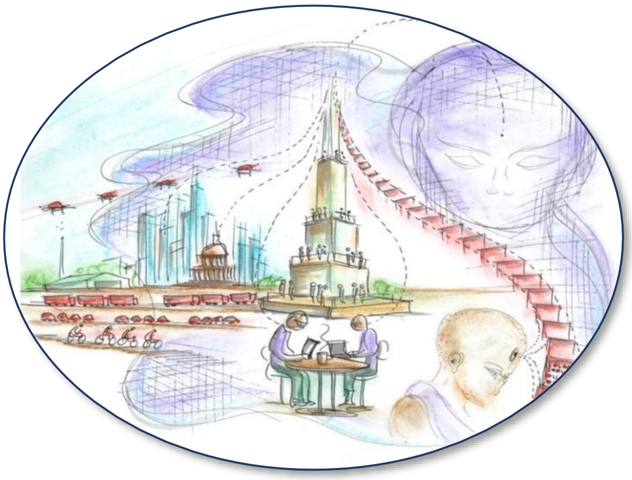
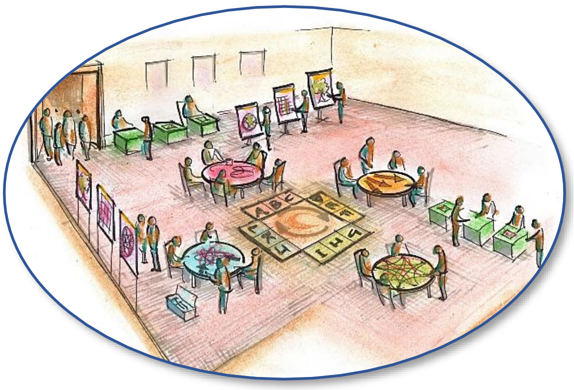
	Mind-Lab (Laboratory of collective intelligence) Working Paper
	**CO-FUTURING with CHAI** *(Foresight with 'Collective Human-Artificial intelligence')*
	***A framework & research agenda***
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CO-FUTURING with CHAI

(Foresight with 'Collective Human-Artificial intelligence')

Mind-Lab Working paper

Part version for discussion

JR v0.4 for 24-07-25

Contents

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Abbreviations

AI/AGI	Artificial Intelligence / Artificial General Intelligence
'CHAI'	'Collective Human Artificial Intelligence'
CHI	Collective human intelligence
CIQ	Collective Intelligence Quotient
GAFA	'Google, Apple, Facebook, Amazon'
IOT	Internet of Things
R&I	Research & Innovation': similar to 'R&D' (research & development), 'RTD' (research & technology development' or 'STI' (science, technology, innovation).
'STEEPC'	Futures/foresight domains for analysis ('socio-technical-economic-ecological-political-cultural') with many variations

1 Introduction

This working paper shows thinking in progress on the very topical issue of AI-enabled foresight / strategic planning, and in particular the combination of *FOCI / Foresight 3.0* with AI and the newly powerful functionality.

As *FOCI / Foresight 3.0* is based on the principles of *'collective human intelligence'*, we can frame the combination as '***Foresight-CHAI' ('Collective Human-Artificial Intelligence').***

- ***AI*** can provide foresight-related ***content***, which appears to be very fast and efficient, while also bringing various risks;
- Our focus is then on the ***context*** – the ***CHI or 'collective human intelligence'*** – the social / institutional agenda setting, synergy forming, co-learning, co-creation & co-production, all needed for transformational change;
- the combination of AI with CHI is explored here as ***Co-futuring with CHAI*** (Collective Human-Artificial Intelligence.

This raises further questions –

- Challenges of power, control, colonization
- Challenges of disruption / transformation in futures thinking & strategic planning

The main part of the paper is mainly in visual thinking / systems diagram form. At this concept stage we find the systemic nature of the question is better explored in diagrams and cognitive system mapping – the written notes are then extracted and copied below.

Each of the diagrams follows a similar framework, based on co-evolutionary systems mapping (see also the summary in the Annex:

- ***1.0 – functional systems,*** single loop learning, 'problem-fixing' agenda;
- ***2.0 – evolutionary systems***, double loop learning, strategic advantage agenda;
- ***3.0 – co-evolutionary systems***, multi-loop reflexive learning, collective intelligence and transformation agenda.

For background see the book www.manchester.ac.uk/synergistics/deeper-city-book/ and the 'Technologies III' section on https://tinyurl.com/2uefsy8d

2 Key examples

These examples appear to be state of the art in publicly accessible foresight platforms: each is shown with a link, and some text copied from the site.

Pre-empt

https://www.preempt.life/ (also see https://www.apf.org/post/reimagingi-tomorrows-reimaging-foresight-an-inside-look-at-the-preempt-platform

- PreEmpt.Life offers significant benefits for innovators, strategists, analysts, policy makers, executives, risk managers, futurists, and individuals seeking life changes:
- Holistic Foresight Tools - Provides comprehensive and integrated strategic foresight, systems, design, and critical thinking tools to deliver holistic decision intelligence (DI) through global, regional, and local perspectives and powerful emphasis on breadth and depth of AI-led, data-driven insights, enabling early identification of weak signals, emerging trends, opportunities and risks, enabling quick identification of emerging trends and risks.
- Democratized Access - Makes advanced foresight and DI accessible to small and medium-sized enterprises and individuals, not just large organizations.
- Rapid Decision-Making - Facilitates fast and informed decision-making with summary and detailed analysis produced in hours.
- Collaborative Innovation - Encourages stakeholder engagement in collaborative problem-solving, scenario planning, and agile, resilient decision-making.

