



How Should We Design Foresight

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- **History of S&T policy and Foresight**

2. *How should we design of future*

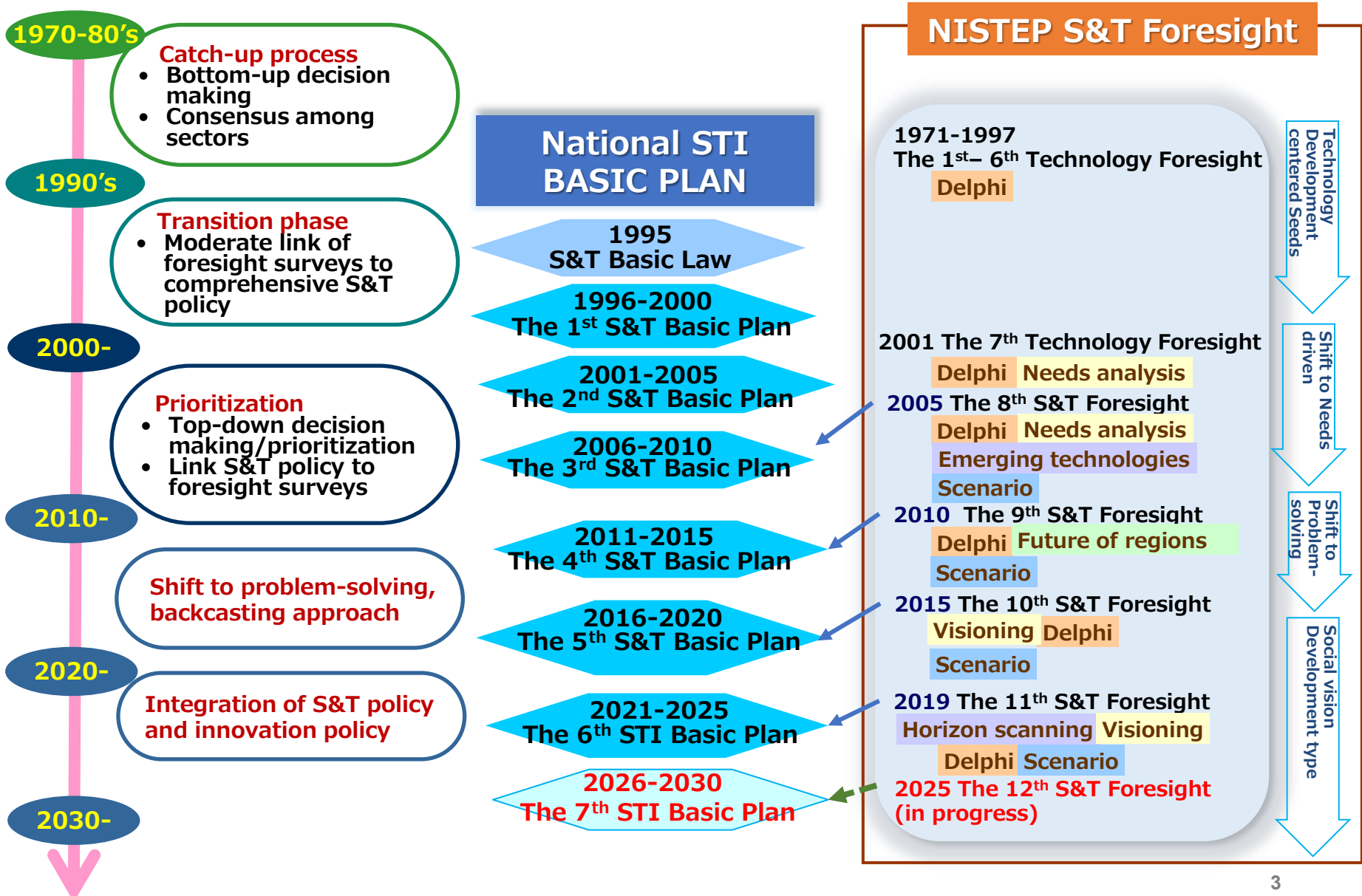
- **S&T Foresight in Japan by NISTEP**
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1. History of S&T Policy and Foresight

