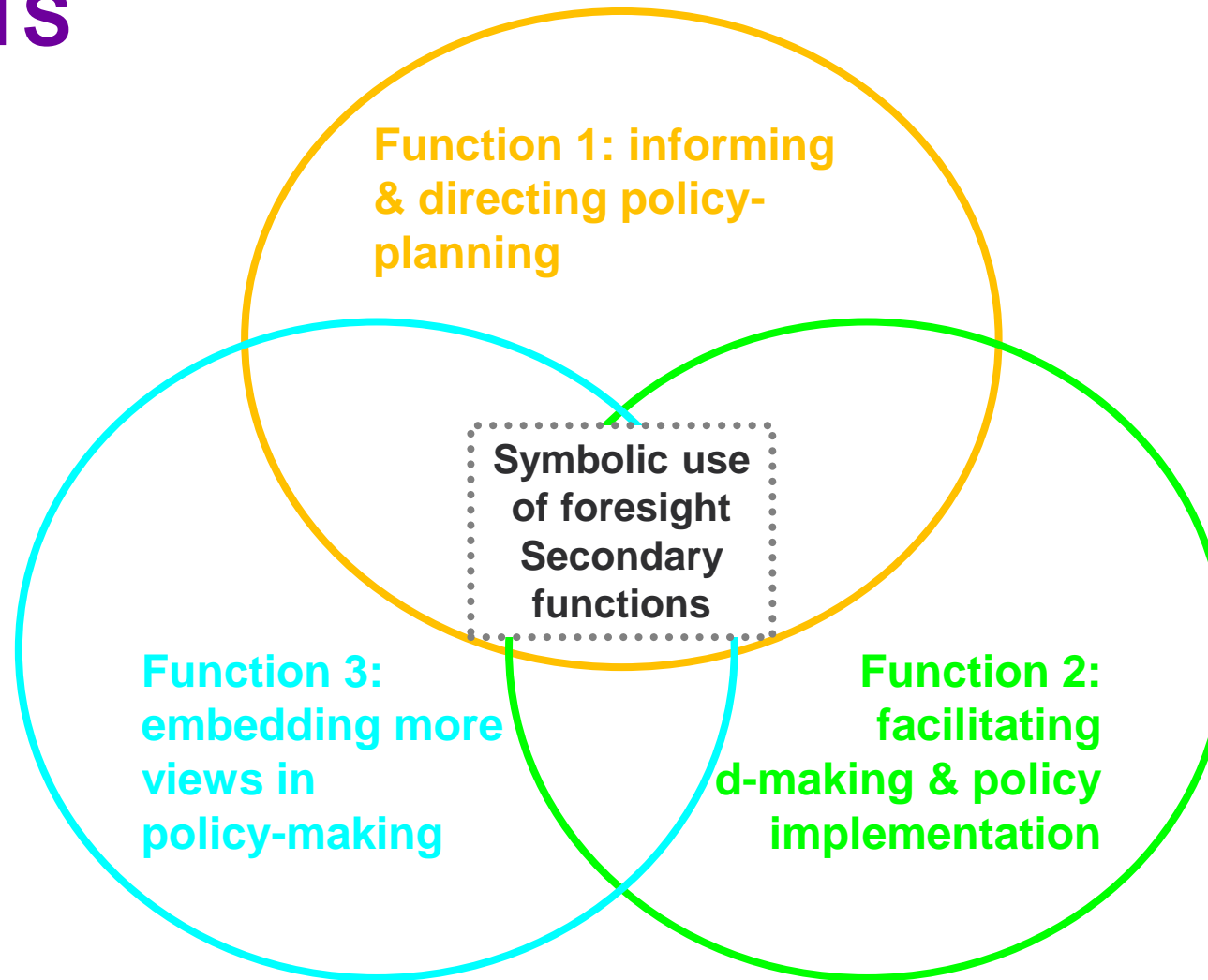
Joseph Coates (1985), “Foresight in Federal Government Policymaking.” Futures Research Quarterly 2, pp29-53

# FULLY-FLEDGED FORESIGHT



I.Miles Manchester Institute of Innovation Foresight Course 2016

# INTER-RELATION OF FORESIGHT FUNCTIONS



**WHY FORESIGHT?**



# Why foresight?

How would things change...

- If society was dominated by elders not having a 'healthy ageing'?
- When today's youngsters, 'networked', 'self-identified', 'sex-less' enter their 30s-40s?
- When tomorrow's youngsters discard today's 'givens'?
- If migrants were increasingly reshaping social fabrics and labour forces of the markets?
- If national cultures became multi-cultures?
- If global environmental concerns take over national interests?
- If AI penetrates all spheres of our lives?
- If learning from peers even with informal and uncertificated ways matters more for businesses than the formal qualifications?