Next Atlas

https://www.nextatlas.com/foresight/why

- We combine market research methods and AI-driven big data analysis to give you a future-oriented view of the market:
- Trend Forecasting, Market Research and Social Media Listening are static, time consuming and tethered to the present.
- Nextatlas methodology goes deeper - We enrich traditional methods with our unique approach, allowing you to deeply understand market trends and values faster to make future oriented decisions.
- Advanced AI in our DNA - With our proprietary AI, we give you dynamic and updated data on measurable phenomena.
- Weak signals and outliers you can’t see - Unmatched agility in tracking trends from their Weak Signals thanks to our always-on AI.
- Early Adopter hunting & analysis - Early Adopter data keeps our forecasts ahead of the curve and poignant to strategic decisions.
-

4Strat

https://www.4strat.com/

The all-in-one Foresight platform:

- Every impulse has the potential to shape new futures. With the *Foresight Strategy Cockpit* we provide one single platform for all of them.
- The Foresight Strategy Cockpit (FSC) is the secure platform to continuously collect, evaluate and visualise trends, risks, scenarios and more. From AI-driven Foresight to human-centered Strategy all in one Cockpit.
- Understand future topics with data-insights: Integrate information, save time, and cultivate a deep understanding of futures all in one platform. Conduct broad analyses or targeted assessments based on comprehensive historical and real-time data from multiple databases such as Web Feeds, Publications, News, Blogs or Forums. With AI-based analytics, the FSC improves search strategies and reveals new insights.
- Strategy: Explore implications for the future collaboratively - Build and customise your foresight process with our flexible FSC modules, including a selection of over 50 software-supported Foresight methods. Enable your team to collaboratively collect, evaluate, comment and share trends, risks, scenarios and more and review changes in a single, transparent platform.

4CF Sprawlr

https://4cf.eu/sprawlr/

4CF Sprawlr is a unique combination of the natural, intuitive flow of creative discussion with partially automated conclusions. The app can support analyses and brainstorming sessions on a wide range of topics. It is versatile, flexible, simple, visually appealing and user-friendly. The gamification elements of 4CF Sprawlr make even complex analyses and discussions a fun and engaging experience.

Also: Halnyx 2.0: **Enabling deeper insights with intuitive Real-Time Delphi**

Unlock deep collective intelligence with 4CF Halnyx 2.0, the modern Real-Time Delphi platform designed from the ground up by delphi veterans. Move beyond basic tools and experience an intuitive, engaging environment architected to facilitate robust dialogue, reveal nuanced insights, and drive meaningful consensus with ease.

Key advantages of the Halnyx 2.0 approach: Halnyx 2.0 isn't just about automating Delphi; it's about enhancing the quality of the dialogue and the depth of the insights generated:

- Fosters true understanding, not just surface agreement: Halnyx 2.0 is built to make exploring diverse reasoning effortless, moving beyond simple convergence metrics to support the development of genuinely informed consensus grounded in shared understanding.
- Enables dynamic real-time collaboration: Participants react, reflect, and revise their views within a fluid, engaging process that respects their time and keeps momentum high.
- Provides clarity through reasoning exploration: The platform features intuitive tools for effortless exploration of qualitative justifications. This allows to easily identify key arguments, understand the basis for disagreements, and track how reasoning evolves.

Algorithm

https://thealgorithm.me/

Algorithm is a trend intelligence platform that helps make data-based decisions quickly. It extracts data on trend signals, structures it into relevant information, creates business knowledge and gives actionable insight. We use our proprietary Algorithm's trendwatching methodology to convert unstructured data into insight ideate upon them and then validate ideas for the target audience and market.

Algorithm is all-in-one AI powered trend intelligence solution Just type in a search request. Trend, business case, company… Anything you want to explore. AI algorithm will help you to make effective search.

Intermediary platforms

There follow two intermediary platforms, i.e. not directly AI-enabled, but likely channels for AI-generated content by others.

The Futures Toolkit

https://www.gov.uk/government/publications/futures-toolkit-for-policy-makers-and-analysts (developed with https://www.samiconsulting.co.uk/

- The Futures Toolkit takes you through 12 different Futures thinking tools, with advice on how to implement them. It also pulls these together into a number of pathways to meet specific objectives.
- The toolkit is intended to be accessible to people who have little or no experience using these tools, as well as a useful reference for those who are more experienced and a guide for those commissioning Futures projects. It sits alongside other GO-Science Futures resources, including our Brief Guide to Futures Thinking and Foresight, and our Trend Deck.
- We focus on how these tools can apply to policy or strategy, but they can be used in many other areas –including more operational or delivery-focused contexts.

Futures Diamond

https://www.futuresdiamond.com/

3 Foresight 3.0 overview

Based on: Ravetz, J., Sebina, G.K., Amanatidou, E. and Chaudhary, P. (2025), "Guest editorial: Foresight 3.0 in theory and practice – mobilizing the "collective forward intelligence"", *Foresight*, Vol. 27 No. 2, pp. 229-239. https://doi.org/10.1108/FS-04-2025-262 - (whole issue on https://www.emerald.com/insight/publication/issn/1463-6689/vol/27/iss/2)

In this turbulent 21st century, the scope of foresight has come to address existential 'grand challenges', such as climate change, mass extinction, digital colonization, and post-truth fragmentation. Such challenges call for more than 'problem-fixing' or incremental change: they call for system transformations. And such transformations call for new levels of *collective intelligence*, in systems of governance, economics, technology and others. This can be framed as mutual learning, co-innovation and co-production, between a *wider* stakeholder community, with *deeper* layers of value & meaning, and *further* horizons of change (Ravetz and Miles 2016).