- **History of S&T policy and Foresight**

History of S&T policy and S&T Foresight in Japan by NISTEP



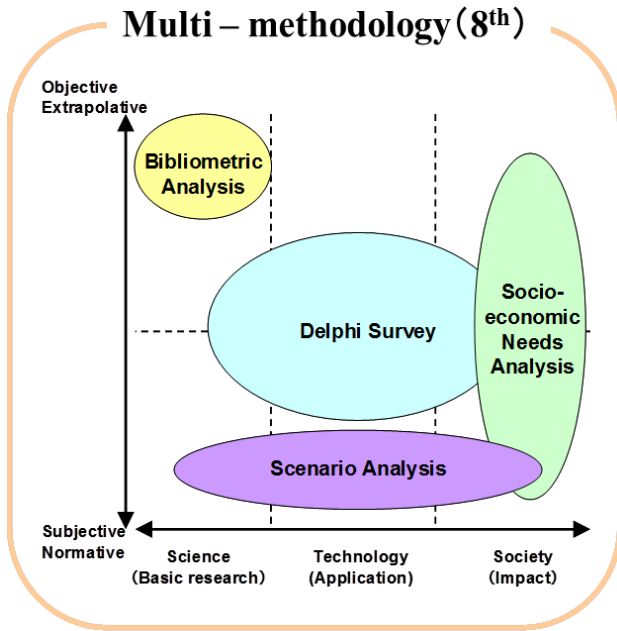
2. How should we design of future

- **S&T Foresight Design in Japan by NISTEP**

S&T Foresight Design in Japan by NISTEP

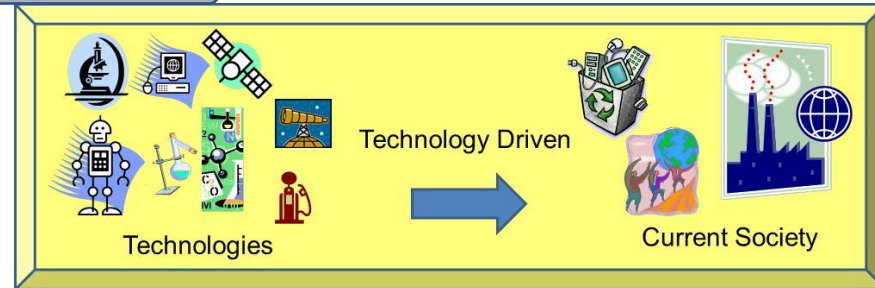
- The future design has been changing continuously

Delphi survey (1st to 7th)