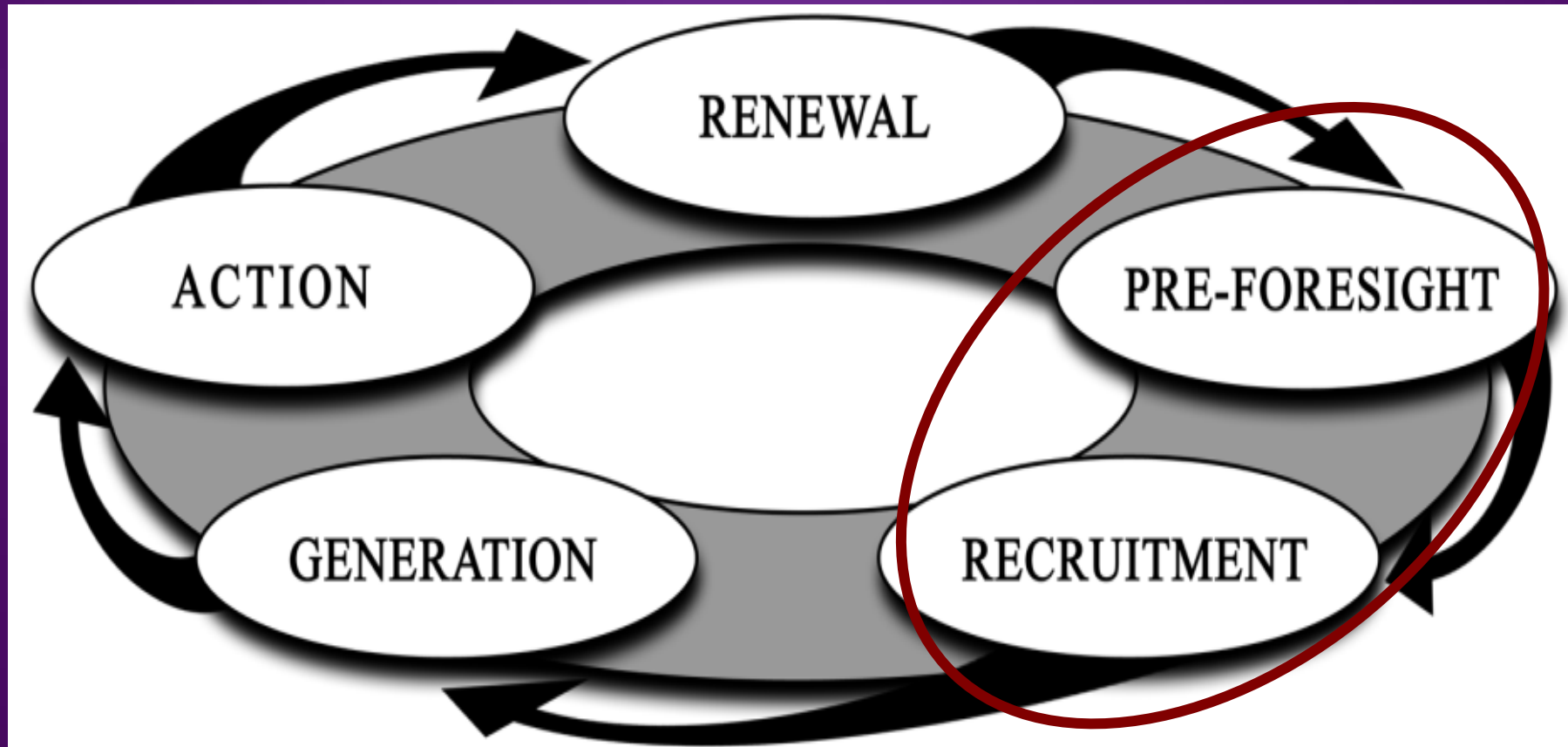
# Why foresight?

What would this mean for ...

- your legitimacy and ability / authority to take decisions and actions?
- competition, flexibility, collaboration in the markets?
- the education & training systems that strive to provide the skills and competences needed in a fast changing and uncertain world?
- education, labour, industrial, research and innovation, economic, environmental policies?
- Old and new education actors that may emerge?
- ...



## Foresight stages



# Recruitment stage – in what form?

Some common organisational forms:

- Project team, often using external help
- Steering committee
- Working groups and panels (thematic, sectoral, combined, other?)
- Meetings, workshops, conferences

Who to involve depends on scope of exercise but also socio-economic and political 'culture'

# Stakeholder identification

Who is interested?

who is influential?

Who has decision-making power?

who has legitimation to act?

Who has important knowledge?

Who is concerned?

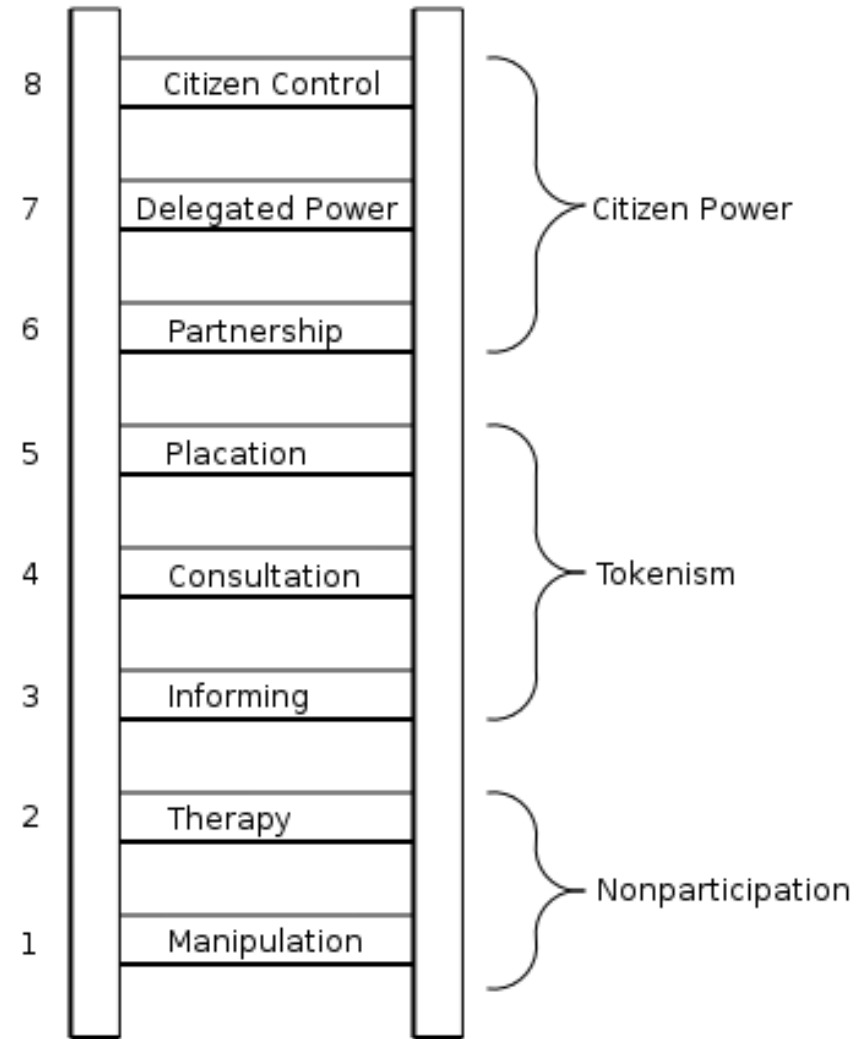
Who might be affected?

