

Cage or catapult?

The importance of institutional factors in shaping public perception



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Content



The concept of path dependency & “lock-in”



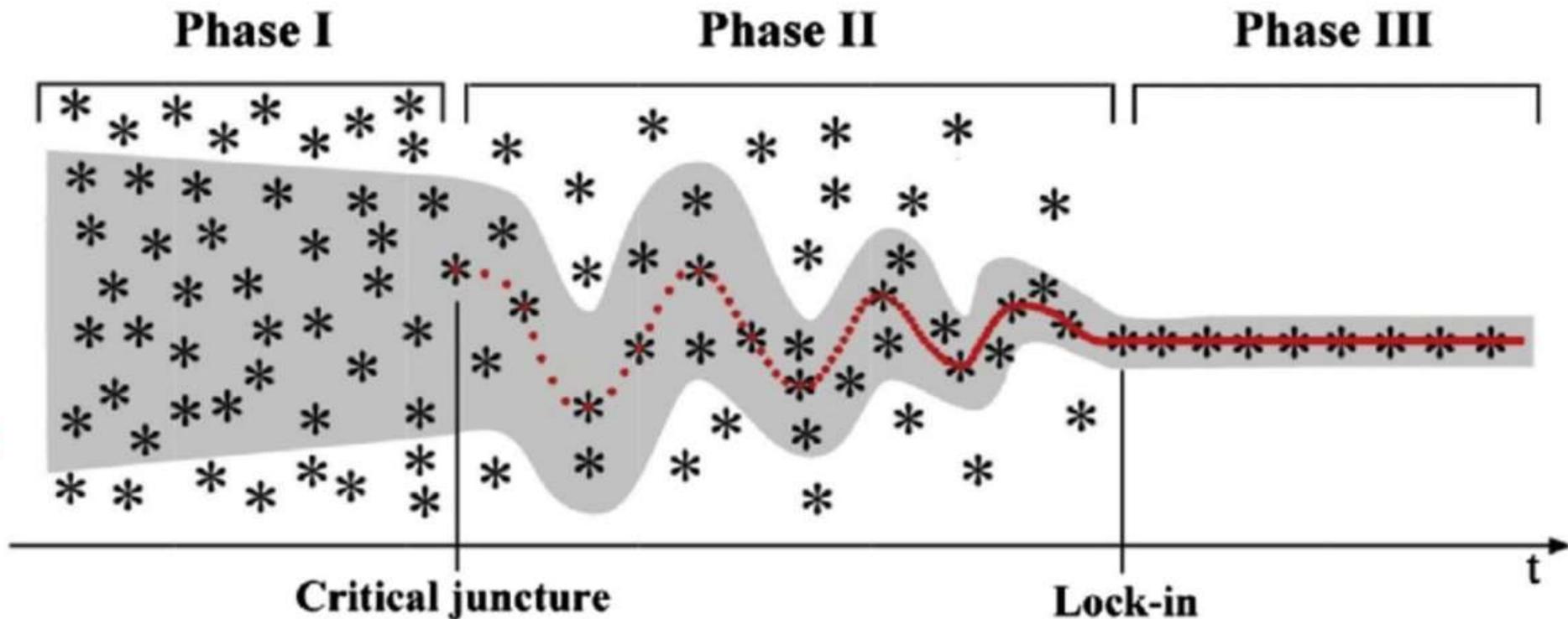
Institutional innovation: achieving harmony



