OVERVIEW

The smart city agenda, as seen with Uber, AirBnB and many others, brings technical innovation and growth: but there is also the prospect of mass unemployment, exploitation of workers, replacement of public services by algorithms. So we need to talk about not only 'smart cities', but 'wise' cities. Here, technology works in parallel with social, economic, cultural and political progress. So the pathways 'from smart to wise' are now crucial and urgent, and call for new ways to build strategic policy intelligence.

This briefing is an outline of the case with some practical ways forward.

SMART-WISE CITY SERVICES
(Based on examples of responsive transport by Uber etc: accommodation by AirBnB etc)
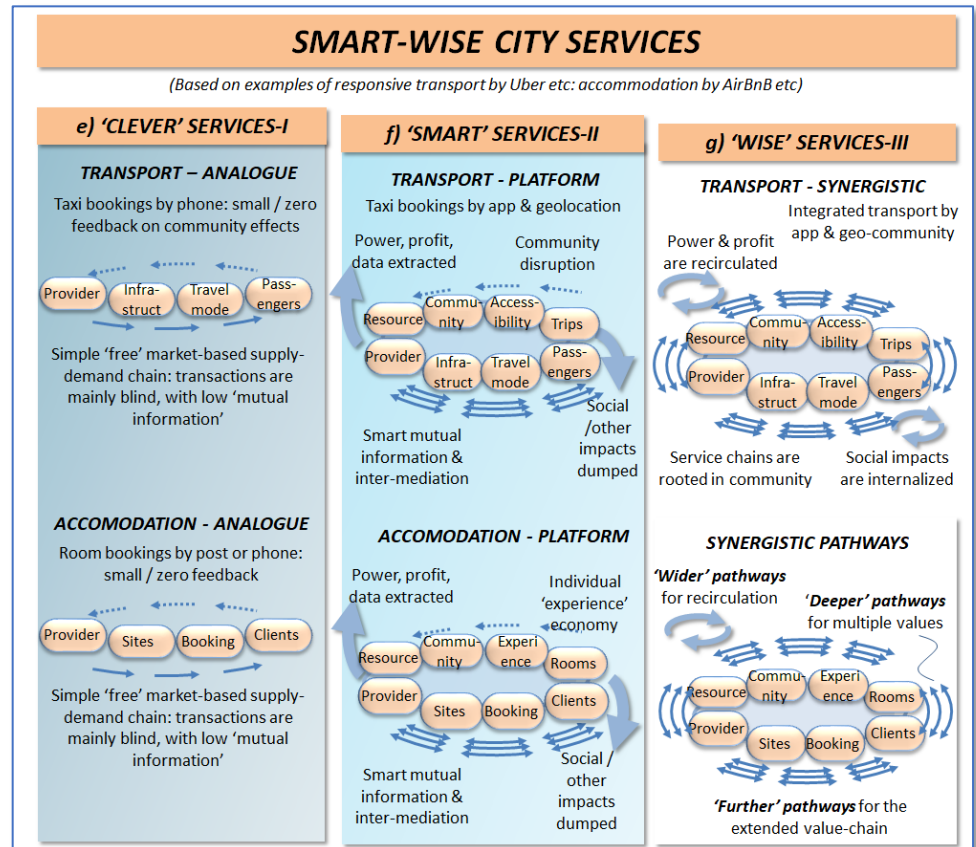
We can explore the meaning of the smart-wise city, in transport, energy, housing, business, health, public services and governance – each with a higher agenda for 'responsive, sustainable, and inclusive'. We can explore what this means in practice, with systems analysis in three 'Modes': the diagram here shows examples from transport (Uber etc) and accommodation (AirBnB etc):

1) *'clever' systems* (Mode-I): information processing with 'single-loop' learning, where the problems and solutions are fixed. For taxis, either book by phone or wait on the street.
2) *'smart' systems* (Mode-II): algorithms for 'double-loop' learning and decision-making, for more strategic problems and solutions. For taxis, use a smart platform with real-time locations of taxis and customers, with profiles of each known to the other.
3) *'wise' systems* (Mode-III): technology-human combinations, beyond smart algorithms, towards 'wiser' co-learning and co-creation of social institutions. For taxis, we coordinate the demand-responsive platforms, with integrated public-private transport and inclusive accessibility, across the city. This depends on a level of collective intelligence ('conscious complexity') to think beyond the technical functionalities.