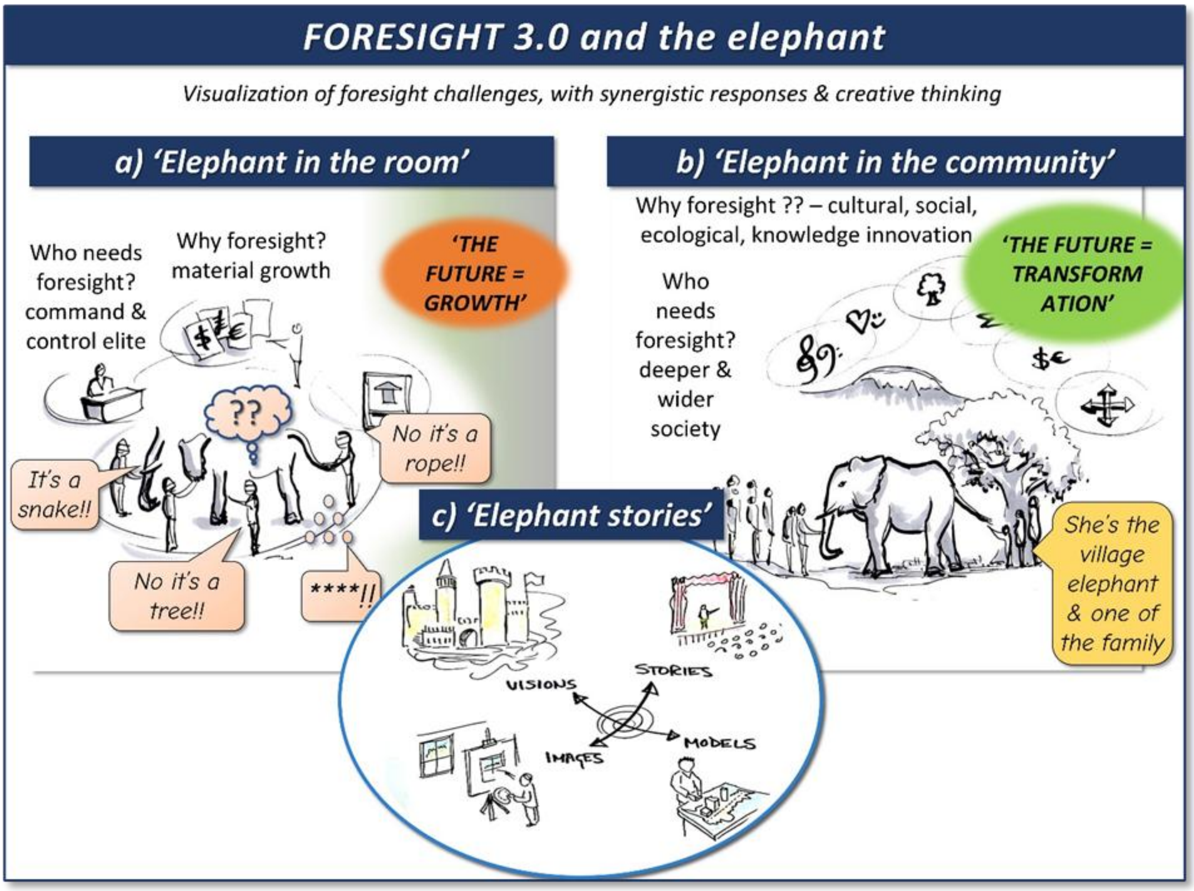


Figure 1: Foresight 3.0 and the elephant effect

This is a challenge and opportunity for mainstream foresight theory and practice to move forward. We frame this here as a next generation ***'Foresight 3.0'*** – 'from transition to transformation' – a foresight process based on a *'collective forward intelligence'.* Basically, the Foresight 3.0 framework looks beyond the normal horizons, in three key dimensions of any human system:

- ***Deeper:*** synergies between layers, domains and value systems;
- ***Wider:*** synergies between 'actors' or stakeholders, and 'factors' or value chains;
- ***Further:*** synergies between upstream causes and downstream effects.

Such transformations involve both functional and cognitive systems, as seen in three modes of system change, and the foresight which can respond:

- ***Forecast1.0:*** functional growth/change, as in a *'clever'* system:
- ***Foresight 2.0:*** evolutionary change / emergence, as in *'smart'* systems:
- ***Co-foresight 3.0:*** co-evolutionary emergence / transformation, as in *'wise'* systems, based on a wider-deeper-further '*collective forward intelligence*'.

This range can also be visualized as a ladder of system conditions and levels of intervention, from technical detail to fundamental paradigms (Meadows 2008), as in section 6:

Such *collective forward intelligence* can be enabled by a four-stage cycle (Ratcliffe & Krawczyk 2011), with practical methods for the mapping / design of 'systems, scenarios, synergies and strategies' ('4-S'):

- *Relational* thinking: *co-learning* for ***systems mapping***:
- *Divergent* thinking: *co-knowledge* for ***scenario mapping***:
- *Emergent* thinking: *co-innovation* with ***synergy mapping***:
- *Convergent* thinking: *co-production* with ***strategy mapping***:

In practice the Foresight 3.0 process can start with just four basic questions, which are clear enough for schoolkids, and weighty enough for high-level experts (time horizons may vary from 1-100 years, depending on the issue):

- What are the *'Key 3 challenges'* in the current situation??
- How are things changing – the *'Key 3 changes'* in the future??
- What is the potential – the *'Key 3 visions / synergies'* for the future??
- How to achieve them – the *'Key 3 pathways / actions'* to realize the visions??

In application the *Foresight 3.0* approach works on two parallel tracks:

a) Internal *'collective forward intelligence'* within the foresight team;
b) External *'collective forward intelligence'* with the wider organization, community, network or society, as enabled by the foresight, to better manage the transformations

4 Foresight 3.0: round tables, learning loops

Here we look at the co-evolution of Foresight 3.0 models with two perspectives:

- ‘round table’ mapping of stakeholders & ecosystems
- ‘Learning loop’ mapping of knowledge co-production