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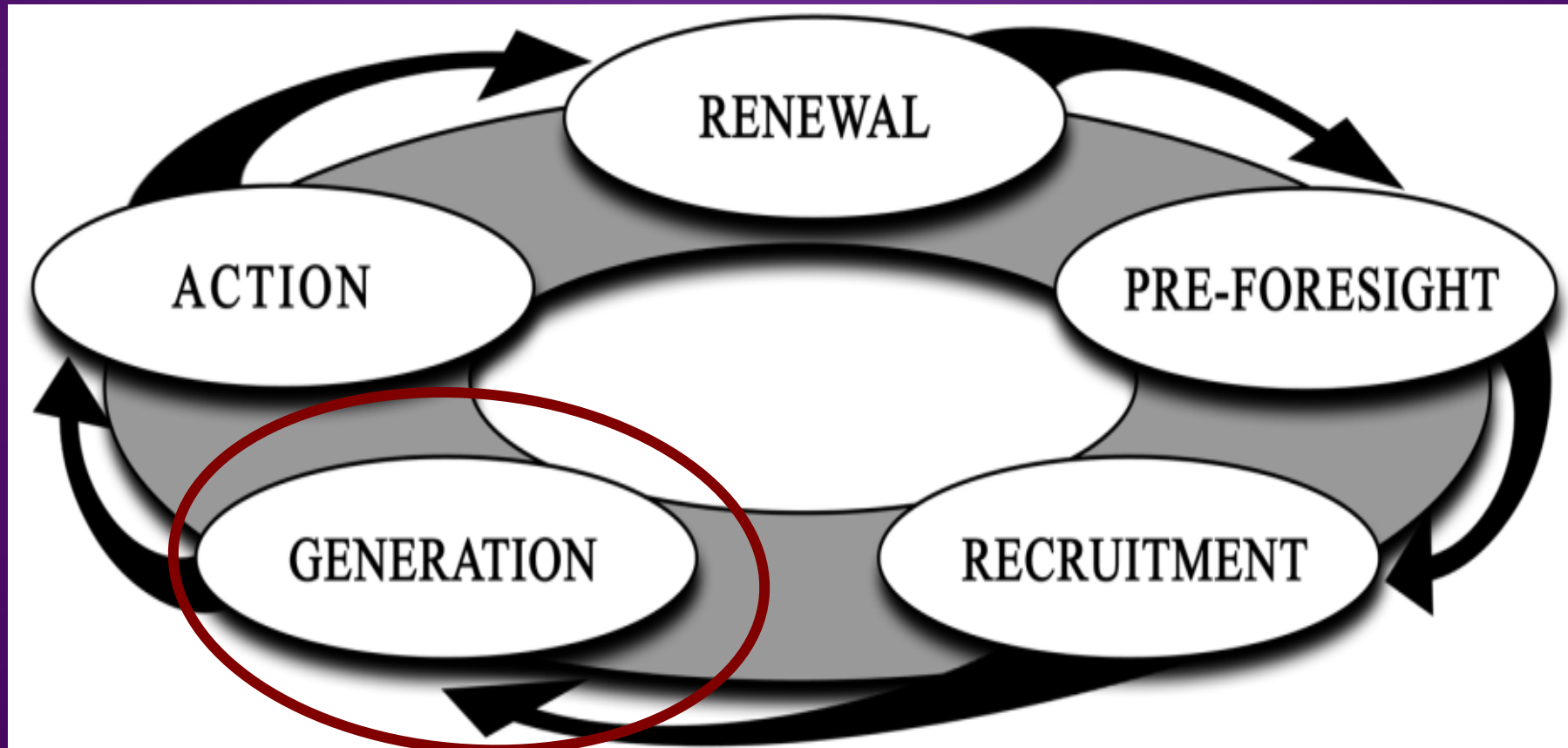
How will all these change in the future?