This tech-human combination is an emerging agenda now framed as 'Smart inclusive growth', which depends on this collective intelligence. Some combinations can be explored:

- **'Smart growth with inclusion'** - Smart technology systems, for new enterprise & service models, which can enable and promote social inclusion (example sectors in health, education, housing, social policy).
- **'Smart inclusive with growth'** - transitions in social networks and community enterprise, with potential for economic growth: (examples of Facebook etc as catalysts in social enterprises, sharing economy, cultural co-production, micro-finance for entrepreneurs etc).
- **'Inclusive growth with smart'** – social programmes, enabled by smart technology / informatics systems (e.g. procurement, labour market, social enterprise, local economic participation etc).
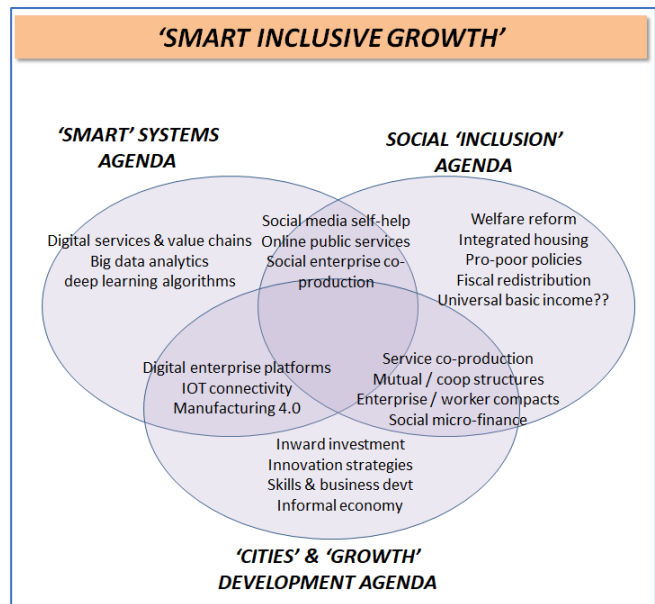
Clearly there is huge potential for unlocking social and economic resources with the help of the new technologies. There are also huge risks of disruption, surveillance, data extraction or cyber-attack. This is all the more reason for the synergistic methods. With these we can explore the possible pathways from smart to wise, and new combinations of smart / inclusive / growth or development.

This is a very practical task: we can explore functional innovations (e.g. Uber), leading from mode-I to mode-II, and then a mode-III 'wiser' business model, which builds in resilience, inclusion, and re-investment of value.   It is also a more strategic task: we can form extended collaborations, to take stock, look ahead, create visions, and then practical ways forward. This is the direction of the synergistic methods and visual templates overleaf.

The summary table here is the start of a mapping and/or evaluation process, which helps to explore the difference between Mode-I, Mode-II and Mode-III, and the pathways between them:

	Mode-I *Linear*	*Mode-II* *Evolutionary*	*Mode-III* *Co-evolutionary*
	'CLEVER': *(complex)*	*'SMART':* *(emergent complexity)*	*'WISE':* *(conscious complexity)*
A) 'WIDER': (actors/factors			
Informatic technology	Functional algorithms	Emergent AI	CHAI (Collective Human-Artificial Intelligence)
Smart services	Problem solving	Solution generating	System transformation
Smart communities	Information exchange	Opportunity / competition	Shared livelihoods
B) DEEPER: (domains			
Social	Society as users	Society as consumers	Society as citizens
Technical	Mono-functional	Multi-functional	Integrated systems
Economic	Industrial production	Extractive capital	Holistic livelihoods
Environment	Eco-technologies	Eco-markets	Eco-communities
Political	Institutional structures	Power games & processes	Collective intelligence
Cultural	Techno-efficiency myth	Innovation-progress myth	Archetype of civilization
Urban	City as machine	City as marketplace	City as civilization

A 'Smart-Wise City' has to, somehow, connect environmental management with social, technology, ecology, economic, political and cultural issues. Meanwhile, 'grand challenges' such as artificial intelligence or social inequality, are even more 'hyper-complex', inter-connected, and controversial. What can be done?

'Synergistics' – the science and art of working with synergies – has been developed for such challenges. It provides practical methods and tools, to help explore and enable 'collective intelligence'. It can work in organizations, institutions, supply chains or value-chains, business / enterprise models, networks or communities.