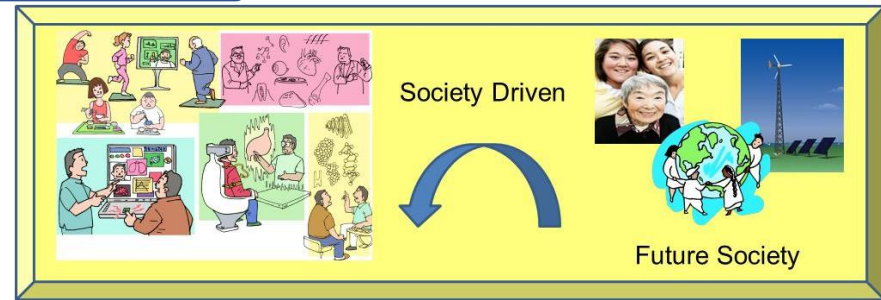
8th Foresight Survey

~ 2007



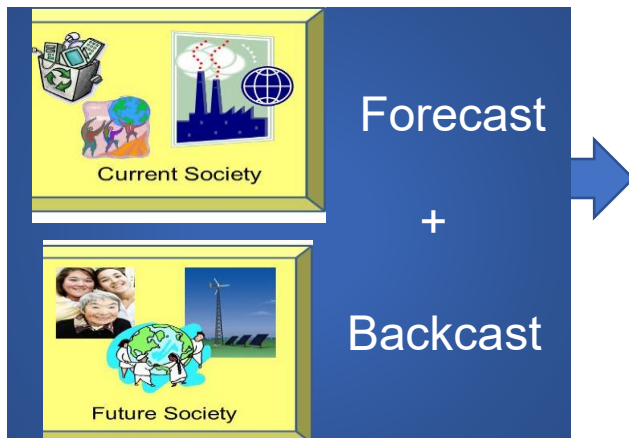
9th Foresight Survey

2007 ~

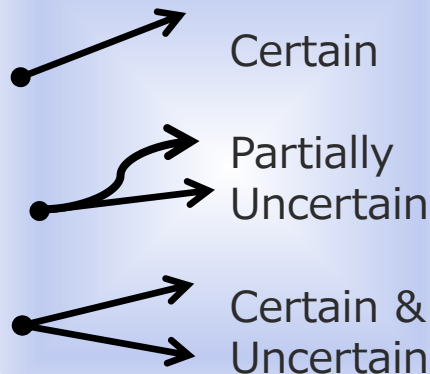


10th Foresight Survey

2014 ~



2010 - 2050

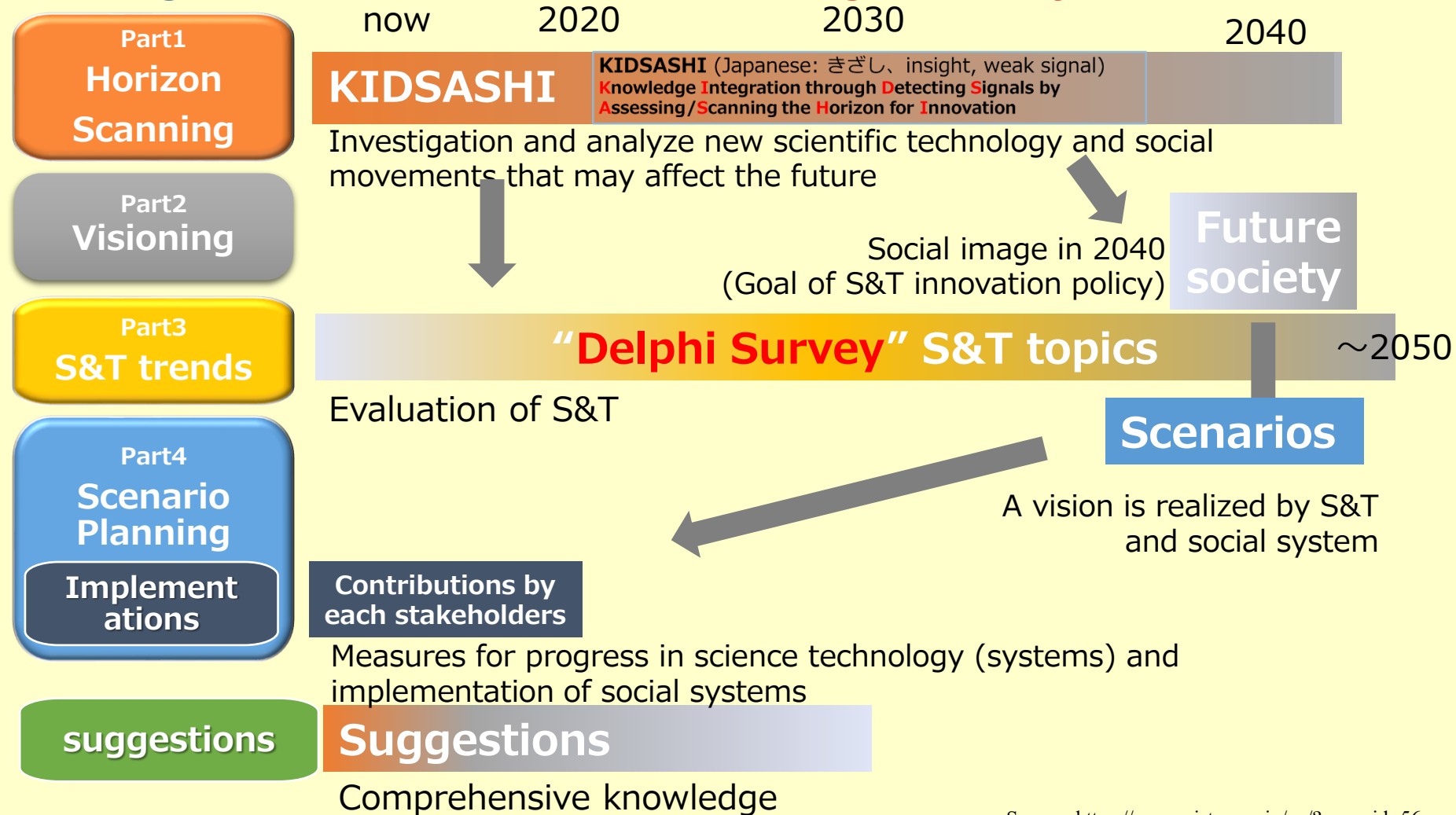


What happened of

- future problem?
- key to different way?
- priority? etc.

What can/should we do from now?