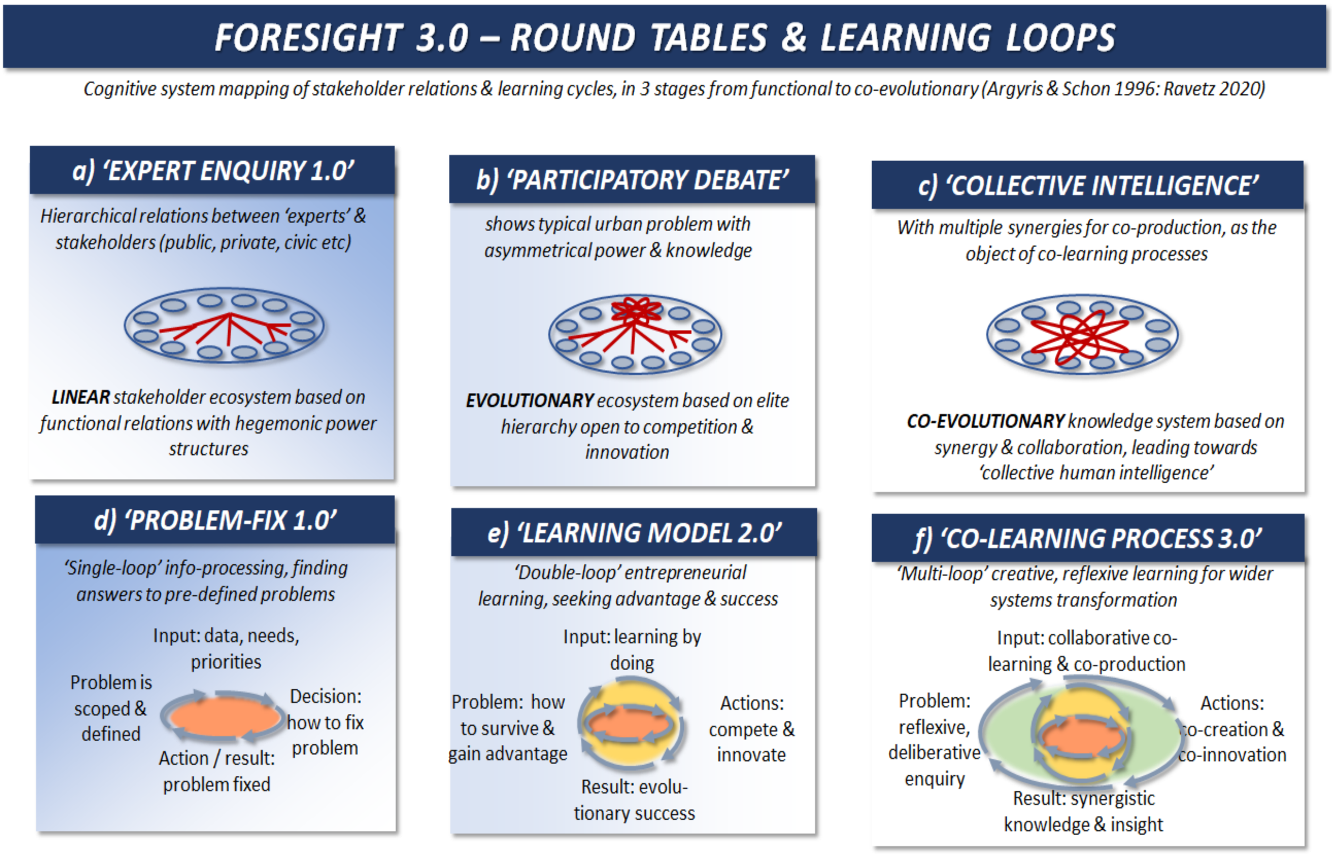


Figure 2: Foresight 3.0: round tables, learning loops

4.1 ‘Round table’ mapping of stakeholder ecosystems

a) *‘EXPERT ENQUIRY 1.0’*

Hierarchical relations between ‘experts’ & stakeholders (public, private, civic etc)

LINEAR stakeholder ecosystem based on functional relations with hegemonic power structures

b) *‘PARTICIPATORY DEBATE’*

shows typical urban problem with asymmetrical power & knowledge

EVOLUTIONARY ecosystem based on elite hierarchy open to competition & innovation

c) 'COLLECTIVE INTELLIGENCE'

With multiple synergies for co-production, as the object of co-learning processes

CO-EVOLUTIONARY knowledge system based on synergy & collaboration, leading towards 'collective human intelligence'

4.2 'Learning loop' mapping for knowledge co-production

The lower level of Figure 2 looks at the different modes of learning, from single to multiple (Argyris & Schon 1996):

d) 'PROBLEM-FIX 1.0'

'Single-loop' info-processing, finding answers to pre-defined problems

- Problem is scoped & defined
- Input: data, needs, priorities
- Decision: how to fix problem
- Action / result: problem fixed

e) 'LEARNING MODEL 2.0'

'Double-loop' entrepreneurial learning, seeking advantage & success

- Problem: how to survive & gain advantage
- Input: learning by doing
- Actions: compete & innovate
- Result: evolu-tionary success

f) 'CO-LEARNING PROCESS 3.0'

'Multi-loop' creative, reflexive learning for wider systems transformation

- Problem: reflexive, deliberative enquiry
- Input: collaborative co-learning & co-production
- Actions: co-creation & co-innovation
- Result: synergistic knowledge & insight

5 Foresight 3.0 & human dimensions

This follows the essence of foresight, beyond any technical information:

- Question forming: i.e. the insight and wisdom in framing an enquiry
- Agenda setting: i.e. what is the scope of debate, planning and action
- Synergy forming, i.e. consensus building, coalition mobilization.

We draw from experience of foresight type processes: where the technical materials (reports, scans, modelling outputs) are useful only as far as the human dimensions allow them to work, before during & after the formal process: (we have all seen the 'report on the shelf' syndrome)…

