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SPECIAL FEATURE: REVIEW ARTICLE

Leverage Points for Sustainability Transformations

# How do we know where there is potential to intervene and leverage impact in a changing system? The practitioners perspective

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## Abstract

More and more people and organisations who are addressing complex sustainability challenges are turning to systems change practices. They are looking to get to grips with complexity and to better understand how to use their resources, position and influence to address the challenges. These people are working across civil society, philanthropy, business, international development, government and beyond. Many hope that adopting this emerging practice will give them the answers to the long held questions of – How do I know where to intervene? How do I know that what I am doing is the 'right' thing? Am I using my resources for their greatest effect? Once we have set ambitious goals around issues like inequality and climate change, how do I know I am creating impact?. In 1999 Donella Meadows wrote a paper entitled *Leverage points: places to intervene in a system* to help translate the work of systems dynamics into understanding where a small amount of energy might have a greater effect. Ever since, practitioners have been chasing these elusive leverage points trying to understand how this might be made useful and practical. There is, however, no silver bullet to changing a system. At Forum for the Future and through the School of System Change, we work on a number of different projects such as the Protein Challenge and Boundless Roots Community as well as collaborate on, coach and co-inquire with others such as the Marine CoLAB, Oneless, Lankelly Chase Foundation. In this paper we seek to build on systems change ideas and theories, using Forum for the Future experience of working with these ideas in practice, and offer actionable knowledge (Coghlan 2007) to other change makers who are grappling with these questions. This paper provides four qualities that help us understand the dynamics of a changing system, and how potential in these dynamics might be identified and be translated into strategy and interventions. I explore and illustrate these through cases and examples and raise the question about how change makers might value what we measure when understanding impact in the context of a changing system.

**Keywords** Systems change · Leverage · Potential · Impact · Sustainability challenges

## Introduction

Interest in systems change practice has been growing over the last years. As change makers are turning to ever bigger sustainability challenges they are realising that the complexity that is inherent within them might need new approaches to addressing them. These practitioners, across all sectors are looking towards systems theories and ideas to know where and how to intervene and to help them understand their impact. They are looking to the idea of leverage points to understand the different ways to create change in a system, and to differentiate between different interventions and their relative effect to each other. The use of the mechanical metaphor of a lever, which has more force further away from exerting force, has helped conceptually grasp how change might happen. However despite Meadows' deep systemic understanding, the metaphor of leverage, as I have seen in practice, can imply the possibility of linear change affected in a physical way rather than being applied to a moving dynamic world. It might be time to revisit the concept from both a living systems perspective as well as understanding its implications for practice.

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This paper aims to help change makers seeking to cultivate systems change to both identify where the potential is in their diagnoses and highlight implications for how they might respond. It does this through firstly exploring four qualities of living systems that introduces how we might understand how systems changes. This lead to a deepening and exploration of leverage by presenting four levels of potential in changing systems—reconfiguring structures and flows explores, re-patterning of relationships, cultivating systemic ways of organizing, alignment and coordination towards whole system goals and shifting paradigms.

These proposed levels of potential both draw on ideas and literature and are based on the professional experience of cultivating systems change with practitioners over the years. At Forum for the Future and through the School of System Change, we work with a wide variety of organisations, across multiple sectors, who are seeking to cultivate change on a number of complex sustainability issues. In this paper, I will draw on the many projects we are working on and the experience of those who we coach and work alongside. This include Forum for the Future's collaborations around global challenges such as Cotton 2040 which aims to increase the use of sustainable cotton internationally, bringing together leading brands and retailers. Protein Challenge where we are exploring how to balance supply and demand of protein for a growing population, in a way that is affordable, healthy and regenerative. We also coach and collaborate with others on initiatives such as the Marine CoLAB: a collaboration, initiated by Calouste Gulbenkian Foundation, which seeks to build an ocean friendly society, creating a shared appreciation about the value of the ocean, shifting from the current dominant narrative based on economic value. The Marine CoLAB has incubated a number of experiments that seek to address critical ocean issues. Oneless is one such experiment working to eliminate single use plastic water bottles entering the ocean from London, by creating sustained systems change at all levels; from policy to infrastructure and to creating a refill culture across the city.