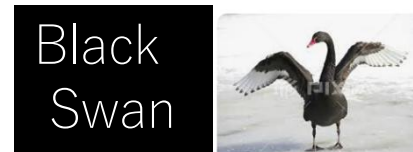
Design and time frame of the **Foresight Survey** since 2018



Source: https://www.nistep.go.jp/en/?page_id=56



How to respond when **sudden natural disasters** such as major earthquakes or global pandemics occur



Potential Black Swan Events to Consider

想定すべきブラックスワン事象

1. Technological Disruptions 技術革新による大変動

AI, quantum technology, energy transition, etc.

AI、量子技術、エネルギー転換など

2. Environmental Catastrophes 環境・気候の大規模災害

Climate change, resource depletion, ecosystem collapse, etc.

気候変動、資源枯渇、生態系崩壊など

3. Social, Political, and Economic Upheavals 社会・政治・経済の激変

Geopolitical conflicts, economic crises, widening disparities, etc.

地政学的対立、経済危機、格差拡大など

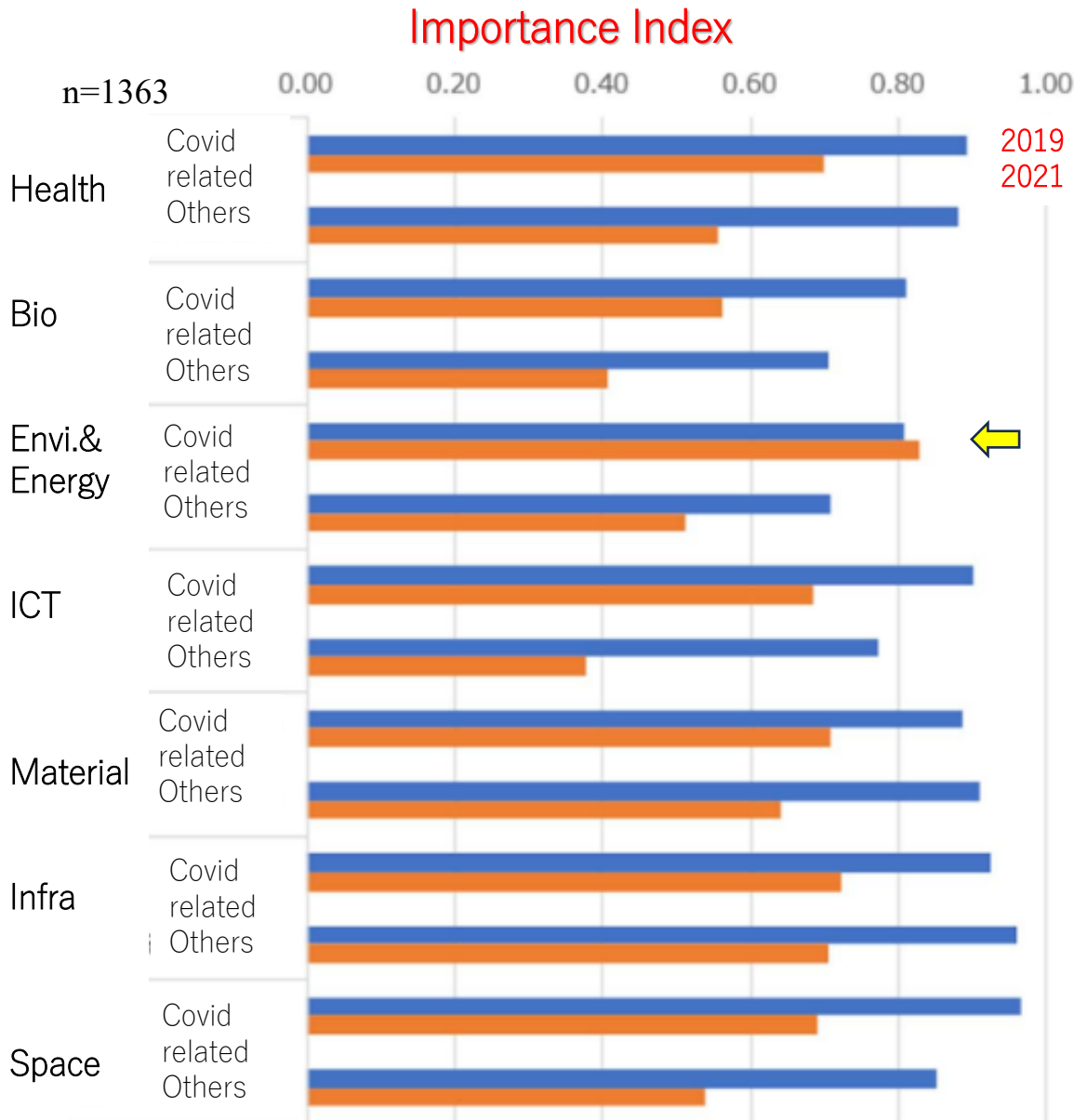
4. Scientific and Philosophical Paradigm Shifts 科学的・哲学的パラダイム転換