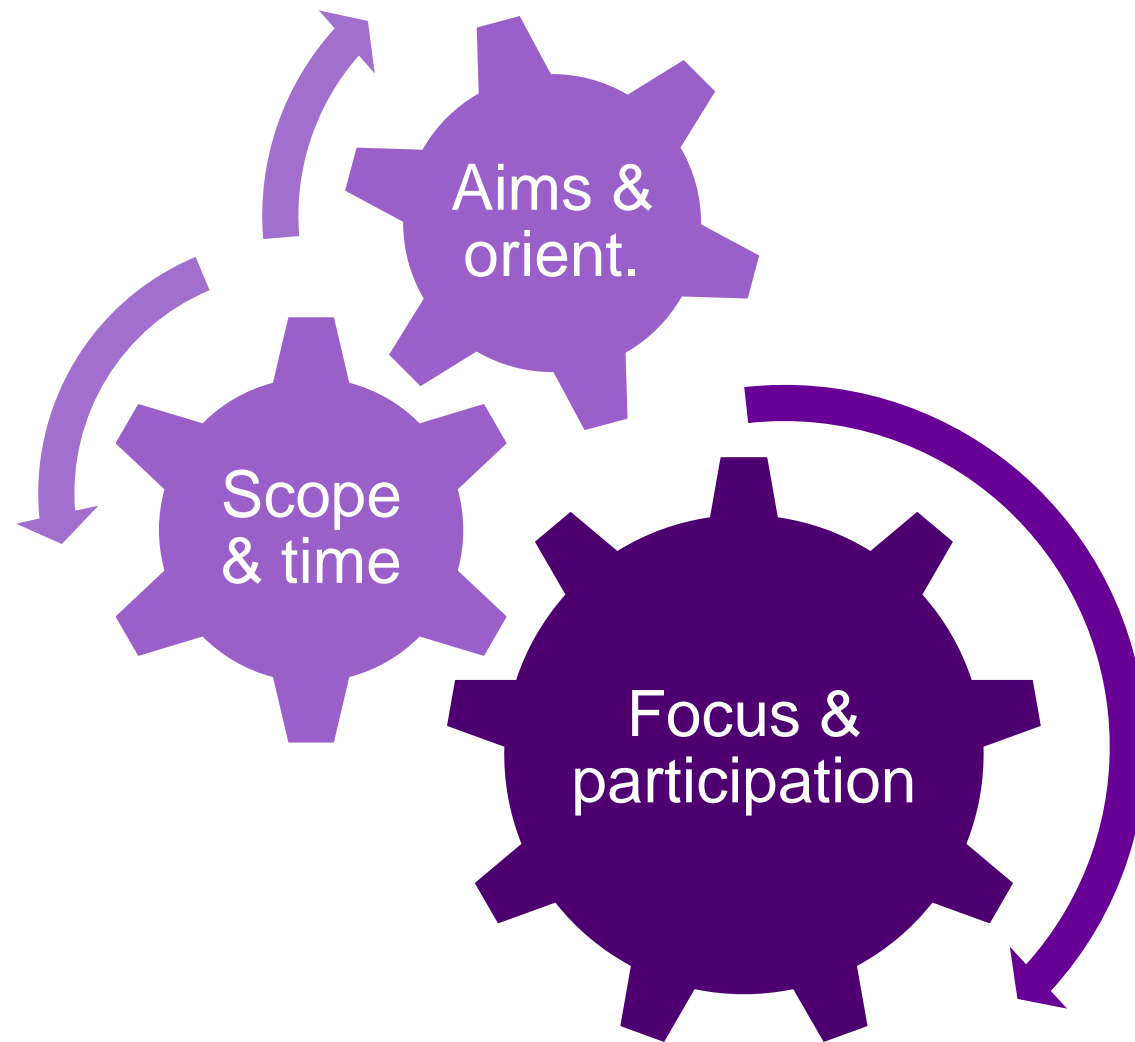
# Levels of stakeholder engagement – how?

Arnstein's ladder of citizen participation (1969)



## Foresight stages





# Intelligence – what to consider? How?

- Main trends and drivers
- STEEPV approach (social, scientific & technological, economic, environmental, policy and value-related)
- Quantitative and qualitative methods like HS, SNA, SWOT, literature reviews, data mining, statistics, document analysis, labour market and skills forecasts, etc. and combination mainly drawn on evidence

# Trends and Drivers

- Trend is a **general tendency or direction** of a development or change over time. It can be called a megatrend if it occurs at global or large scale. A trend may be strong or weak, increasing, decreasing or stable. There is no guarantee that a trend observed in the past will continue in the future.
- Drivers are defined as **developments causing change**, affecting or shaping the future. A driver is the cause of one or more effects, e.g. increasing sugar intake in our daily food consumption is a driver for obesity.



# Example of driver of occupational change

- employment growth can be explained by three possible drivers: (a) overall trends of the economy (i.e. growth or decline), (b) shifts of employment between sectors and (c) changes in the occupational structure within sectors (i.e. factors making some occupations more important/ others)

# Megatrends,

[https://www.youtube.com/watch?time\\_continue=83&v=V6sEDtTOzW8](https://www.youtube.com/watch?time_continue=83&v=V6sEDtTOzW8)

- Climate Change and resource scarcity
- Political activism, changing social norms
- Demographic changes – aging
- Changing work/employment attitudes
- Urbanisation – increasing / decreasing cities
- Digitisation – Industry 4.0; 5G
- Global economic volatility, shifts in global economic powers
- Turbulences in society, technology, economy, environment, and policy

# The STEEPV approach

Social	e.g. ways of life (e.g. use of leisure time, family living patterns), demographic structures, social inclusion and cohesion issues, etc.
Technological	e.g. rates of technological progress, problems and risks associated with technology
Economic	e.g. economic growth, competition and competitiveness, markets and financial issues, etc.
Environmental	e.g. issues about sustainability and climate change, pollution, resource depletion, etc.
Political	e.g. political viewpoints, political (in)stability, regulatory roles and actions of governments, pressure groups, paramilitaries, etc.
Values	e.g. attitudes to working life (e.g. entrepreneurialism) demands for mobility preferences for leisure, culture, social relations, etc.

