



## Deeper City

collective intelligence and the pathways from smart to wise

# How to look ahead: Foresight-III

In the fable of four blind men and the elephant, one touches a leg and says 'it's a tree', another feels the trunk and says 'snake', the third touches the tail and says 'rope', the fourth steps in the dung and says \*\*\*\*.

In our complex inter-connected world, we are surrounded by elephants – so-called wicked problems, systemic failures, tipping points, 'multi-lemmas', deeper threat multipliers and Societal Grand Challenges. Even worse are the 'elephant traps', so-called by civil servants: hugely expensive policy mistakes, career-wrecking and almost impossible to escape. Most experts specialize in problems they can solve, with standard assumptions, using data on 'known knowns'. Those who see bigger pictures or wilder cards, and call 'Elephant!', are often misunderstood and less likely to get grants or promotions. This is where foresight comes in, to help to understand the elephants in the room, avoid the traps where everything goes wrong and generally think beyond the near horizon.

This is all agreed in principle: the public sector pushes for 'strategic policy intelligence', while the corporate sector produces reports on 'the economic impact of short-termism', and 'thinking the unthinkable'.<sup>1</sup> But in practice many foresight programmes manage to avoid the elephants. The UK Foresight on Land Use Futures covered the whole agenda in depth and detail, but somehow forgot to mention that 85% of UK land is owned by 1% of the population.<sup>2</sup> And with classic symptoms of system unravelling, the Brexit vote was driven (in part) by distrust of elites and experts, which was (with hindsight) completely off the radar of such elites and experts.

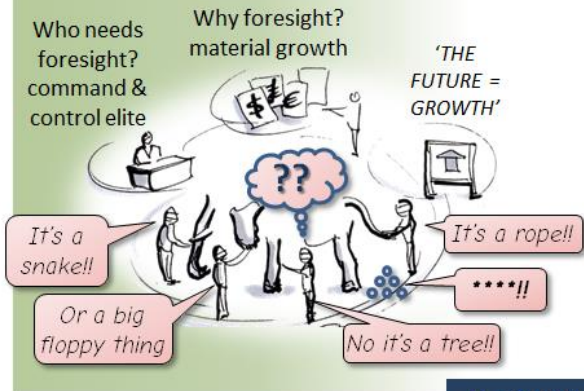
In principle, the role of foresight is exactly that, to raise such deeper and wider questions. It has four main strands, quite similar to synergistic thinking: systems analysis, future studies, capacity building and forward planning.<sup>3</sup> The evidence shows clearly that firms and organizations which use foresight are more competitive and resilient.<sup>4</sup> But in practice, systems analysis can easily miss the point, future studies just continues from current trends, capacity building turns into power-base building, and forward planning can be narrow and myopic. All this calls for a more synergistic Mode-III foresight method, one which cultivates the *collective anticipatory intelligence*. This in turn can help to build a kind of collective societal intelligence in the community around it.