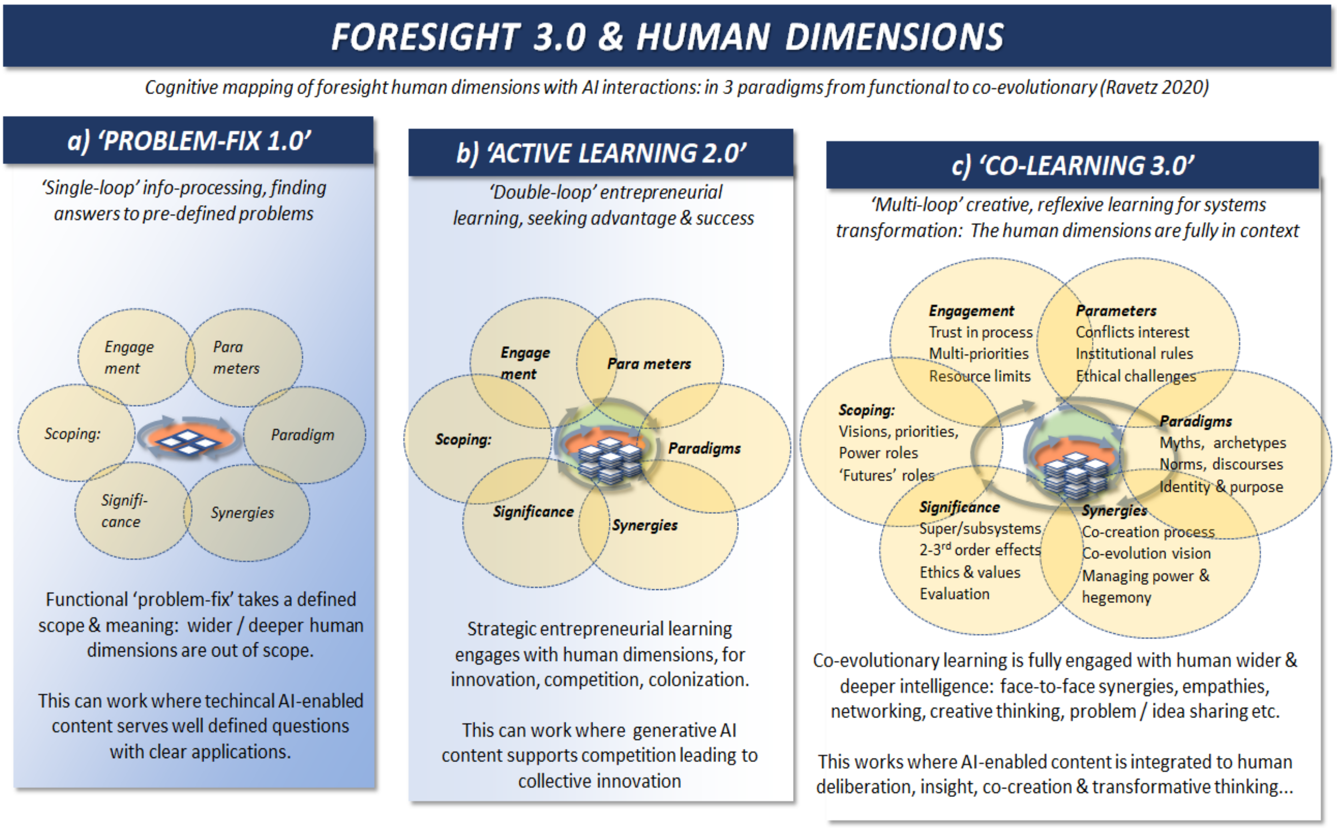


Figure 3: Foresight 3.0 and the human dimensions

The question here is how the AI input, with immense power to produce 'content', can interface with the human dimensions of meaning – 'coherence' and 'context'. We track this here with the 3-part co-evolutionary mapping, applied to a shortlist of human dimensions:

Scoping: of problem, agenda, motivation

- Visions, priorities: Power roles: 'Futures' roles

Engagement: of stakeholders & resources

- Trust in process: Multiple priorities: Resource limits

Parameters: of the process in institutional context

- Conflicts of interest: Institutional rules: Ethical challenges

Paradigms: worldviews & underlying values for the

- Myths, archetypes: Norms, discourses: Identity & purpose

Synergies: relations of shared vision, transaction, governance,

- Co-creation process: Co-evolution vision: Managing power & hegemony

Significance: where this fits into the bigger picture..

- Super/subsystems: 2-3rd order effects: Ethics & values: Evaluation (if any)

These are then tracked through 3 stages of co-evolution:

a) 'Problem-Fix 1.0'

'Single-loop' info-processing, finding answers to pre-defined problems

- Functional 'problem-fix' takes a defined scope & meaning, (no active links with wider / deeper human dimensions).

This can work where AI-enabled content serves well defined problems & applications.

b) 'Active Learning 2.0'

'Double-loop' entrepreneurial learning, seeking advantage & success

- Strategic entrepreneurial learning engages with human dimensions, for innovation, competition, colonization.

This can work where AI-enabled content supports competition leading to collective innovation

c) 'Co-Learning 3.0'

Multi-loop' creative, reflexive learning for wider systems transformation

- Co-evolutionary learning is fully engaged with human wider & deeper intelligence: face-to-face synergies, empathies, networking, creative thinking, problem / idea sharing etc.

This works where AI-enabled content is integrated to human deliberation, insight, co-creation & transformative thinking...

6 Foresight-CHAI innovation & transition

Here we explore the implications for both CHI and AI of the above.

Firstly (a-c), the general innovation curve shows AI (with its currently extraordinary speed of development) superseding humans up the scale of systems paradigms: with the possibility of co-evolutionary collaboration. (this draws on the system leverage framework of Meadows (2008)