Further initiatives are Civil Society Futures, a two year inquiry into how civil society can flourish in a fast changing world, releasing the potential of civic action to drive positive change and Boundless Roots, a community inquiry into how we, as climate change and sustainable behaviour practitioners, transform lifestyles and create the conditions for radical changes in how we live. In this paper, I also draw upon other systems change projects and organisations. These include Lankelly Chase Foundation, who take a systems change approach to changing the systems that perpetuate severe and multiple disadvantage, through building partnerships across the UK. Lankelly Chase's vision is a society where everyone has the opportunity to live a rewarding life and can thrive.

The paper outlines each of these levels of potential and give examples to illustrate what this might look like in practice drawing from these examples. At the end I reflect on how as practitioners we need to value more these deeper leverage points, which can often be hard as less tangible and therefore more difficult to implement and measure. It also requires the bringing of a systemic mind-set, one that sees the world as constantly moving, so that we are working with change and therefore aligning and redefining how we understand impact and how we measure it, which affects the design and delivery of our programmes. Its limitations are therefore it comes mainly from experience in practice but is also presented in a way to support actionable knowledge and as such can be seen as normative or over assertive in its claims. However it assumes any systemic practitioner should also be bringing their critical and inquiring minds to whatever framework they choose to use all frameworks are wrong, but some are useful" attributed to George Box.

## Glossary

**Living systems theories** – seek to incorporate systems thinking and complexity within a frame that these systems are living, that our social systems are part of our wider ecology that is alive and as such open and evolving.

**Leverage—**where a small amount of energy might have a greater effect.

**Potential**—putting energy into systems that can give it the ability to emerge into something into the future.

**Transformational systemic change** – catalysing change for sustainability where the challenge is complex, the goals are ambitious, and the way that we cultivate change is systemic.

**A healthy system**—is one that has the capacity to sustain and support life social and ecological.

## Revisiting the concept of leverage with living systems qualities

Our predominant way of seeing and acting in the world does not take into account that the world is dynamic, changing and systemic; so we act or intervene by trying to over simplify, control and manage any complex dynamic (Cook-Greuter 2002; Birney, 2015). Many of our management systems operate in this way, and so when we look to create change or to address challenges it is our tendency to mirror these approaches. For example, we design linear, causal theories of change, or strategies that seek to predict and to find knowable solutions and fixes. In the face of the multifaceted challenges we see today, with their associated persistent problems, we need to step back, make sense of what is happening and start to work with the situation as it is changing.

*"The world is a complex, interconnected finite, ecological-social-psychological-economic system. We treat it as if it*

*were not, as it were divisible, separable simple and infinite. Our persistent, intractable, global problems arise directly from this mismatch"* (Meadows 2010:101).

This is the premise behind the need for systems change practices: we need to work with the way the world works, as a complex adaptive, social, physiological, ecological, connected world. If we accept this premise, it has implications for how we understand the world's challenges as well as giving insights into how we might work with energy and dynamics to cultivate systemic change.

So how are systems changing? How might we understand the dynamics of our changing world? There are different framings and theories that seek to do this and come from different schools and disciplines. For this work I draw on Meadows (1999, 2010) and others in systems thinking and dynamics (Stroh 2015 as well as complexity theory (Omidyar 2017, Boulton et al. 2015). I bring these together with ideas of living systems (Capra and Luisi 2014; Capra 1997; Bateson 2000), seeking to understand our embeddedness in life – as it is a useful framing when we need to work with sustainability – the ability of humanity, us, to sustain ourselves as part of a flourishing natural world (Birney 2015). These different ideas can come together around four qualities that overall can be seen as living systems qualities, as a way to help practitioners understand a changing system. These qualities are:

1) We, humans, and our social systems, are embedded or nested in the living world. Furthermore, we are multi-fractal – meaning that the patterns that connect us are found at the macro as well as the micro level

   This quality assumes, based on physics and living systems theory ((Capra and Luisi, 2014; Capra, 1997) the world is a series of nested or embedded hierarchies, that we as people are nested in communities, in societies and in our ecology.