To explore the potential for collective intelligence, calls for creative and visionary thinking. For this we use the Synergistic Toolkit, a flexible set of techniques with 4 stages and 12 steps:

a) *System mapping:* the baseline syndromes and issues on the table: also includes '*co-learning':*
b) *Scenario mapping:* the drivers of change & alternative futures: ('*co-knowledge'):*
c) *Synergy mapping:* design of opportunities, synergies, innovations: ('*co-creation'):*
d) *Strategy mapping*: design of practical pathways, road-maps, policies & projects ('*co-production')*.
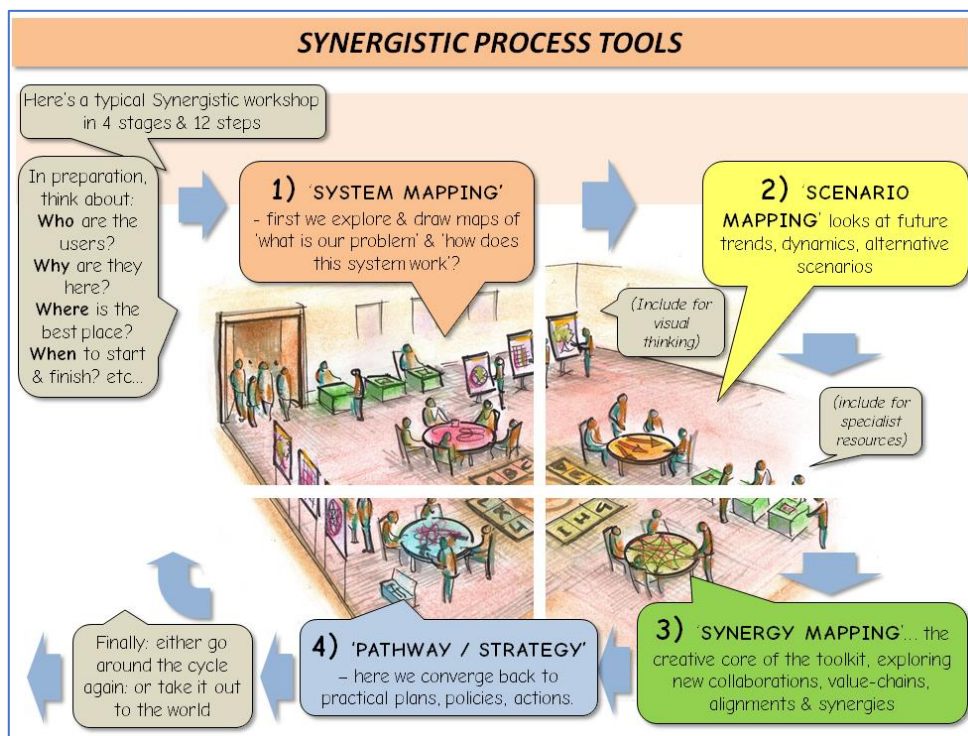
The picture here shows all four stages in one big room (in reality each could be at a different time and place)**.** The scheme is very flexible: it can take hours, days, weeks or months, depending on time, people and resources.   The cycle can be more interactive, or more about desk-study, data-mining, expert debate, or stakeholder interviews.   Overall these tools help to explore 'grand societal challenges': to identify 'what kind of problems' are we talking about: and then explore 'what kind of solutions' are most useful.

Visual thinking is at the centre of the synergistic methods and tools. This Guide provides a series of templates and typical questions, for each of the 4 stages and 12 steps.

These visual templates provide an easy and practical structure for building and visualizing complex information, i.e. concept maps / systems maps / *deeper-mind* maps. (these are different to *mind-maps*, as they focus on collective intelligence with multiple agendas).

The templates can be easily copied onto flip charts with writing or images on sticky notes. The order of using the templates depends on the theme, the event, the participants etc. Sometimes we start with the Scenario Mapping (D,E,F): in others we start with Synergy Mapping (G,H,I).

Overall, visual thinking is one of the best ways to explore creative, out-of-the-box, inter-connected ideas.