Figure 9-4

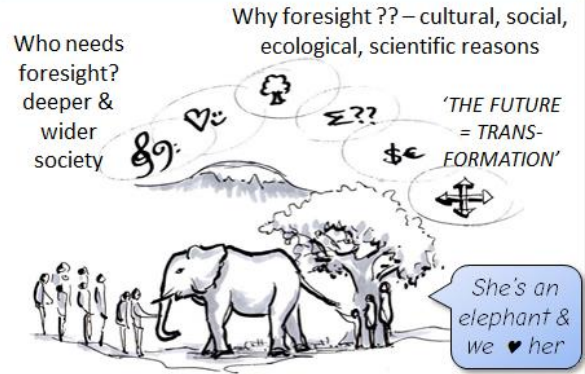
# FORESIGHT-III

Exploring the co-evolution of foresight for synergistic innovation

## a) 'ELEPHANT in the ROOM'



## b) 'ELEPHANT in the MIND'

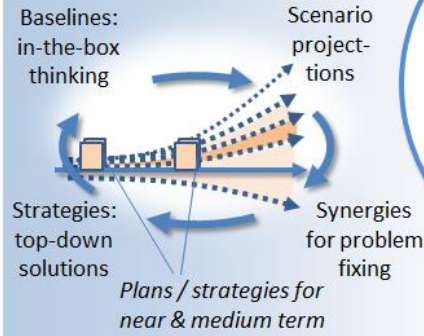


## d) CREATIVE THINKING



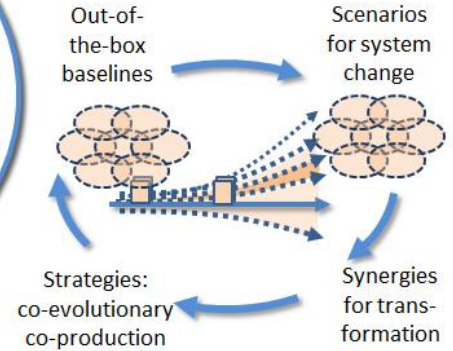
## c) SCENARIO-SOLUTION CYCLE

Process for functional problem-solving



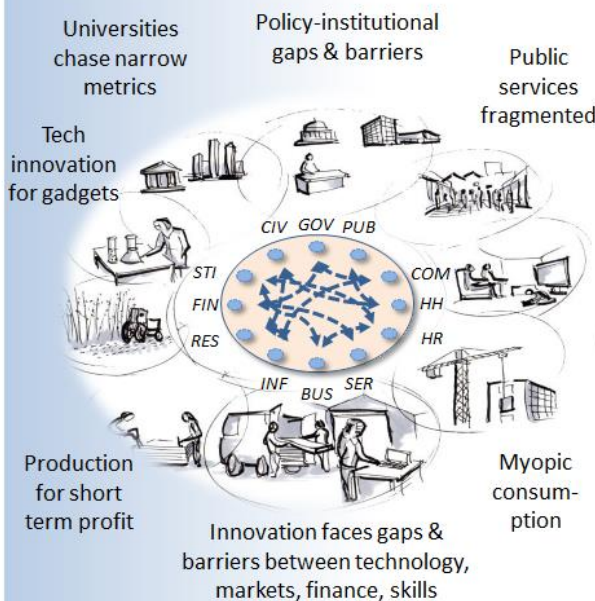
## e) SCENARIO CO-LEARNING CYCLE

Process for co-learning & co-creation



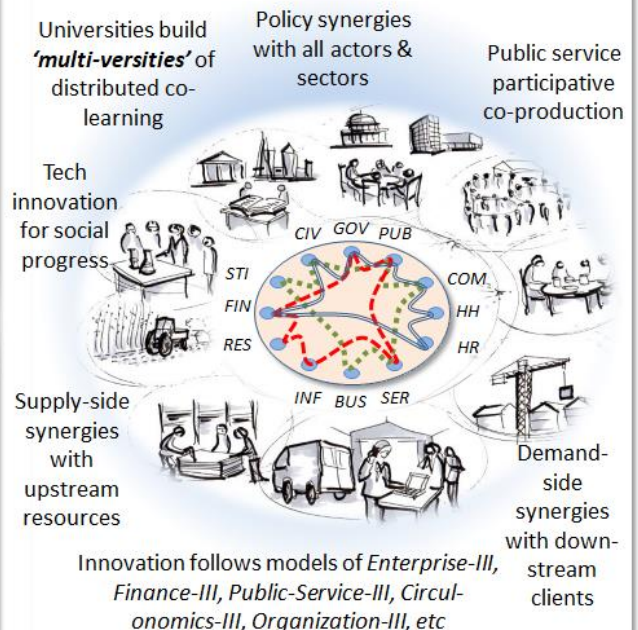
## f) ADAPTIVE INNOVATION-I&II

Low Carb innovation system - disconnected & dysfunctional



## g) TRANSFORMATIVE INNOVATION-III

Innovation system with mutual learning & dynamic synergies



This kind of Foresight-III looks quite similar to the ‘Scenario-Lab’, one of the variations seen in *TOOLKITS-III*, which takes change mapping and futures studies as its focal point. The difference is the main aim of a Foresight-III is to explore the topic/question at the centre of the picture, while the main aim of a ‘Scenario-Lab’ is to learn from the topic/question in order to grow the collective intelligence of the system around it. In practice one version can easily merge into the other.

### Mapping a synergistic foresight

So, here’s a brief cartoon guide in *FORESIGHT-III* (Fig.9-4): as ever with the Mode-I/Mode-II on the left, and Mode-III on the right. The elephant in the room at a), sums up the fable where ‘wicked problems’ are unrecognized until too late. In contrast there’s a ‘deeper elephant mind’ on the upper right b) – here the elephant is neither an existential threat, or an object for sale, but a loved and respected member of the community. In practice, *FORESIGHT-III* can be a tricky balance, keeping clients and sponsors happy, while opening up controversial questions and exploring system transformations. The pathways from linear to synergistic are not always predictable, but as with any creative process, from psychotherapy to film-making to conflict mediation, the outcomes are worth the effort.