# Wild cards, black swans and tipping points

<http://wiwe.iknowfutures.eu/what-is-a-wild-card/>

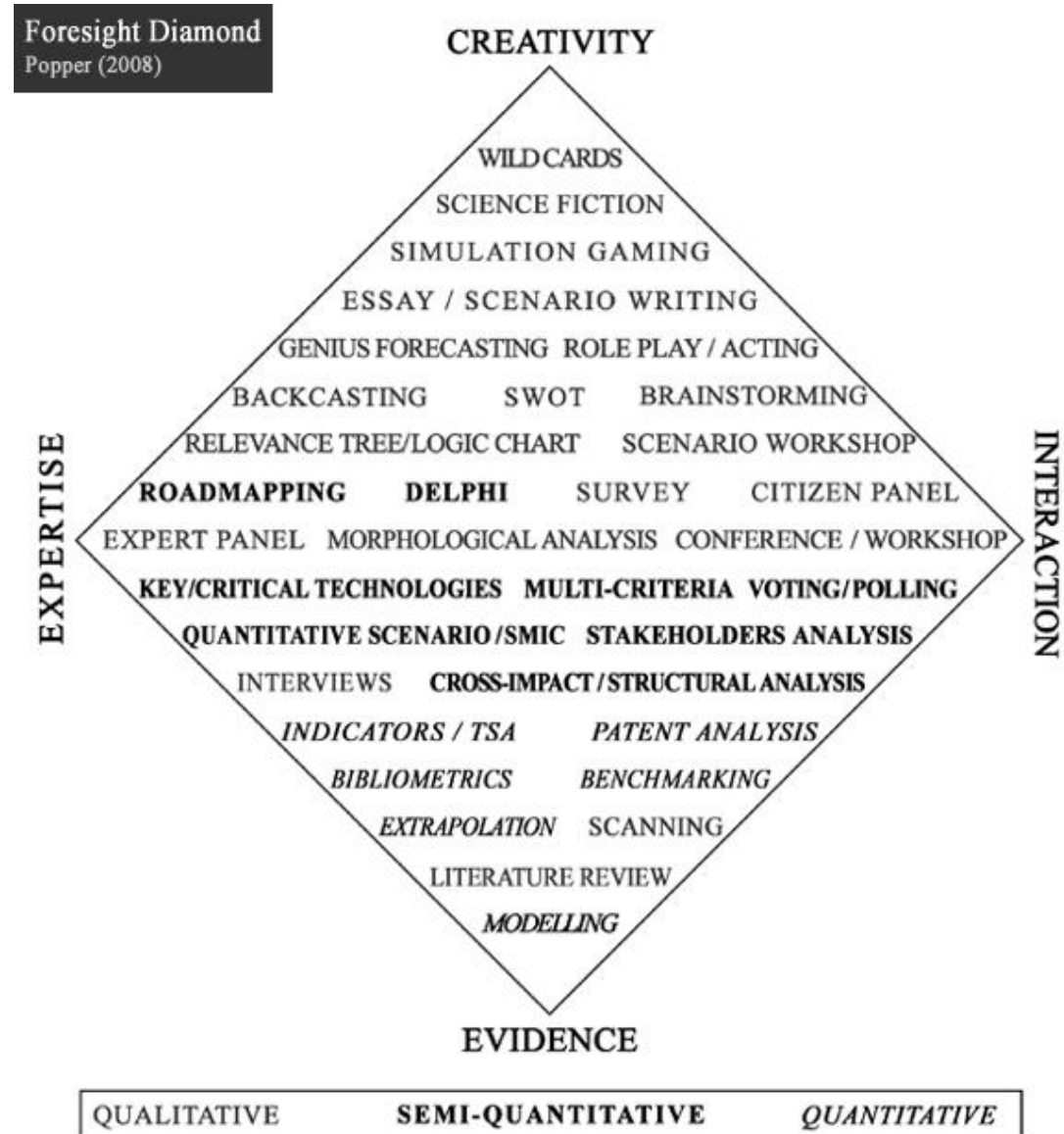
Low probability, high impact events that, were they to occur, would severely impact the human condition

- Human-caused (9-11, fall of Berlin Wall, economic crises, etc.)
- Nature-caused (meteors, tsunamis, volcanic eruptions, extreme floods and earthquakes, etc.)

# How to bundle existing knowledge? How to produce new knowledge?

Methods should not draw only on capturing expertise and evidence but should also facilitate creativity and interaction to build collective intelligence

Methods should reflect level and type of engagement



# Foresight methods & suitability for skills identification

Method	Type	Country examples*	Suitability for skill needs anticipation**	Usually used together with	Important features of method
Backcasting	Normative	–	+++	Literature and statistics review	Provides a clear path forward
Brainstorming	Supplementary	Japan, the US	++++	Expert panel, Delphi method	Can reveal unexpected developments
Cross-impact analysis	Exploratory	–	++	Literature and statistics review, Delphi method	Evaluates the probabilities of the occurrence of a set of events
Delphi method	Exploratory	Brazil, Germany, Finland, Japan, Korea	+++++	Literature and statistics review, brainstorming, scenarios	Good for spotting the unexpected, and for engagement of stakeholders

# Foresight methods & suitability for skills identification

Expert panel	Exploratory	Brazil, Canada, Germany, Finland, Japan, Korea	+++++	Scenarios, brainstorming, SWOT analysis	Eliciting expert knowledge, helping to identify priorities
Focus group	Supplementary	–	++++	Scenarios	Improving or generating ideas
Horizon scanning	Exploratory	the UK	+++	Scenarios	Identifying future challenges and trends
Literature and statistics review	Supplementary	Korea	++++	Scenarios, backcasting, Delphi method	Evidence-based
Morphological analysis	Normative	–	++	Scenarios	Breaks down a system and identifies important factors