- Participants are asked for visual ideas or small sketches, to be completed by a graphic facilitator.
- Participants can respond to 'future cards', 'scenario visions', or other visual inputs
- Participants are encouraged to draw concept mappings, using the visual templates.
- The templates are very flexible, and can be used in a creative open-minded way.
- If participants don't agree on the images or mappings, each can do their own version.
- The templates in stage 1 & 3 are focused on the development of collective intelligence.
- The templates in stage 2 & 4 fit with mainstream futures / scenario methods: and with standard route-mapping / project management methods.
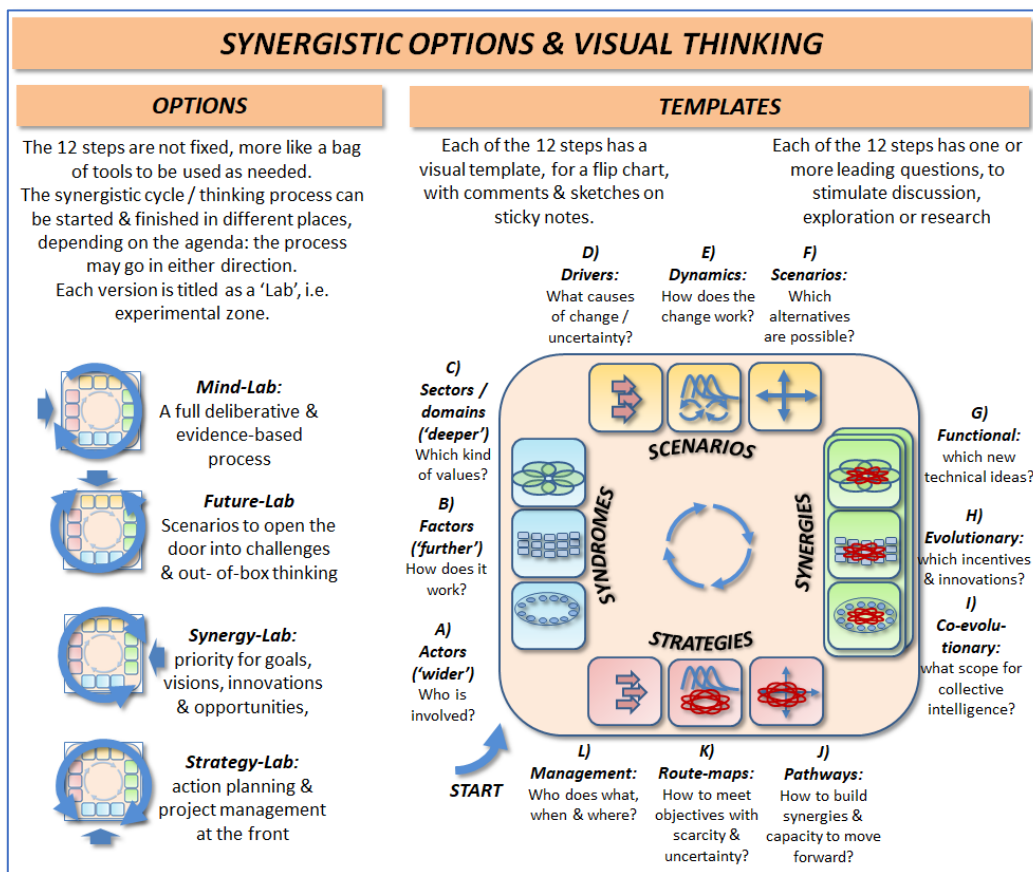
Each of the 4 stages and 12 steps is shown in the following pages, with likely questions to be addressed, and with cues for visual thinking methods. The graphics on the left side are blank templates (to be copied onto flip-charts or similar). The graphics on the right side are worked examples (based on a low-carbon agenda).