### Circulatory’ foresight process

How to do such a foresight in real time and space? The ‘foresight cycle’ on the left in c) shows a linear and materialistic process: scenarios are minor variations on the present, and any synergies are there just to fix obvious problems. In contrast, there’s a Foresight-III cycle in e) on similar lines to the Synergistic Toolkit. Baselines start with out-of-the-box thinking, and scenarios are about systems change in motion. Synergies are more about deeper transformations, and strategies look for wider collaboration, between all involved. Typical foresight participants (a.k.a. ‘stakeholders’) may see such possibilities, but then struggle to fit them with their ‘day job’ role. Here, the scenario method helps to open up the creative thinking in the vignette at d) – ‘stories, visions, models and images’.

As for these participants, it’s too easy for insiders and expert networkers to take over the table.<sup>5</sup> Even with great efforts in public engagement, alternative or dissenting views are typically side-lined, so that the programme can stay on time and budget, with a good-looking report to hand to the sponsors. And such rational evidence and insider expertise is not to be underestimated, with new challenges from many varieties of post-truth, cyber-trolling, ‘fake news’, filter bubbles and science denial. Meanwhile new forms of collective information/knowledge/intelligence are also taking shape, from the single-track ‘wisdom of crowds’ above, to a deeper-wider ‘societal co-creation’. Many experiments are in progress, from mass citizen science to digital democracy, combining ‘hi-tech’ social networking with ‘high-touch’ social dialogue.<sup>6</sup>

### Deeper-wider foresight and futures

At the heart of the matter is a *deeper* agenda – what is this foresight really about, for whom and why? This raises the question of ‘normative’ or preferred or desirable futures. Warm words such as ‘prosperity’ or ‘empowerment’, often turn out to be fuzzy and contradictory, entangled with ambitions and aspirations, even in something as practical as urban design or planning.<sup>7</sup> Some scenario methods help to explore this space of possibilities, for instance the ‘causal layer analysis’ of myths and archetypes, or the ‘ethnographic futures’ of lived experience.<sup>8</sup> It seems beyond a narrow technical focus, scenarios are rarely neutral or rational: as in Chapter 8, politicians will use scenarios in pursuit of power, and advertisers in pursuit of sales. So, a deeper kind of Foresight-III would start with the power dynamics, ideological conflicts or socio-cultural traumas, and work back from there to the topic or question at hand.

Likewise, a wider Foresight-III explores all linkages between all stakeholders, positive or negative, where the power dynamics or conflicts are materialized in real communities. And the further dimension of Foresight-III aims at the mechanisms and outlooks of system change. For instance, the dynamic cycle of renewal seen in Scenario-Mapping (Fig.3-3) is a basic mapping of growth, stability, crisis and restructuring. Typically, the crisis or ‘tipping point’ is a total surprise, a ‘wild card’ bringing huge damage and suffering.<sup>9</sup> With at least some level of collective strategic intelligence, we can begin to anticipate, analyse, manage, adapt and reconstruct. The classic example is the 2008 financial crisis in Finance-III (Fig.5-5): before the event systematically ignored or side-lined by the banks and regulators, but a golden opportunity for a few who could think outside the box.

### Foresight for transition innovation

Tomorrow’s Low-Carb city will be different to today’s ‘Hi-Carb city’, and to get from here to there depends on major ‘transition’, which depends on ‘innovation’, which calls for foresight. Such transitions are often framed in purely technical terms, such as energy technology and markets. But experience shows innovation is needed in every domain – social, technical, ecological, political, cultural – and especially on the synergies between them. In the One Planet Transition Pathways project for instance, we looked at the techno-economic modelling with impressive detail, and then we looked at the reality outside the door – messy, fragmented, paranoid, where policy-makers and experts often seemed to be part of the problem more than solution.

Could synergistic thinking in general, and Mode-III foresight in particular, help to navigate this labyrinth? We could start with similar thinking from transition theory, and transition management practice. Then we could explore and manage the crucial leap, from a ‘functional transition’ as combination of technical and market forces, towards a ‘conscious/co-evolutionary transition’ with strategic intention, based on collective socio-technical intelligence.<sup>10</sup> The question is how this works in practice?

For a Low-Carb city transition, we would need collaboration between house-owners and landlords, small builders and suppliers, social enterprises and NGOs, finance and property managers and many others. The ‘innovations’ needed are not only new products or technologies, but new learning and thinking, for supply chains, area

programmes, skills development, social behaviour change and so on. And for how these many different parties interact, there's no single market of price and demand, more like multiple trading zones of opportunities and risks, with many kinds of values, for many actors speaking many languages. And these actors or stakeholders, business, science, finance, government, civil society etc, aren't blind autonomous agents, rather they interact, think, conspire and create. There are many emergent effects from 'innovation systems' (a.k.a 'ecosystems'), policy mixes, discourses and myths.