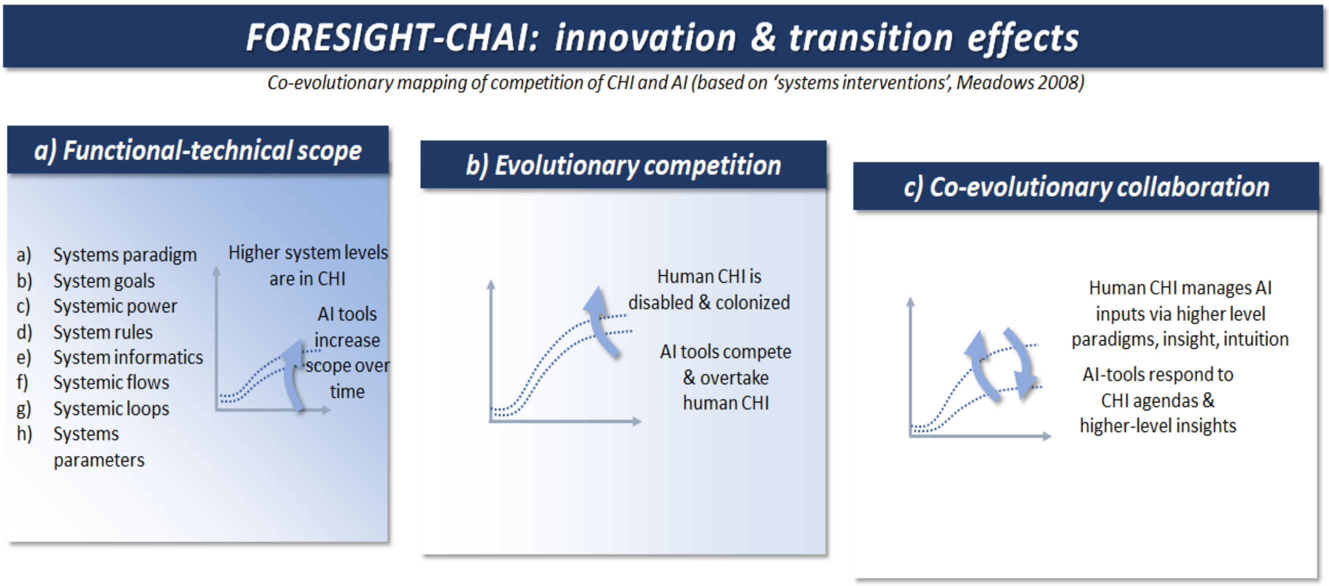


Figure 4: Foresight-CHAI innovation & transition effects

a) Functional-technical scope

Systems intervention levels (Meadows 2008) describe a hierarchy

- Systems paradigm
- System goals
- Systemic power
- System rules
- System informatics
- Systemic flows
- Systemic loops
- Systems parameters

- Higher system levels tend to be focused on the human CHI: questions, agendas, synergies
- Meanwhile the AI-based tools increase their scope over time, moving in the direction of AGI, or at least what appears to be AGI

b) Evolutionary competition

- Human CHI is disabled & colonized
- AI tools compete & overtake human CHI on higher system levels

c) Co-evolutionary collaboration

- Human CHI manages AI inputs via higher level paradigms, insight, intuition
- AI-tools respond to CHI agendas & higher-level insights

7 Foresight-CHAI with agents & learning loops

This revolves around the innate human capacities to raise questions, form agendas, and negotiate synergies, for insight and further action. First, a functional framing shows the AI-bots as informing the humans. An evolutionary framing sees competition, with AI colonization of the human agenda. A co-evolutionary framing sees the potential synergies of CHI and AI, pointing towards societal applications based on collective intelligence.