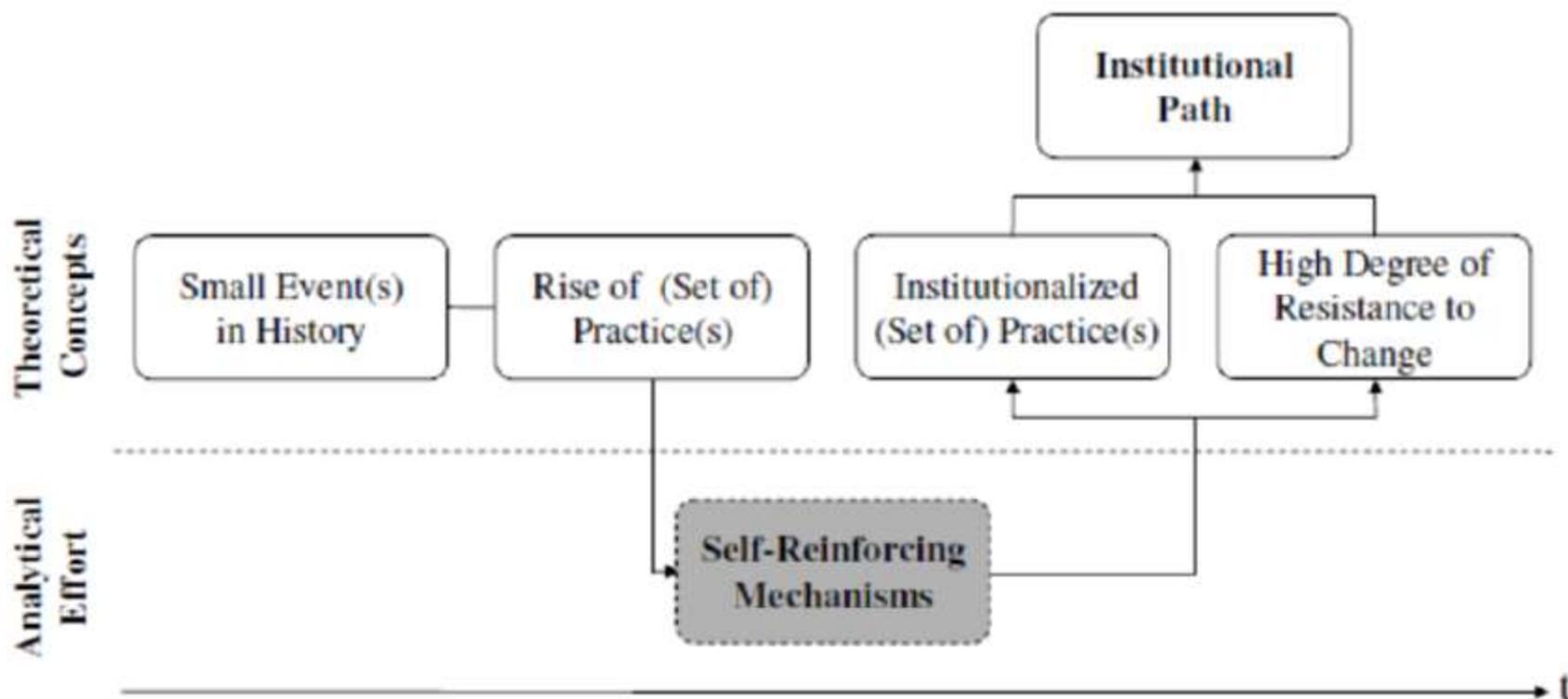
Institutional innovation: getting the right message

The concept of path dependency/lock-in

- An explanatory approach as to why certain technologies or institutional setups are chosen over others, and the notion that “history matters”.
- Institutional commitments – i.e. choices – are an essential but dangerous facet of complex infrastructural innovation that tend to remain entrenched for long periods of time, aided by institutional inertia.
- Heavily regulated and politically sensitive industries, like nuclear, are especially driven by the institutional environments from which they emerged, and within which they operate



- * Options
- Emerging path
- ▭ Range of available options



Case 1

ACHIEVING DESIGN HARMONY

Current situation and challenges

- The **major challenges** of international harmonization
 - Different regulatory approaches and regulations, standards frameworks and nuclear policies → design changes, cost increase, unpredictability of licensing and deployment time across countries
- Efforts to overcome these challenges
 - **Regional level**: WENRA, EC ERDA, European Utility Requirements (EUR), MoC CNSC/US NRC and CNSC/UK ONR
 - **International level**: MDEP, INRA
- **A new regulatory paradigm is necessary** to minimize duplication of certification effort and major design changes, and to improve nuclear power's competitiveness

Cooperation in Reactor Design Evaluation and Licensing (CORDEL) Working Group

- **Established in 2007** as an **industry counterpart of MDEP**
- **Main Objectives** are to promote
 - International standardization of reactor designs
 - International harmonization of regulatory requirements
 - International design approval/certification
- **Six Task Forces**
 - Codes and Standards [SDOs, OECD/NEA]
 - Nuclear Safety Standards [IAEA, ENISS, EUR, WANO]
 - Small Modular Reactors [IAEA, OECD/NEA]
 - Licensing & Permitting [IAEA, OECD/NEA]
 - Digital I&C [OECD/NEA, IAEA, IEC]
 - Design Change Management [WANO, IAEA]
- **Membership**
 - Almost all major vendors and many utilities interested in new build, service companies, etc.