**(Box 9c) Overview: innovation for transition**

*One myth/discourse on innovation was the role of the private sector (actually Silicon Valley was built on huge public investment).<sup>11</sup> Another focuses on the 'creative classes', providing a logic for post-industrial diversification and gentrification.<sup>12</sup> Along the way, ideas came from systems thinking, and the 'multi-level perspective' (MLP) looks at combined 'socio-technical systems' at different levels, from broad 'landscapes', to system 'regimes', to specific 'niches'.<sup>13</sup> Transition theory is the backdrop for transition management, aiming to steer such changes by social learning and adaptive governance.<sup>14</sup> Co-evolutionary thinking looks at parallel systems (social, technical, economic, environmental etc), the interactions between them and the potential for lock-in or disruption.<sup>15</sup> Meanwhile, a new complexity economics looks at 'deductive tinkering' as the evolutionary generator of wealth.<sup>16</sup> While technical transition pathways for energy-economy-environment are modelled in detail, some are now exploring the links between technical analysis and social/political realities.<sup>17</sup>*

Each of these and others provide insights on the linear and evolutionary models of change. But we need to understand and mobilize the transformations which are fully co-evolutionary, with conscious intention for systemic change (such as, from Hi-Carb to Low-Carb city). These are based on collective strategic intelligence, with deeper layers of value and logic, with wider communities, and further cause-effect linkages. Then we can explore the different modes of transition with a co-evolutionary mapping:

- Linear (*Mode-I*) transitions are the default assumption. A firm develops a clever innovation (a so-called 'widget'), with a 'value proposition' in its niche, which diffuses into the market, and disrupts the incumbents. If successful it creates waves to/from the 'regime' and 'landscape' levels (with many possible interactions between the levels).
- Evolutionary (*Mode-II*) transitions are more about entrepreneurial dynamics. The firm might have innovation potential, and the incumbents might block or hijack the innovation, along with market speculation, investment gaps or procurement puzzles. The task for policy is to guide, enable or 'incentivize' a basically self-organizing system (this fits with a neo-liberal framing of a smaller state).
- Co-evolutionary (*Mode-III*) transitions bring in deeper and wider views. These transitions are more than autonomous change, they involve a more conscious and intentional self-organization, which could be directed by some kind of collective strategic intelligence.<sup>18</sup> The synergistic transition pathways are based on value constellations for multiple actors and factors. They

include for uncertainties/risks/synergies/opportunities, across all domains. They respond to negative forces, such as corruption, alienation, hierarchies and pathologies of all kinds. So, these synergistic transition pathways are not easily defined or measured, more like dynamic experimental learning zones.

There's a sketch in the lower part of *FORESIGHT-III* (Fig.9-4). A conventional innovation system appears on the left f), each firm or agent playing its individual part, with gaps and barriers all round. There are typical investment gaps (the so-called 'valley of death') in the innovation curve: procurement gaps in getting new technology into use, demand-side gaps between users and distributors, knowledge gaps between the silos of higher education and so on. And then a synergistic alternative begins to emerge on the right-hand side at g). Supply-chain synergies enable producers to know what users need or want and procurement synergies enable public services to sponsor innovation in the public interest, (including technology, social and policy innovation). Financial synergies bridge the risk gaps with partnership investment models, and knowledge synergies bridge the skills gaps with firm and sector mentoring. Even the universities (with their in-grown medieval systems) might realize the potential of the emerging '*Multi-versities*' of distributed co-learning across the city.

### Foresight-III in practice

With countless guidebooks and templates out there, the *FORESIGHT-III* summary at Table 9-4 aims to be short and simple. First, it maps the wider community of stakeholders in the different Modes, from linear to co-evolutionary. Then it sketches the deeper domains of value and logic, from linear to co-evolutionary. The further dimension looks at the scope of innovation, from technical fix to systems transformation.

And for the 'circulatory' four-stage process, the synergistic 4-S toolkit, this provides a structure for the Foresight-III cognitive cycle, in the lower part of *Table 9-4*. As for practical applications, one example was the UK 'Future of Cities' programme which produced some useful thinking for the urban agenda:<sup>19</sup>

- Relational thinking for systems mapping: city as a tangible object or 'thing' (buildings, streets etc), towards a deeper-wider space of 'thinking', ideas, imaginaries;
- Divergent thinking, for change mapping: from urban trends and scenarios (GDP or population growth), towards deeper-wider shifts (socio-political visions or cultural myths);
- Emergent thinking, with synergy mapping: from tangibles (education or innovation outputs), towards potentials (cohesion, collaboration and collective urban intelligence);
- Convergent thinking for pathway/road-mapping: from direct urban policies, towards pathways for anticipatory governance and social co-production.