Changes in views on humanity, knowledge, and ethics, etc.

人間観・知識観・倫理観の変化など

Results of Delphi survey before/after COVID-19 pandemic

Q: Has your response changed after experiencing of pandemic?

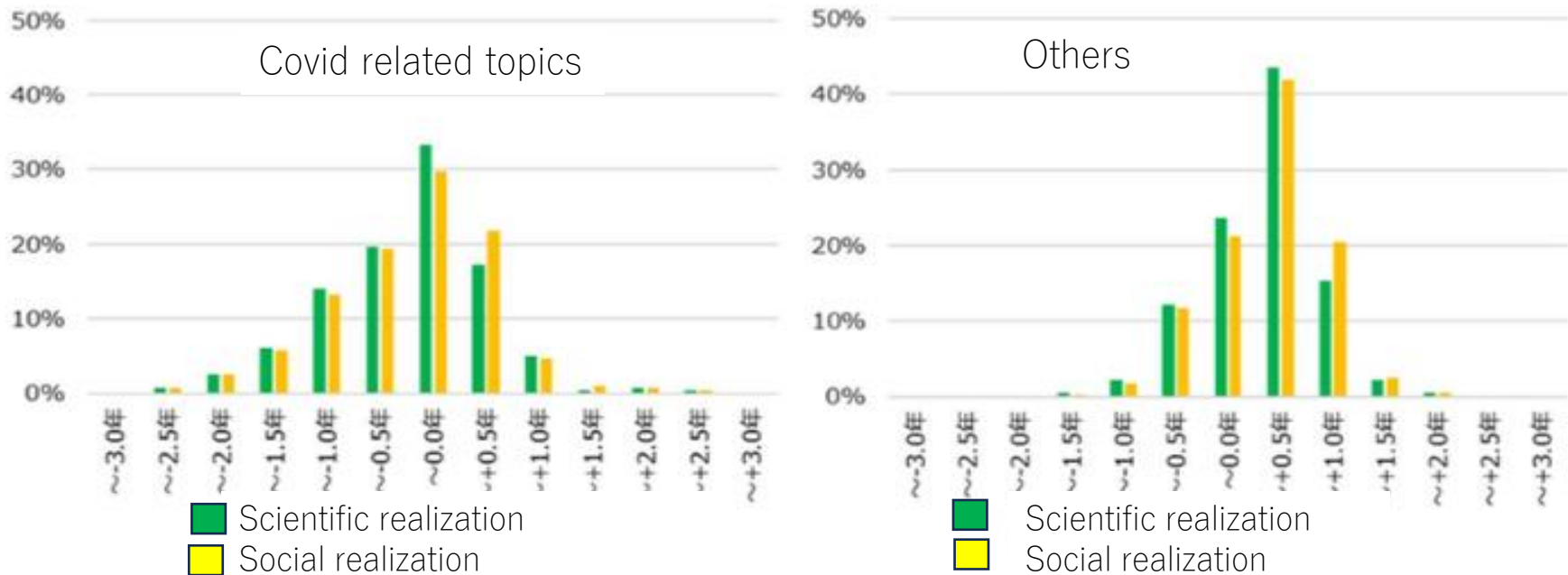


* Since these results represent the average values for each area, please note that there are significant differences in the amount of change when focusing on each topic.

- ✓ While **not directly related** to the COVID-19 pandemic, the importance of topics concerning **disaster response, information security, digitalization, and resource circulation** has increased following the pandemic.

Results of Delphi survey before/after COVID-19 pandemic

Q: Changes in realization timing year before/after the Pandemic?



- Topics related to society are more important compared to others and may be realized sooner.
- This trend is particularly pronounced in topics related to health crisis management, automation, and online work/workstyles.
- Some topics related to energy conversion, frontiers such as space and the deep sea, high-performance materials, and measurement may experience delayed realization.