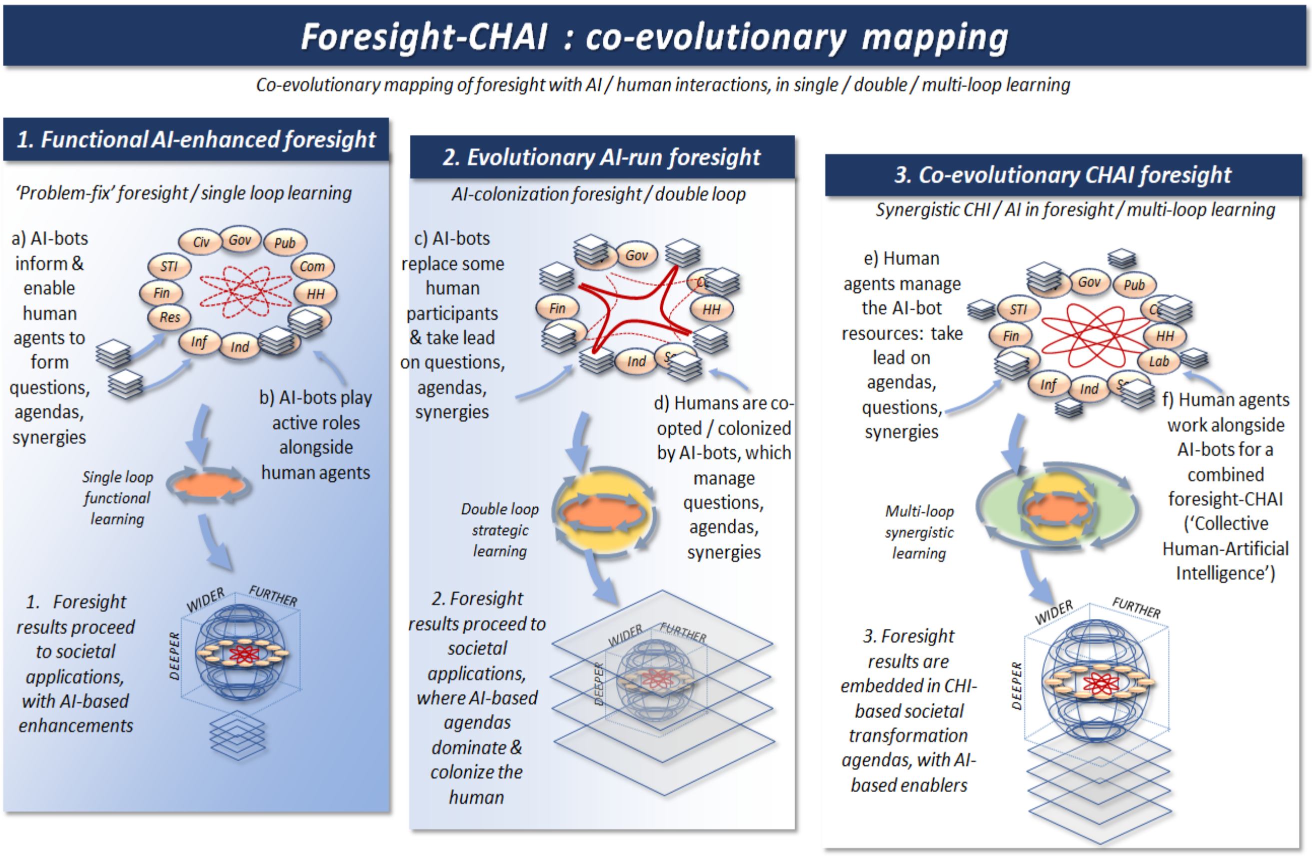


Figure 5: Foresight-CHAI with agents & learning loops

1. Functional AI-enhanced foresight: *('Problem-fix' foresight / single loop learning)*

a) AI-bots inform & enable human agents to form questions, agendas, synergies

b) AI-bots play active roles alongside human agents

Foresight results proceed to societal applications, with AI enhancements

2. Evolutionary AI-run foresight: ***(****AI-colonization foresight / double loop learning)*

c) AI-bots replace some human participants & take lead on questions, agendas, synergies
d) Humans are mainly co-opted / replaced by AI-bots which now run the foresight questions, agendas, synergies..

Foresight results proceed to societal applications, where AI-based agendas dominate over CHI agendas

3. Co-evolutionary CHAI foresight: *(Synergistic CHI / AI in foresight / multi-loop learning)*

e) Human agents manage the AI-bot resources: take lead on agendas, questions, synergies
f) Human agents work alongside AI-bots for a combined foresight-CHAI ('Collective Human-Artificial Intelligence')

Foresight results are embedded in CHI-based societal transformations, with AI-based enabling

8 Power & colonization

Challenge: AI does not enter a neutral level field, more like a 'big bad world' ('BBW') of dynamic competition, extraction, colonization, hijack, weaponization… The question arises, how can collective human intelligence (CHI) co-evolve with the AI, which otherwise has immense potential for colonization??

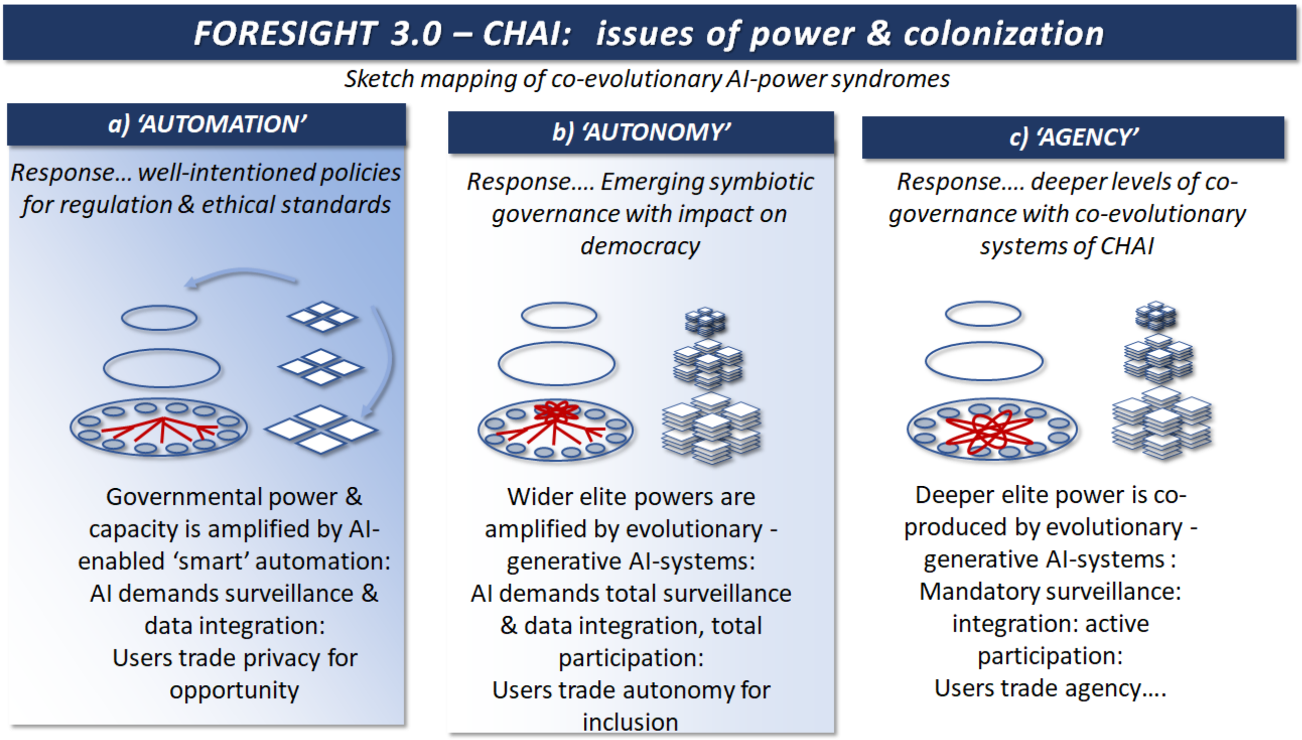


Figure 6: issues of power & colonization

'AUTOMATION'

- Governmental power & capacity is amplified by AI-enabled 'smart' automation:
- AI demands surveillance & data integration:
- Users trade privacy for opportunity

Response… well-intentioned policies for regulation & ethical standards

'AUTONOMY'

- Wider elite powers are amplified by evolutionary - generative AI-systems:
- AI demands total surveillance & data integration, total participation:
- Users trade autonomy for inclusion

Response…. Emerging symbiotic governance with impact on democracy

'AGENCY'

- Deeper forms of elite power is co-produced by evolutionary - generative AI-systems :
- Mandatory surveillance: integration: active participation:
- Users trade agency for….

Response…. deeper levels of co-governance with co-evolutionary systems of CHAI

9 Next steps

For discussion… these could include:

- Expand & illustrate with vignettes & scenarios, the above CHI / AI interactions & pathways towards CHAI
- 'dry run' with existing AI tools & demonstration by FS3 project group
- Development of AI-bot prototypes as part of integrated CHAI process
- Targeted AI questions suitable for CHI development

9.1 Scenario approach

The mainstream foresight technique of scenario visioning / scenario planning may be a very useful way forward, in this situation of deep uncertainty. This is yet to be developed for the Foresight-CHAI, so meanwhile for illustration, here is an example borrowed from the Deeper City book .