A)   ACTORS MAPPING – ('WIDER' SYNERGIES): *'ROUND TABLE'* TEMPLATE

- *Q: Who is involved?*
- *Q: how do they interact?*

Identify the most important people, stakeholders, communities: explore their roles & relations (social, economic, political etc).
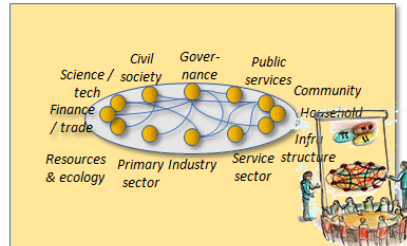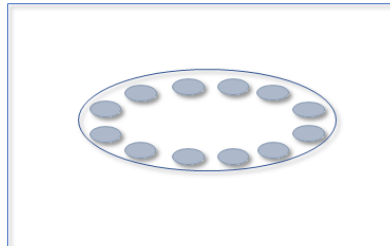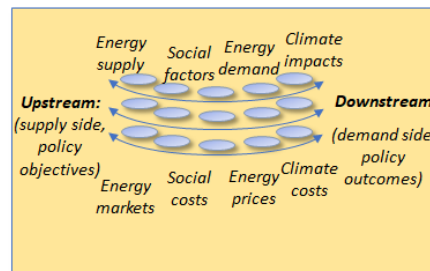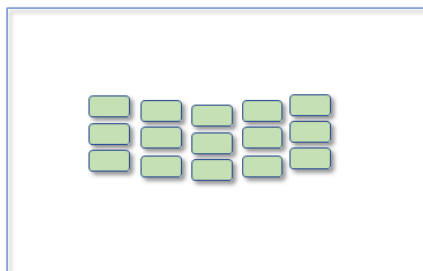

B)   FACTORS MAPPING – ('FURTHER' SYNERGIES): *'BUSINESS MODEL'* TEMPLATE

- *Q: How does the system work?*
- *Q: Where are the upstream / downstream factors?*

Explore the metabolism or flows (resources, money, policy, labour, social value etc):

Look for upstream causes / downstream effects of the flows, (e.g. ecological / social impacts)

C)   DOMAIN MAPPING – ('DEEPER' SYNERGIES): *'CLOUDY CRYSTAL BALL'*.

Questions to be addressed:

- *Q: Why is this project important?*
- *Q: Which values & domains are involved?*

Explore what kind of problems & what is the scope: which are the goals / visions? (social / technology / economic / environment / political /cultural etc).
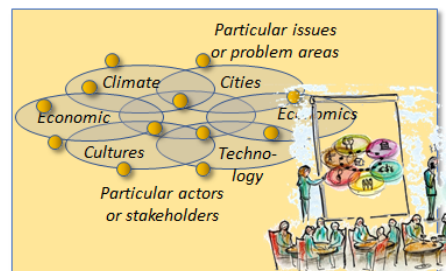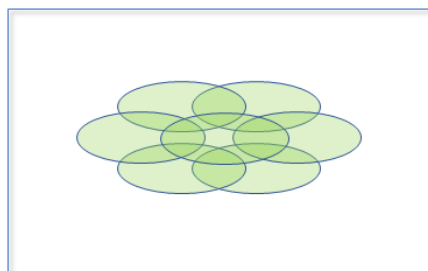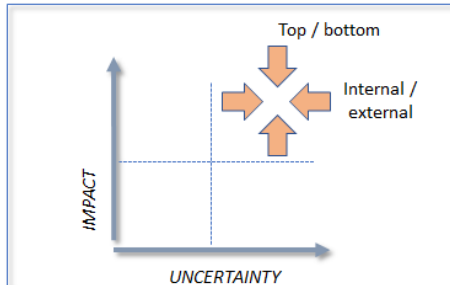
DRIVERS - *'FORCE FIELDS'* TEMPLATE

- *Which forces of change?*
- *Which uncertainties?*

Identify each kind of change, for impact & uncertainty. Select the top 2 or 3 most important changes.
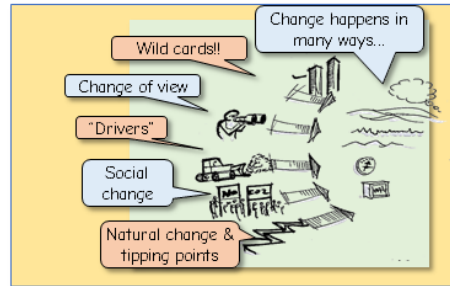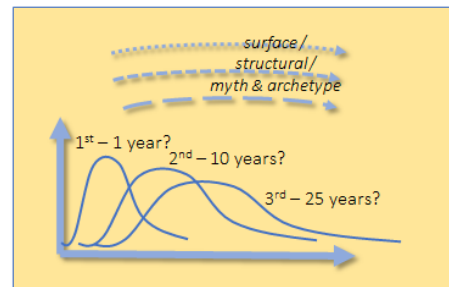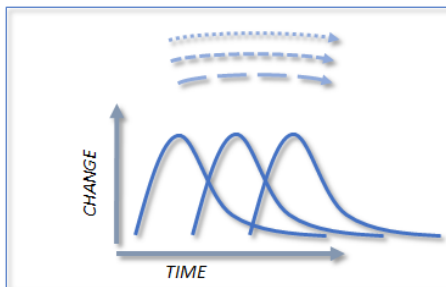