# Foresight methods & suitability for skills identification

Scenarios	Exploratory	Brazil, Germany, Japan, Korea, the UK	+++++	Literature and statistics review, SWOT analysis, science and technology roadmapping	Good for spotting the unexpected, and for engagement of stakeholders
S&T roadmapping	Normative	Russia	+++	Scenarios, brainstorming, expert panel	Provides a clear path forward
SWOT analysis	Supplementary	-	++++	Scenarios, expert panel, Delphi method	Lists factors with impact on issue

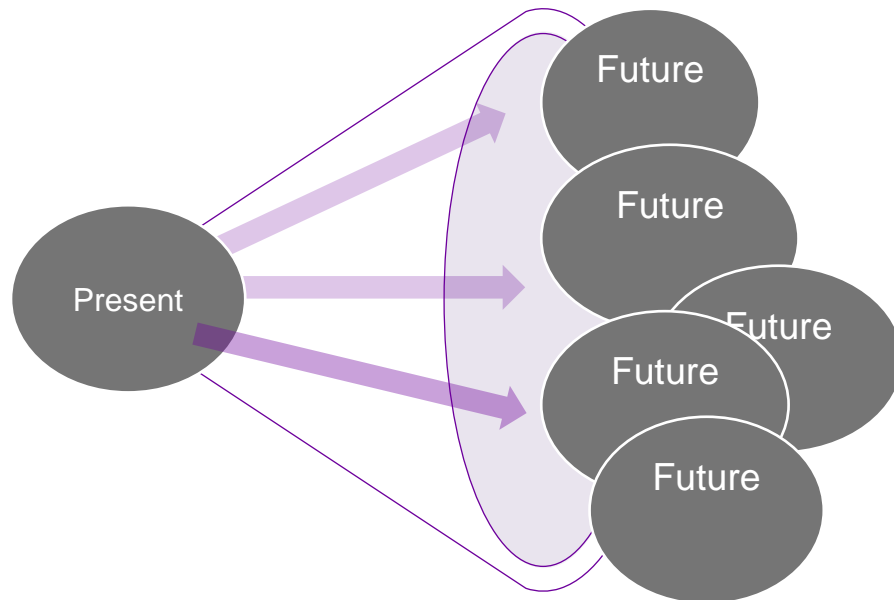


# SCENARIO DEVELOPMENT

The background features a complex, abstract geometric pattern of white lines on a purple field. The pattern consists of numerous overlapping, nested shapes that resemble stylized chevrons or zig-zags, creating a sense of depth and movement. The lines are thin and white, contrasting sharply with the deep purple background. The overall effect is a dynamic, almost crystalline structure that fills the right and bottom portions of the frame.

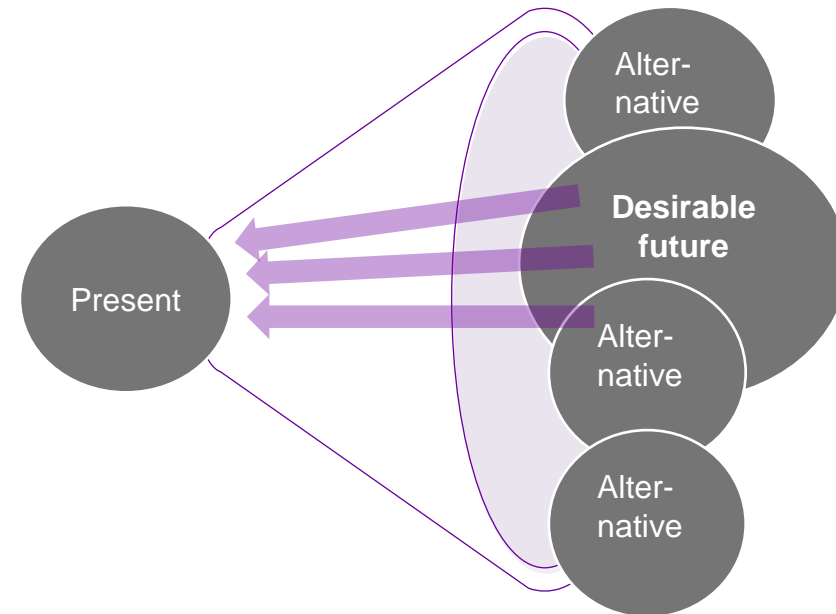
# Explorative and normative approaches

## Explorative: present as starting point



- **What if the futures become reality?**
- methodologies: Trend-Analysis, Cross-Impact-Analysis, Delphi, Scenarios
- Aiming at identification of a probable future

## Normative: future as starting



- **Which actions in the present are required to allow a desirable future?**
- methodologies: Visioning; Scenario construction & assessment;

# Scenario Fundamentals

Why scenarios?

- To provide a **novel basis** for sharing knowledge and ideas, developing **common visions and shared understandings**.
- To demonstrate **implications of assumptions and/or trends** elaborated into future.
- To illustrate **alternatives**, indicate a range of plausible developments (not one inevitable future path).
- To help **identify turning points, key decisions**, indicators, early warnings of change.
- To help **identify goals and set targets**; to explore actions and instruments, to build a **roadmap**.

# Scenario Fundamentals

How are scenarios constructed

- Deskwork
- Expert groups
- Surveys
- Utilising simulation models, gaming, etc.
- Scenario workshops

# Scenario development approaches

- The driver-driven 2\*2 approach
- The archetype scenario approach
- The success scenario approach
- The profile-based approach
- ....