   "*in nature there is no above nor below, there are only networks nestling within other networks.' (*Capra 1997*:35).*

   This is an important framing for our agency (ability and belief we can act) (Bandra 1990) as it places any action we might take in the world as part of a wider sphere of influence, moving out across multiple levels. Sustainability transitions research, works with this idea of multi-level perspective when looking at this in socio-technical systems (Geels 2002; Geels and Schot 2010). Working with this fractal nature of living systems, patterns that are self-similar across different scales (Capra and Luisi 2014:117, Brown 2017:51), means that if we change something at the smaller level – and play into the wider pattern – we can have an effect at changing the dynamics on a larger scale. If we place new dynamics and patterns at one scale it can have an effect at wider levels. This is important when we start to understand the potential for intervention, as we do not have to change the whole system, but choose where energy goes; our catalytic ability as change makers might start to work with the nested dynamics of change.
2) The world is relating dynamically, which means there are many exchanges within our relationships

   We often focus on the parts of the system and say that they relate to the other parts of the systems, for example that the tree is connected to the soil, and the soil the river and so on (Boulton et al. 2015:15–16); but we need to look at *how* they are relating—the flow of water, nutrients – and the exchanges that are taking place (Mang, and Haggard 2016). As we draw and imagine systems, we need to see what is flowing and how the movement is taking place. This is more than seeing things as having a relationship but seeing them as constantly relating. This affects how we understand where we might create change as we need to work with a changing system, one that is in movement. One where we can start to see verbs not nouns; seeking active rather than static ways of describing the world.
3) The way the world changes is through emergence

   As energy, through the sun, is put into a dynamic living system it brings novelty, drives movement and therefore evolution (Capra1997:291&216). This new energy means there is increasing complexity. The world adds new structures that shifts the fabric of the way it operates to deal with more complexity (Capra, 1997:28). For example animals evolved a central nervous systems to process information, enabling us to move and respond to the environment in more sophisticated ways (Capra and Luisi 2014:258).

   Bringing together th previous two qualities with the idea of emergence. Systems keep changing through dynamic interrelating so that new self-organising structures emerge at different multi-fractal levels, creating new ways of relating. This process of change in living systems is called self-organisation, adding new dynamics and patterns to what is already there (Capra 1997:221, Meadows 2010:190). A simple example of self-organisation is a murmuration of starlings that are abiding to simple rules, interacting and so that new patterns emerge (Brown 2017:46).

   This is important when we think about how we create change as it suggests we need to work with this emergence and evolution, through creativity, experimentation and probing the system and learning what works. It also might suggest we need to continue to evolve our organising structures to help us work with complexity in society.
4) As social human creatures have consciousness as our emergent property of living beings

When we are talking about the work of creating a sustainable future we are really talking about social systems and the ability for humans to sustain and enable life to flourish on it.

The emergent property, that is the new pattern or systems structure that has emerged for humans to manage the complexity in our systems, is the property of consciousness.

'As human beings, we not only experience the transient states of primary consciousness; we also think and reflect, communicate in symbolic language, make value judgements, hold beliefs, and act intentionally with self-awareness and an experience of personal freedom' (Capra and Luisi, 2014:270)

Consciousness as the experience of self-awareness (Wendt, 2015:15, Capra and Luisi, 2014:257) has a number of implications for how we might understand the dynamics of changing a system. Firstly, that we have the self-reflective ability of *choice*. We have the ability to build knowledge and have command of and over our environment (or believe that we do, to use it for our perceived own ends). However, this consciousness also gives us the ability to understand the impacts of these choices and how detrimental they are to our own survival. It can therefore help us to choose how to start shifting our current societal systems towards ones that are distributive, healthy and regenerative.

Secondly, we can also notice that our choices are informed by a set of beliefs and assumptions we have about the world. These beliefs and assumptions come together as a mind-set or paradigm and informs how we see, understand and act in the world:

A paradigm is 'a constellation of concepts, values, perceptions and practices shared by a community, which forms a particular vision of reality that is the basis of the way a community organises itself.' (Capra 1997:5-6)

## Nested patterns of systems: levels of potential

If systems change is "*the (continual) emergence of new patterns of organising*[1] *or system structure"* (Birney 2014, 2015), then knowing what these new patterns or structures are might help us know the kind of transformation we are seeking.

We often think of a system as the physical structures and the explicit patterns and flows that we can see. Drawing on the qualities of a living systems above, these physical structures emerge within patterns of relationships. These patterns are working towards systems health, to achieve a function or purpose, that contributes to the wider system. We call this seeking whole system goals, or goals that are set for the entire system, so that it is healthy and sustainable (Meadows 1999:16). The whole is at the largest scale society is working within, right up to our life-supporting ecosystem. These goals are nested within patterns of consciousness, mind-set or paradigm (Fig. 1).