D) HORIZONS - *'3 MOUNTAINS'* TEMPLATE

- *When are the horizons of each change?*
- *Which are surface / structural / archetype changes?*
- *When is there growth / decline/ restructuring?*

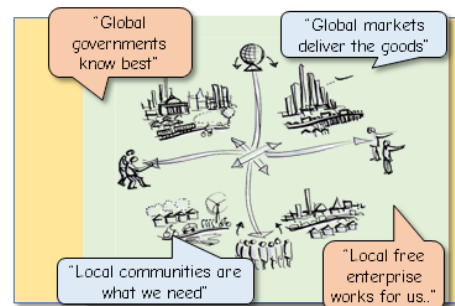Explore which are short / medium / longer term changes:
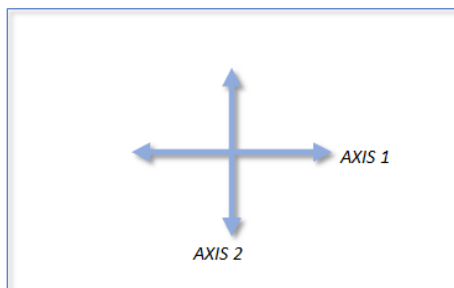
Explore the patterns or cycles of change

E) SCENARIOS - *'CROSS-ROADS'* TEMPLATE

- *What if the best / worst happens?*
- *Which are the most 'interesting' alternative futures?*

Explore 'what-if' the top 2/3 changes are high / low impact, positive / negative.
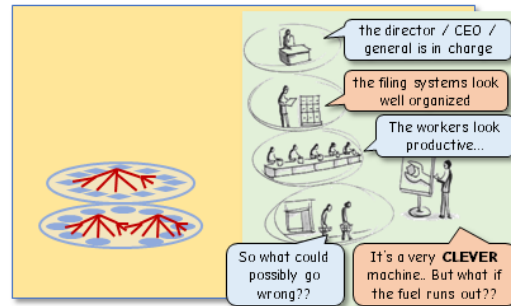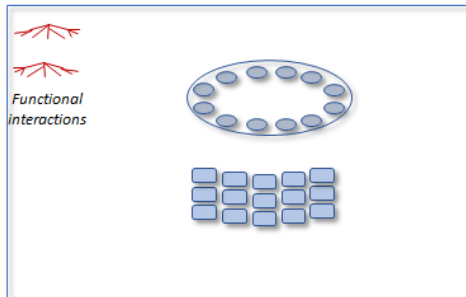
Explore the scenarios with stories, headlines, images.

F) LINEAR – (MODE-I) - *'CLEVER IDEAS'* TEMPLATE

- *How to improve the functions & operations?*

Explore practical ideas & synergies between the 'actors' & 'factors' (social / technology / economic / environment / political /cultural etc). Draw the possible inter-connections.

G) EVOLUTIONARY (MODE-II): *'SMARTER IDEAS'* TEMPLATE

- *How to make smarter inter-connections?*

Explore the state-of-the-art entrepreneurial ideas & synergies between 'actors' & between 'factors'. Draw the possible inter-connections.
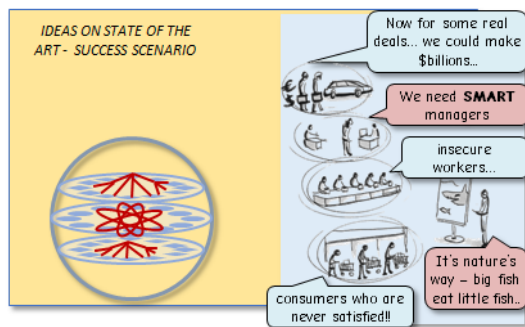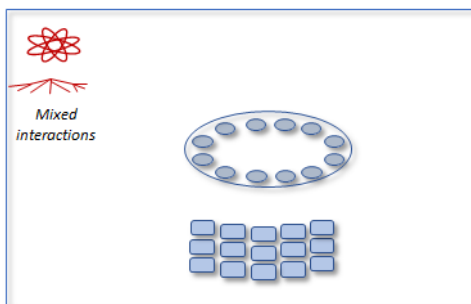
H) CO-EVOLUTIONARY (MODE-III): *'WISER IDEAS':* TEMPLATE
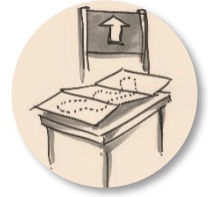
- *How to grow a wiser kind of intelligence?*