(\*) Based on Chapter 4 in 2014 MloIR Foresight Course Workbook,  
<http://www.research.mbs.ac.uk/innovation/Study/Professional-Development-Short-courses/Foresight-exploring-the-future-shaping-the-present>

# INTERPRETATION & ANALYSIS

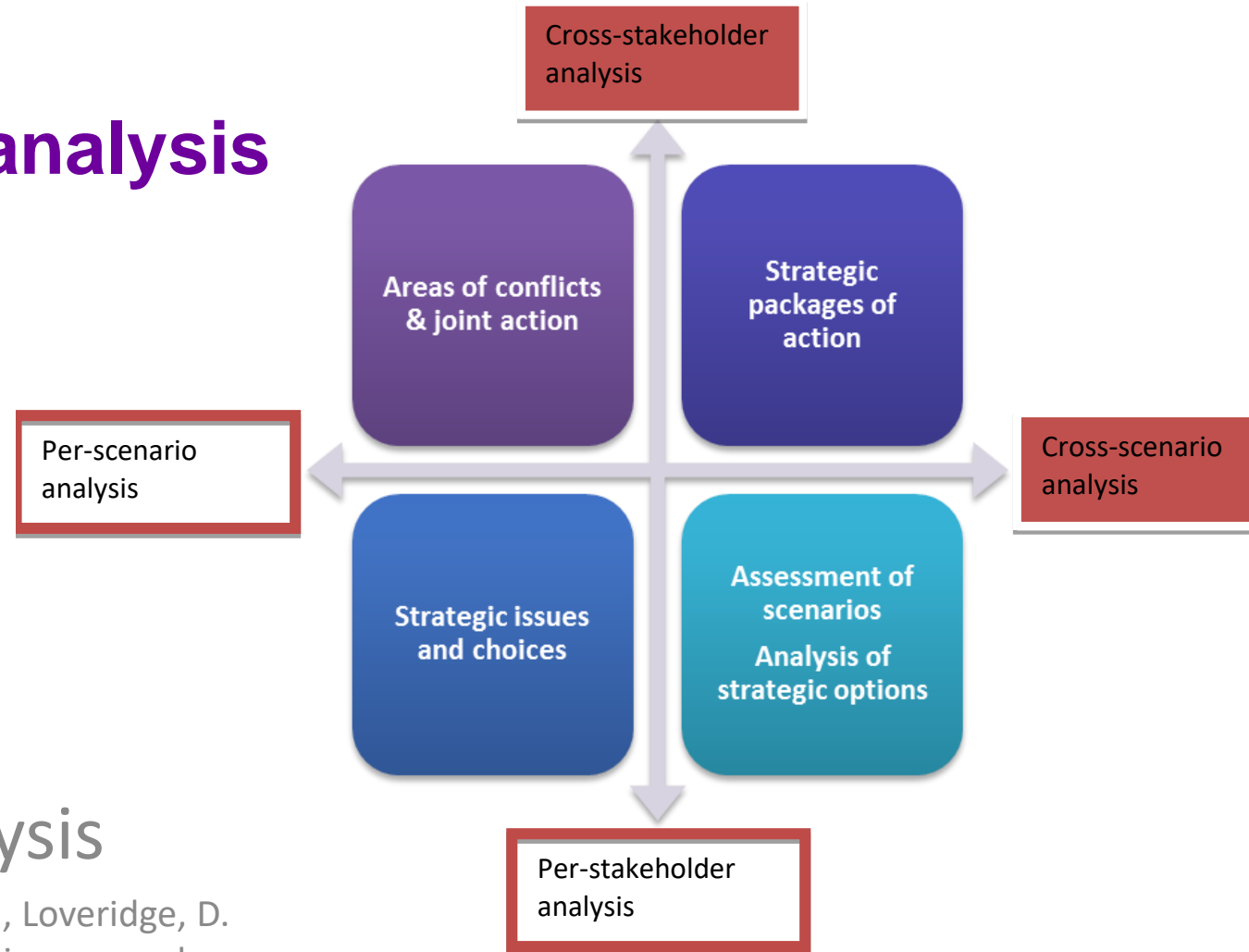


# Scenario analysis

- How might we know if this scenario is emerging?
- What would be leading **indicators**? What should we be monitoring?
- Undertake **comparison** of the different scenarios
- Are there issues, strategies, etc. that apply **across all or many** of these?  
Main **differences**?
- What are the **roles** of the different actors/stakeholders in each and across the scenarios?
- What do they need to **do in each and across** them? What does this tell us?
- What are the **implications and consequent actions**? Who-what-when-how? **Priorities**?