There are many systems methods, frameworks and analyses that practitioners use to start to make sense of what is changing within the patterns of a system. These includes modelling work done in the tradition of systems dynamics and multi-causal mapping (Ominiyar 2017), using the iceberg (Stroh 2015), or nested systems (Mang and Haggard 2016), multi-level perspective (Geels and Schot 2010; Grin et al. 2010) stakeholder mapping (Richie-Dunahm and Rabbino 2001), trends analysis, future inquiries (Sharpe 2013) and power analyses (Gaventa 2003, Mindell 2014, Diamond 2016), to name a few.[2] By using these different methods and by engaging people in the process we end up with a systemic diagnosis, a shared story about current systems dynamics and how the system is changing. We can often then hear the cry of the practitioner at this point, "how do we know where to intervene? How do we know what to do and how to do it?".

We might start to answer these questions by looking for where things are moving, where areas are opening up and energy is building towards something new. We might see new shoots or lots of forces converging, or nodes of flows coming together (Stroh 2015, Omidyar 2017). This offers the potential to work with things that are already starting to move. So to sum up, we might look for where there is:

1) Energy for change – an increase in innovation, in resources available for change, including people's desire for change.
2) Multiple forces converging, amplifying or resisting change.

How do we know which node, or energy force to go with? How do we know which ones have the most potential to change a system? Potential is the process of putting

[1] Thanks to Ben Haggard & Bill Reed from Regenesis whose emphasis helped me understand the importance of moving from static words to verbs and doing – and so have changed my definition from 2014, 2015 to pattern of organisation to pattern of organising. This has also led me to add in the word continual.

[2] At the School of System Change we bring in a wide range of practitioners bridging different systemic disciplines to help practitioners learn about the different routes into systems change (Birney et al, 2017).