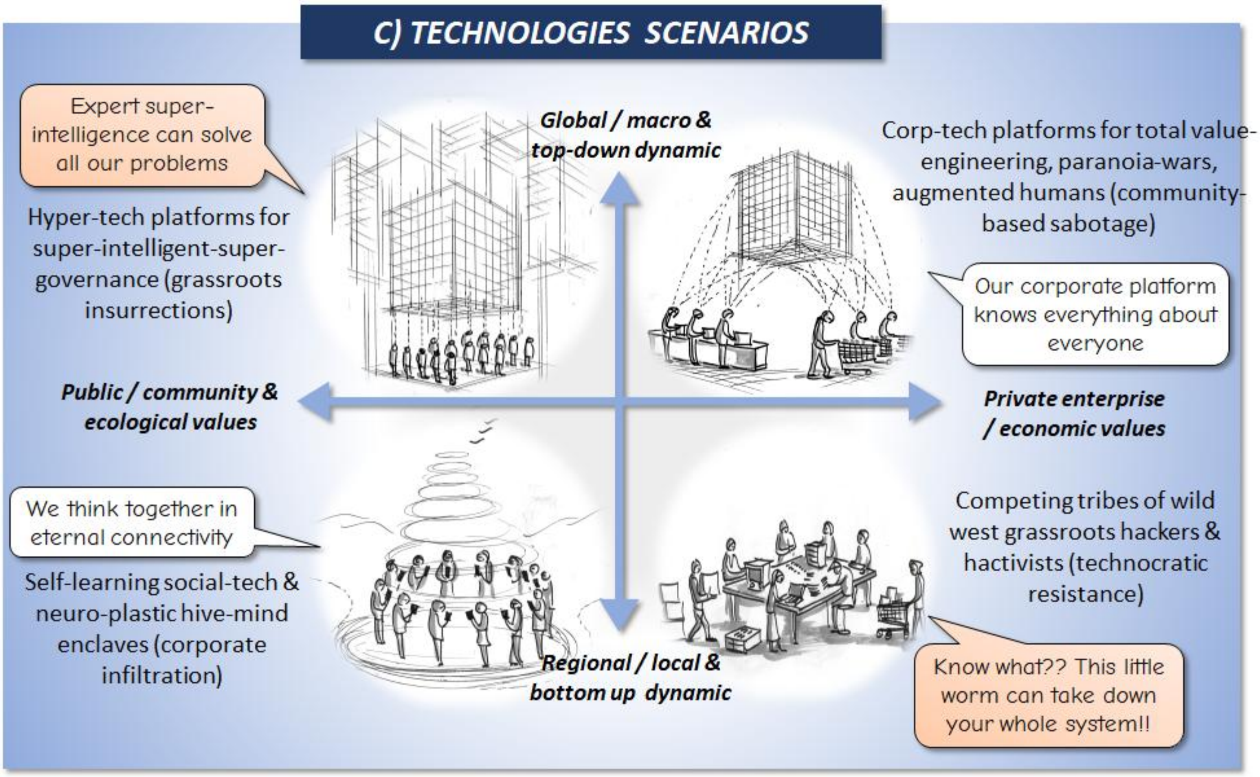
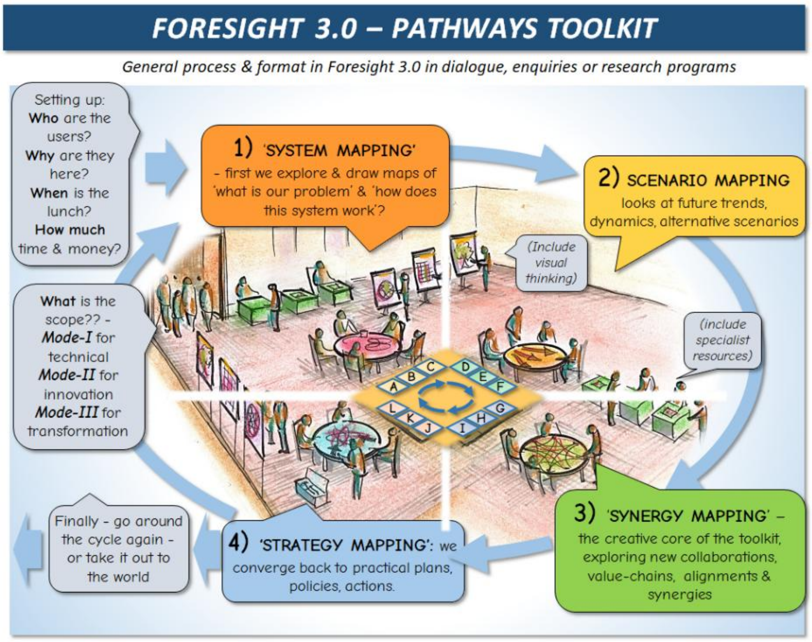


Figure 7: technologies scenarios

10 Annex: summary of synergistic method

The foundation of the Foresight-CHAI is the Foresight 3.0 / ‘pathways toolkit’. We use visual thinking where possible, with a menu of simple templates as in Figure 2. These can work both on-site and on-line, and where possible, we combine system mapping with creative thinking such as cartoons, stories, role-plays etc: (generative AI brings new possibilities to be explored).

The process can range from creative free thinking, to highly structured questions with technical analysis. Similar programs can be designed for hours, days or months, depending on resources.



Sources:

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- Foresight 3.0 theory & practice - *https://doi.org/10.1108/FS-01-2025-0007*
- ‘Foresight-wise’ program at the Mind-Lab: *Foresight-wise*
- Example foresight in Ukraine - *http://www.recpc.org/circular-economy/.*
- Source text on collective intelligence - ***https://tinyurl.com/567j2yzd***