Figure 1: Stakeholder and scenario analysis carried out for Deliverable 4.3

# Scenario analysis



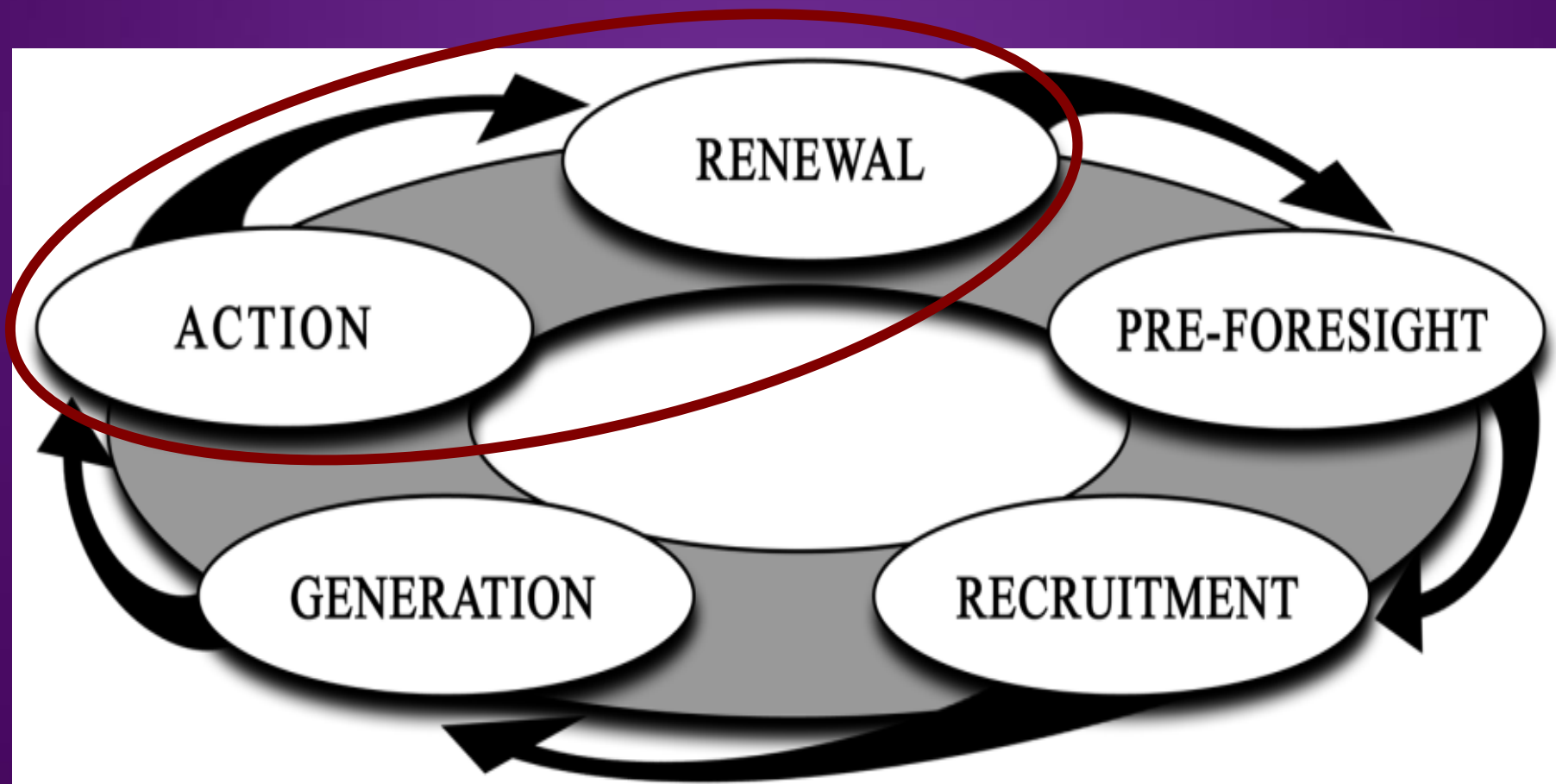
RIF2030

## scenario analysis

(Amanatidou, E., Saritas, O., Loveridge, D. (2016) Strategies for emerging research and innovation futures. foresight, 18(3) pp. 253-275)



## Foresight stages



# Check out points ... (Y/N)

1. What is foresight vis a vis skills forecasting? (complementary? substituting? providing context? Other?)
2. Can foresight show the future? predict the future?
3. Can foresight convince policy-makers they should change course?
4. Does foresight tell universities what skills they should be teaching?
5. Can foresight show businesses their future?
6. Can it guide young people on what skills they should be getting?
7. Can it guide education institutions on what their future strategies should be oriented to?
8. Does foresight tell people how future technologies will affect their lives?

....

What do you think?

# Further reading

- [Prospective Report on the Future of Non-Formal and Informal Learning: Towards Lifelong and Life-wide Learning Ecosystems](#)
- [Future of Green skills and jobs in Europe in 2050](#)
- Amanatidou, E., Saritas, O., Loveridge, D. (2016) Strategies for emerging research and innovation futures. foresight, 18(3) pp. 253-275.
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- Amanatidou, E., (2016) Foresight process impacts: beyond any official targets, foresight is bound to serve democracy. Futures. 85, pp. 1-13. Available online 10 November 2016. DOI: 10.1016/j.futures.2016.11.003
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- Georghiou, L., Cassingena Harper, J., Keenan, M., Miles, I. and Popper, R. (eds) (2008). The Handbook of Technology Foresight. Cheltenham, UK and Northampton, MA, USA: Edward Elgar
- Loveridge, D. (2002). The STEEPV acronym and process – a clarification, Ideas in Progress, Paper no. 29 (Available at: [https://php.portals.mbs.ac.uk/Portals/49/docs/dloveridge/steepv\\_wp29.PDF](https://php.portals.mbs.ac.uk/Portals/49/docs/dloveridge/steepv_wp29.PDF), accessed on: 14.01.2016).
- Miles, I. (2010), “The Development of Technology Foresight: A Review”. Technological Forecasting and Social Change Vol 77 issue 9 pp1448-1456
- CEDFOP, (2016), Developing skills foresights, scenarios and forecasts (Guide to anticipating and matching skills and jobs VOLUME 2). Thessaloniki, CEDEFOP available at <http://www.cedefop.europa.eu/en/publications-and-resources/publications/2216>

# QUESTIONS

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# EXECUTIVE COURSE ON FORESIGHT

- > A regular annual course until 2022
- > Should be re-organized soon



# THANK YOU

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