Benefits of harmonization

- Boost the investment attractiveness of nuclear new build through greater predictability of licensing and deployment time across countries
- Improve economic competitiveness
- Enable a strong supply chain and knowledge base that support long-term power plant operation
- Increase ease of export
- Increase market share of nuclear energy generating capacity
- And...

LINK TO PUBLIC ACCEPTANCE?

“Too slow, too expensive”?

- A very small number of first-of-a-kind projects have suffered from cost and schedule overruns.
- These overruns have in many ways been caused by each project being de facto first-of-a-kind projects due to lack of international harmonisation and standardisation of designs.
- These projects have been used to portray nuclear power as being “*too slow, too expensive*” – with partial success.
- This has negatively impacted support for new build in certain countries.
- **Conclusion:** institutional innovation within the regulatory space would likely have a positive impact on public acceptance.

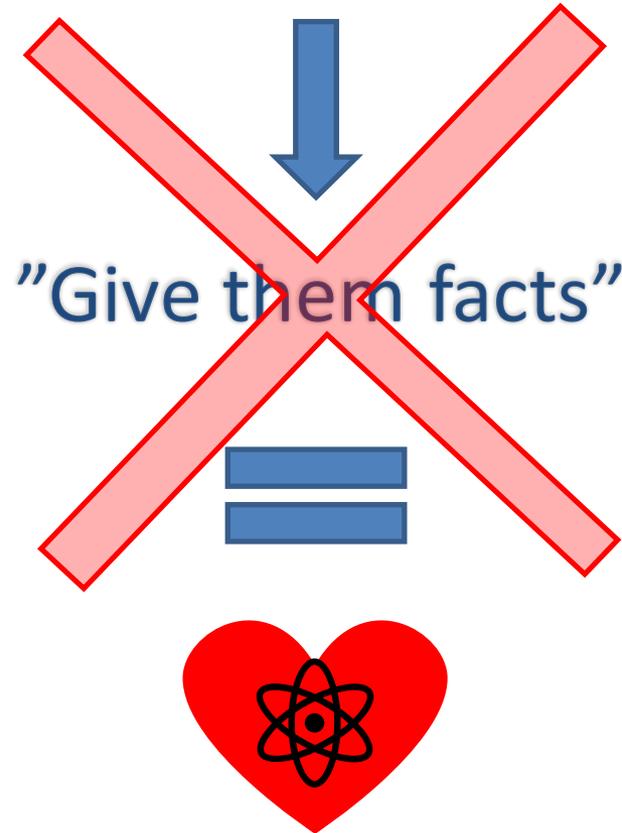
Case 2

GETTING THE RIGHT MESSAGE

Institutional innovation: communication

- There is a strong and well-established link between public acceptance and communication.
- Effective communication strengthens trust, decreased risk perceptions (whilst increasing benefits perceptions), and is central to a social license to operate.
- However, nuclear communication exhibits very evident signs of path dependency and lock-in
- An example...

"Anti-nuclear sentiments are irrational"