**Table 9-4: Foresight-III: summary & self-assessment**

	<b>Mode-I Linear</b>	<b>Mode-II Evolutionary</b>	<b>Mode-III Co-evolutionary</b>
	<b>'CLEVER': complex</b>	<b>'SMART': emergent complexity</b>	<b>'WISE': deeper complexity</b>
<b>WIDER: (actors &amp; factors)</b>	Elite/experts with top-down programme	Elite/experts with open enterprise	Participative co-learning & co-production
<b>DEEPER: (social, technical etc)</b>	Technical & functional analysis	Multi-functional analysis	Multi-dimension, multi-valent, analysis-synthesis
<b>FURTHER: innovation/transition</b>	Problem-solving foresight: for technical innovation	Opportunity-seeking entrepreneurial innovation	Agenda setting foresight & transformative innovation
<b>CIRCULAR: (process)</b>			
<b>Relational thinking: co-learning</b>	Tangible system mapping	Systems of incentives, competition, enterprise	Cognitive capital & <i>connexus</i> mapping
<b>Divergent thinking: co-knowledge</b>	Tangible trends / scenarios	Evolutionary trends/scenarios	Alternative futures & synergistic potential
<b>Emergent thinking: co-creation</b>	Specific problem-solving	Innovation & problem insight	Societal co-design & co-innovation
<b>Convergent thinking: co-production</b>	Specific actions/responses	Enterprise strategy & road-mapping	Societal transformation pathways

As for applications, there's a clear difference between an innovation system which is fragmented and dysfunctional, and an innovation system which is inter-connected and mobilized, leading the co-evolutionary transition (from 'Hi-Carb' to 'Low-Carb', or many other equivalents). This summary can help to track the scope and fit of problems to responses.

Overall, this matrix is only a rough guide, not to be taken too literally. And for the information needed – 'it's better to be roughly right, than precisely wrong' (as Keynes put it). Actual numbers are not easy to find for most of these items, and discursive images, media, stories or conversations could be more useful. Readers might try their next **FORESIGHT-III** project on the back of a serviette in a creative and salubrious setting ...

### Applying the insights

Bringing together all four insights from this chapter, the Low-Carb city is again a good test-bed. We look for ways to improve the collective intelligence of the urban-energy system, from supply chains to finance, from social practices to governance. We rethink the question of 'values', beyond short-term energy prices, towards deeper-wider human well-being. We can improve the urban-energy resilience to deeper-wider challenges, from climate change to cyber-attack. And, lastly, we think ahead with foresight for the innovation curves and transition pathways, to get from here to there, not just for the technical transformation of 'things', but the human transformation of 'thinking'.

All this raises profound questions for research methods and future R&I agendas. Broadly, these range from fields and disciplines, to the inter-connections between them. And they range from 'things' to 'thinking', in other words the deeper-wider,

cognitive-experiential, collective scientific intelligence, a dynamic picture far beyond the scope of the current academic system.

Meanwhile, this ‘starter pack’ of Insights should help to illuminate and enable the other pathways through this book. And for another time, there are many more insights to explore – process qualities of design, inter-personal qualities of deliberation or participation, or systems qualities such as ‘sustainability’. And another great ‘S’ word is ‘societal’, which underpins our next and final challenge on this journey – the global *Collaboratorium* ...

## Notes

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<sup>1</sup> MGI 2017, Gowing and Langdon 2016

<sup>2</sup> [www.gov.uk/government/collections/land-use-futures](http://www.gov.uk/government/collections/land-use-futures)

<sup>3</sup> Loveridge 2009; Georghiou et al 2008; Miles, Saritas & Sokolov 2016

<sup>4</sup> Rohrbeck & Kum 2018

<sup>5</sup> Barré 2014

<sup>6</sup> Robinson et al 2011; Mulgan 2016

<sup>7</sup> Bezold 2009; Ravetz & Miles 2016

<sup>8</sup> Inayatullah 2011

<sup>9</sup> O’Riordan & Lenton 2013; Hiltunen 2006

<sup>10</sup> Turnheim et al 2015

<sup>11</sup> Mazzucato 2012

<sup>12</sup> Florida 2002

<sup>13</sup> Geels 2005

<sup>14</sup> Rotmans, Kemp & van Asselt 2001

<sup>15</sup> Freeman & Louçã 2001

<sup>16</sup> Beinhocker 2006

<sup>17</sup> Grubb, Hourcade & Neuhoff 2014

<sup>18</sup> Schot & Steinmueller 2018

<sup>19</sup> Ravetz & Miles 2016; Ravetz 2015