Explore beyond state-of-the-art 'visionary' ideas & synergies, between different 'actors' & 'factors'. Draw the possible inter-connections, with multiple layers.
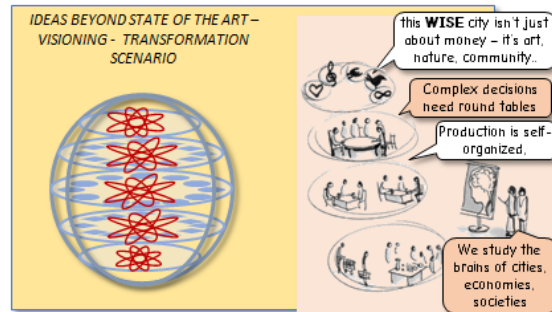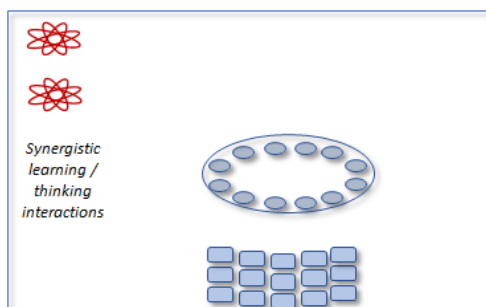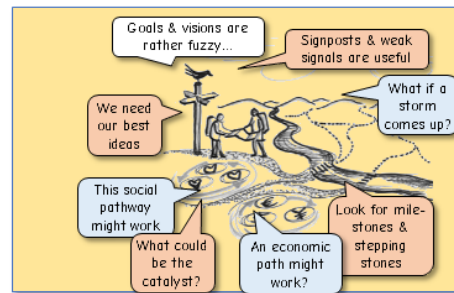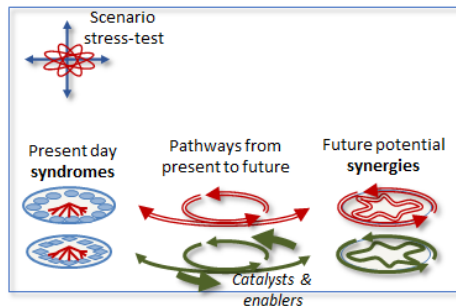
(J) PATHWAYS - 'PATHWAYS'

- *Which pathways could best realize the opportunities??*
- *Are these future-proofed?*

Develop 'pathways' of strategic change, which connect the most robust ideas / synergies (internal / external: short /medium / longer). *(there are different formats to show the pathways)*
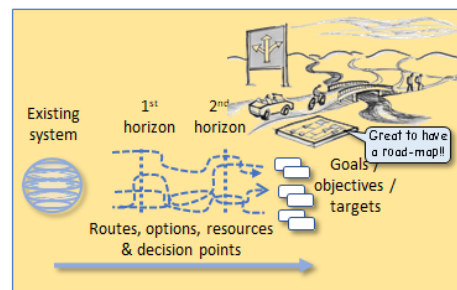
Test the best ideas / synergies against each scenario: & select the most robust.

(K) ROUTE-MAPS - 'ROUTE-MAPS'

- *What strategies could turn the pathways into reality??*
- *When are the key stages?*
- *How much resources are needed?*

Identify the goals & objectives: Identify links to plans & actions, actors involved, factors & resources needed. (internal / external: short /medium / longer)
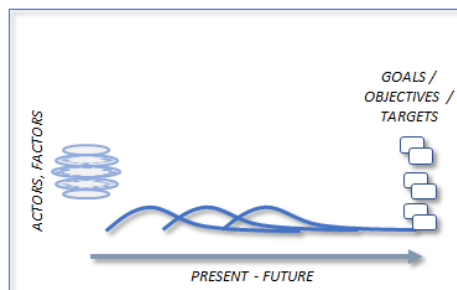
(L) MANAGEMENT/ EVALUATION - 'ACTION PLANS'