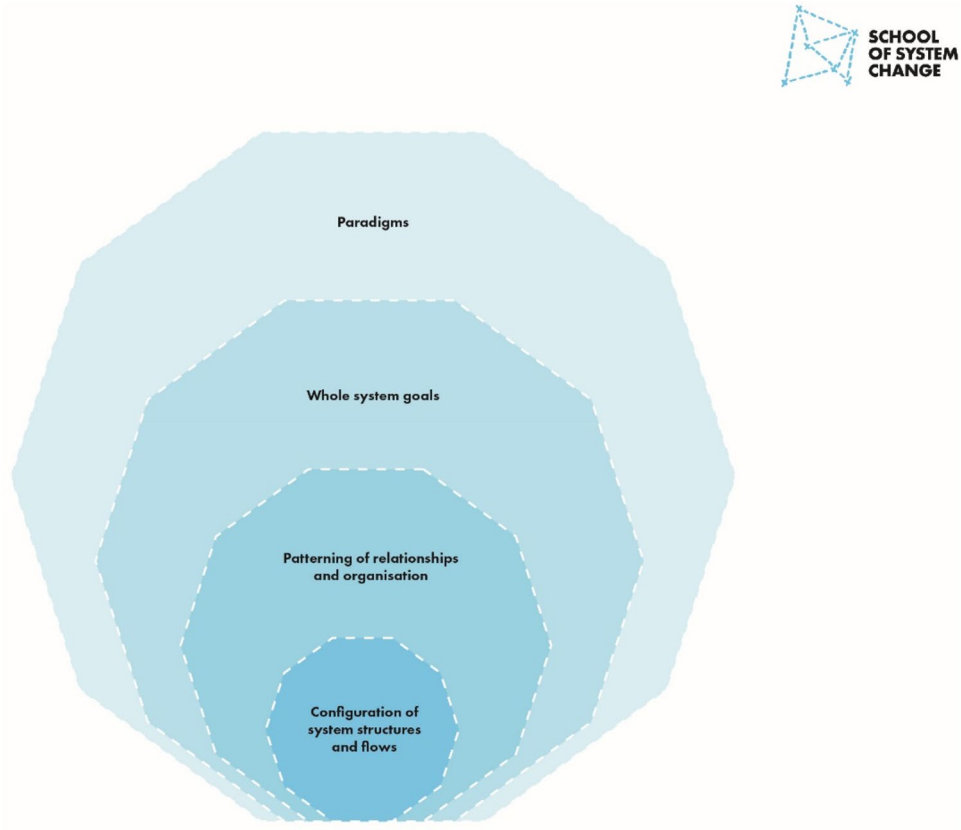


**Fig. 1** Nested patterns of systems – that indicate levels of potential in changing systems

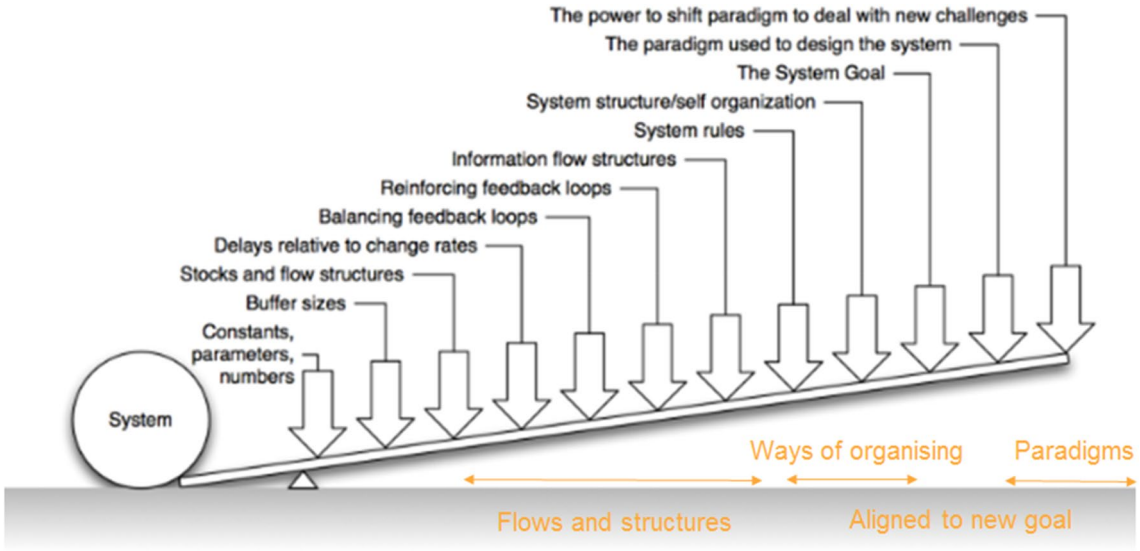


**Fig. 2** Indicating where the levels of potential fit with Meadows leverage points

energy into systems that can give it the ability to emerge into something into the future.

The nested patterns of systems gives us four archetypes to view *how* systems are changing so to understand *where* we might leverage or cultivate change.

These different levels of potential draws and evolves on Meadows' seminal work – Leverage points (1999) and others who have used this framing[3] (Fig. 2).

[3] Others have also used the leverage points to understand where and how to intervene example Sinha and Millar, 2015 and Kania, J et al. 2018.

What the nested potential framework (Fig. 1) does differently is to depict these levers or areas of potential as nested within each other, and therefore suggests that if you are intervening at the level of paradigm you will be affecting changes in all the other levels. In my experience, many change makers place a lot of energy on the lower Meadows levers, captured here within the structures and flows, as change here feels more tangible and measurable. What I am purporting is that if we are seeking transformational systemic change we need to place more value and energy as practitioners on the other levels.

## The four levels of potential for changing systems

The four levels of potential (summary in Table 1 above) offers a framework for understanding where to look for potential, how that relates to your strategy and the indicators you might watch for to know a system is changing. For each of these four levels, we might ask ourselves the same set of guiding questions:

Where in the dynamic of a complex system might there be potential for systems changing interventions? What should we be looking for in our analyses?

### Reconfiguring structures and flows

A "system" is often characterised by how different elements interconnect and interrelate, and how they flow together and form a structure (Meadows 2010:2). The structure and different feedback loops and flows are what is most visible in the system, and is often what we are mapping when we look at "the" system – for example, using stakeholder maps or multi-level perspective for sustainability transitions. Many practitioners starting to use the terminology of systems change are talking about the shift from one system structure to another as they assume they are looking for a change in this physical system.

Shifting these physical structures are hard as you have to rebuild the whole system (Meadows 1999). Changing the value flows and feedback loops are sometimes not really shifting the system from one state to another but rather slowing down the growth or damage they are currently creating (Meadows 2010).