Realization year

- ✓ related to COVID-19 showed realization will be earlier.
- ✓ delay → energy conversion, space and deep sea, high-performance materials, and measurement.

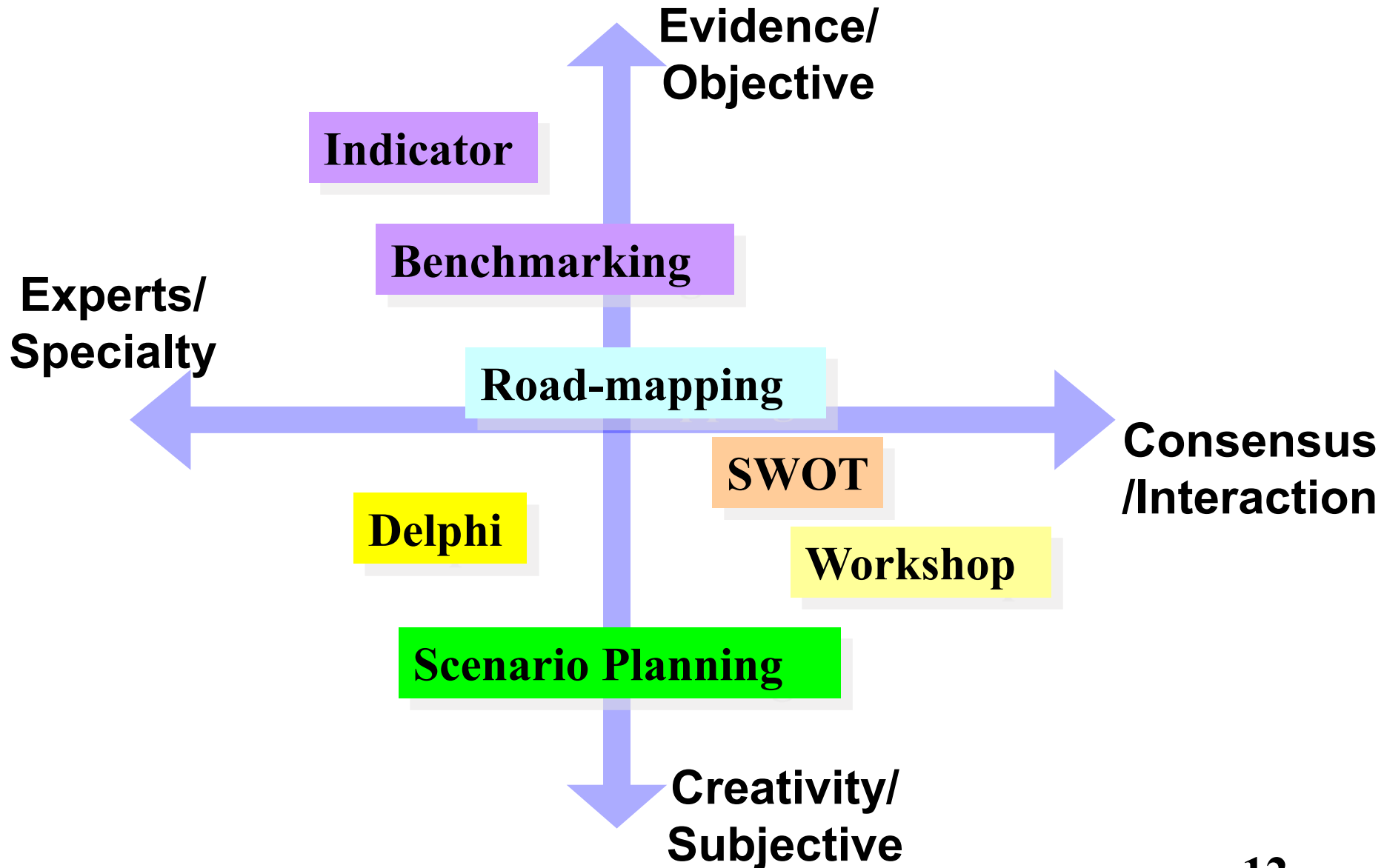
3. Conclusion

How to Design for a Black Swan Future

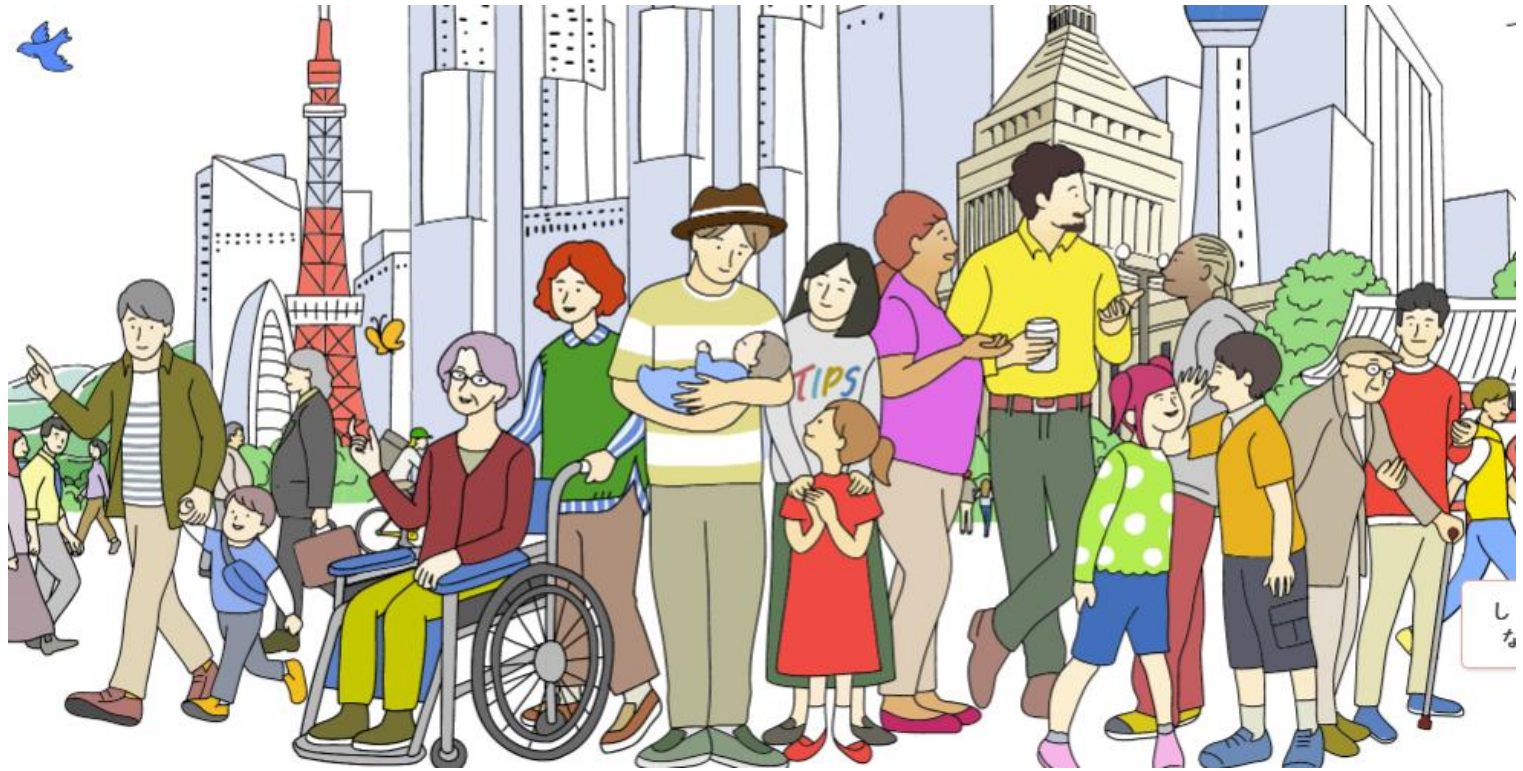
ブラックスワン時代に備えた未来設計の方法

- ✓ **Embrace Uncertainty** 不確実性を受け入れる
- ✓ **Build Adaptive Systems**
変化に柔軟に対応できるシステムを構築
Build systems that adapt flexibly to change
- ✓ **Encourage Interdisciplinary Thinking**
分野横断的な思考を奨励する
Encourage cross-disciplinary thinking
- ✓ **Invest in Resilience, Not Just Efficiency**
効率性だけでなく「しなやかな回復力(レジリエンス)」に投資する
Invest not only in efficiency but also in “resilient flexibility”
- ✓ **Foster Creative Foresight** 創造的な未来洞察を育む
Cultivate creative future insights

Methods Categorization



Thank you for your kind attention



Let's build a better future together