- *How to manage the actions?*
- *How to evaluate the results??*

Set up management plan with practical priorities & actions: Identify the next steps with actors & resources: Explore how to monitor performance, evaluate results & feedback.
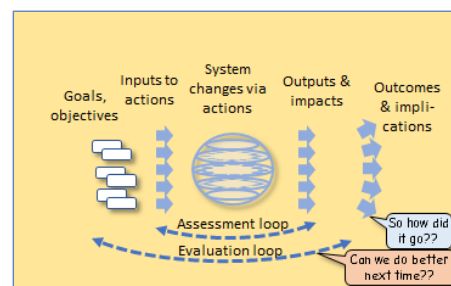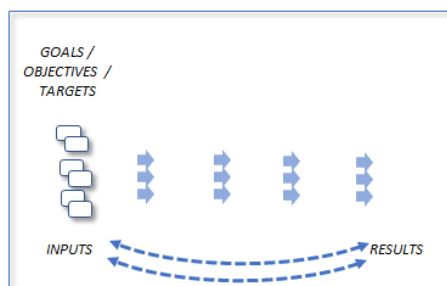
This table is a summary of the 12 steps in the Synergistic Toolkit, with key questions to be addressed, & examples of urban development. Note the steps can follow in different orders (not always A, B, C)

		KEY TASKS	KEY QUESTIONS	URBAN EXAMPLE
SYSTEM / SYNDROMES				
A)	Scoping	Explore the scope of the problem / system /issue / agenda / problematique…	what is the agenda or problem for today: where are the boundaries?	*What is the scope & agenda: housing / infrastructure / public space?*
B)	'Wider' synergies	Explore how the system works, , and the relations of the actors in the system,	how do the actors / factors interact: what kind of system, hierarchical or networked?	*E.g. who are the key actors-investors /owners / developers / designers / residents?*
C)	'Deeper' synergies	Map the overall 'metabolism' of the system, with inter-connections between domains.	Which are the key domains e.g. social / technical / economic / ecological /political ?	*What are the main forces shaping behind the peri-urban syndromes*
SCENARIO MAPPING				
D)	Drivers	Explore the forces of change, both external and internal.	what are the driving forces of change, uncertainty, internal / external, near / far horizon?	*What are key drivers of change & uncertainty ('21 drivers')*
E)	Dynamics	define the most significant dynamic cycle effects.	what dynamics of change – succession / renewal / tipping points / transitions?	*How does the cycle of renewal work here: (e.g. development / conservation / restructure?*
F)	Scenarios	explore alternative futures with structured 'what-if' questions.	which projections and scenarios are most relevant & plausible?	*How could the future peri-urban be different from today?*
SYNERGY MAPPING				
G)	Linear mode-I	map the system qualities which are more linear & mono-functional	what opportunities for functional efficiency & performance of the system? Any negative effects?	Is the key peri-urban issue *linear growth*? (housing, services, infrastructure etc)
H)	Evolutionary mode-II	map the qualities which are evolutionary & inter-connected.	opportunities for creative enterprise, new functions & niches? Any negative effects?	Is the key peri-urban issue *adaptation / evolution*? (housing, services, etc...)
I)	Co-evolut-ionary mode-III	Map the qualities which are more co-evolutionary & synergistic	how can opportunities emerge via synergistic collaboration, co-learning & social intelligence?	Is the key peri-urban issue *co-intelligence / co-evolution*? (housing, services, infra, etc...)
STRATEGY MAPPING				
J)	Pathways	look for synergistic pathways, to link between present 'syndromes' & future 'synergies'	which synergistic combinations can form pathways to bring actors/ factors into alignment & added value.	*How to make real positive change in the peri-urban? (housing, services, infra, public realm...)*
K)	Road-maps	look for synergistic links between objectives, resources, actions, enablers.	which pathways, actors and factors can be combined into practical strategies & actions? what implications for resources?	*Which resources, actions, timescales to realize these? (housing, services, infrastructure, public realm...)*
L)	Management / Evaluation	rational /relational management methods with assessment & evaluation.	how can results be evaluated, with feedback & learning into the next cycle?	*How to learn: before, throughout & following the urban policy process?*