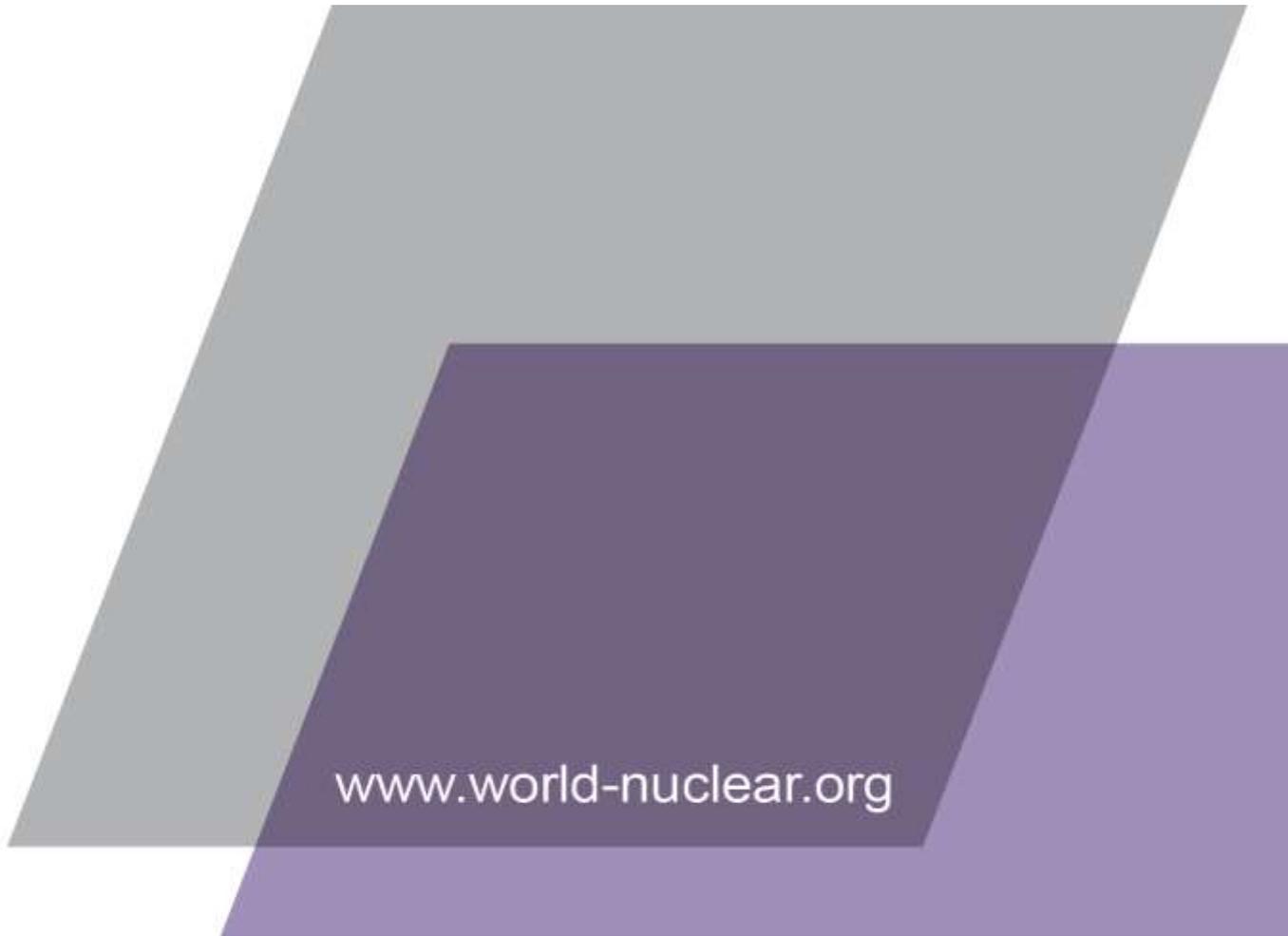


Institutional innovation: communication

- **Key drivers of public perception of nuclear power:**
 - Imagery
 - Emotions
 - Mental shortcuts (heuristics) and biased (e.g. confirmation bias, availability heuristic)
- **Facts only amounts for ~5% of human decision- and sense-making – so why focus only on “educating the public” and “give them the facts and they’ll love nuclear”?**
- **Failing to integrate scientific breakthroughs within communication has resulted in:**
 - Radiophobia (especially following accidents)
 - Less public and political support (let alone enthusiasm)
 - Undermining long-term prospects for nuclear energy

Conclusions

- Institutional innovation and public acceptance are closely intertwined – however, further attention must be dedicated to it.
- Design streamlining/harmonization can play an important role in combating public perception of nuclear power being “slow” and “expensive”.
- However, institutional path dependence can act as a significant barrier and needs to be fully explored.
- Nuclear communication exhibits very clear signs of institutional “lock-in”, and partially explains the nuclear community’s lack of progress in terms of modernising communication strategies.



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