In the Protein challenge, we started by looking at the value chains that make up the protein system. This can help us understand what is physically flowing through the system and how the different subsystems, such as aquaculture or plant production, interact with each other. This can then help actors in the system see where they might like to reconfigure the flows or change the structure of operating (Fig. 3).

In 2013, we undertook an inquiry into scaling up impact (Birney et al. 2014), involving market based practitioners. Drawing from case studies from across issues such as access to energy, microfinance, business' role in health and sanitation and the materials industry, it became clear that to understand how to create impact at scale we need to understand the interventions as an ecosystem. This includes the different building blocks for change and how they are working together and creating capacities for each other, thus reconfiguring structures and flows. This redefined the idea that systems change happens as a consequence of scaling up innovations, as it is not just about adding in a new intervention but about looking at how the elements and flows of the system are changing together.

These cause and effect relationships are what we are looking for in an analysis, noticing where they are reconfiguring and so potential might be found in:

1. Where there is a lack of diverse relationships and so a shock might tip the system. This might create an opportunity or more resilience might be needed to prevent the tipping.
2. Places where the speed of change is happening faster than we can adapt to and is causing pressure to change. This can be seen today with ecological collapse as well as with technological change.
3. Places where people are about to design or rebuild the (new) physical structure, and there is an opportunity to influence its design.
4. There is building momentum for change in a positive direction that needs support to accelerate it.
5. The powerful (that is those who have the power to give success to the successful) – usually typified by financial and resourcing flows – are ready and open to divert their resources towards new goals.
6. There is an absence of or broken information flows which might need restoring.

Oneless is a project focusing on the use of single use plastic water bottles as a flagship species amongst other plastics, and in one city, London, to demonstrate how systems change might be achieved. As we did the analysis we were looking at the structure and flow of single use plastic water bottles, and how they related to the infrastructure of providing water, and to citizens' behaviours (Fig. 4).

Through our analysis, we observed that there was a *lot of energy* to work on the issue and there was a way to build momentum for marine protection and becoming an ocean friendly society. We also looked at how we could

**Table 1** Summarising different levels of potential and their strategies and indicators

| Nested level of potential (living systems qualities) | How systems are changing What you are looking for to identify potential? | Where we might leverage or cultivate change (How do we know a system is changing? (indicators to measure impact) |
|---|---|---|
| Configuration of structures and flows *(dynamic relationships)* | We might notice structures and flows reconfiguring at multiple places and levels. We might see the pattern of these structures shifting or new flows of information and resources<br>*Pressure to change*<br>*Energy for change*<br>*Multiple forces are converging, amplifying or resisting*<br>*Missing information and resource flows* | We might seek to reconfigure system structures and flows<br>*Re-wiring of connections information and resource flows* |
| Patterns of relationships and organisation *(emergence)* | We might notice changes in relationships and the ways of organising in society, especially the capacity to self-organise. This is often seen through the lens of power. Power can be the energy force in our relationships – being both over, between and within us<br>*Changing relationships, power dynamics*<br>*Experimental models of organising*<br>*Willingness to change (especially by those in power)* | We might seek to re-pattern the ways of organising and relationships so they have the systemic capacity to self-organise; thus creating new systemic ways of organising – that also support the redistribution of power<br>*Investment in relationships, levels of trust are high, and new diverse relationships are working together*<br>*There is capacity for working together*<br>*New models are flourishing and providing proof points for a new way for the system to operate* |
| Whole system goals *(nested)* | We might notice more interventions that are coordinated and are aligning towards goals that are working for the health or regenerative capacity of the whole system<br>*-Re-framed goals – and alignment of interventions towards these* | We might seek to align and coordinate interventions towards these whole system goals<br>*Changes in the overall systems behaviours that align to the whole system goal- a clear and used goal*<br>*A flourishing of funding and initiatives are going towards that goals*<br>*Funding for ecosystem and collaboration* |
| Paradigms *(human consciousness)* | We might notice the emergence of new consciousness, new patterns of thinking and being, seen as new paradigms<br>*Questioning of assumptions, mental models and narratives* | We might seek to shift mind-sets and paradigms<br>*Questioning of the systems mental models and assumptions*<br>*New narratives are emerging*<br>*Continuous learning and adaptation is happening* |

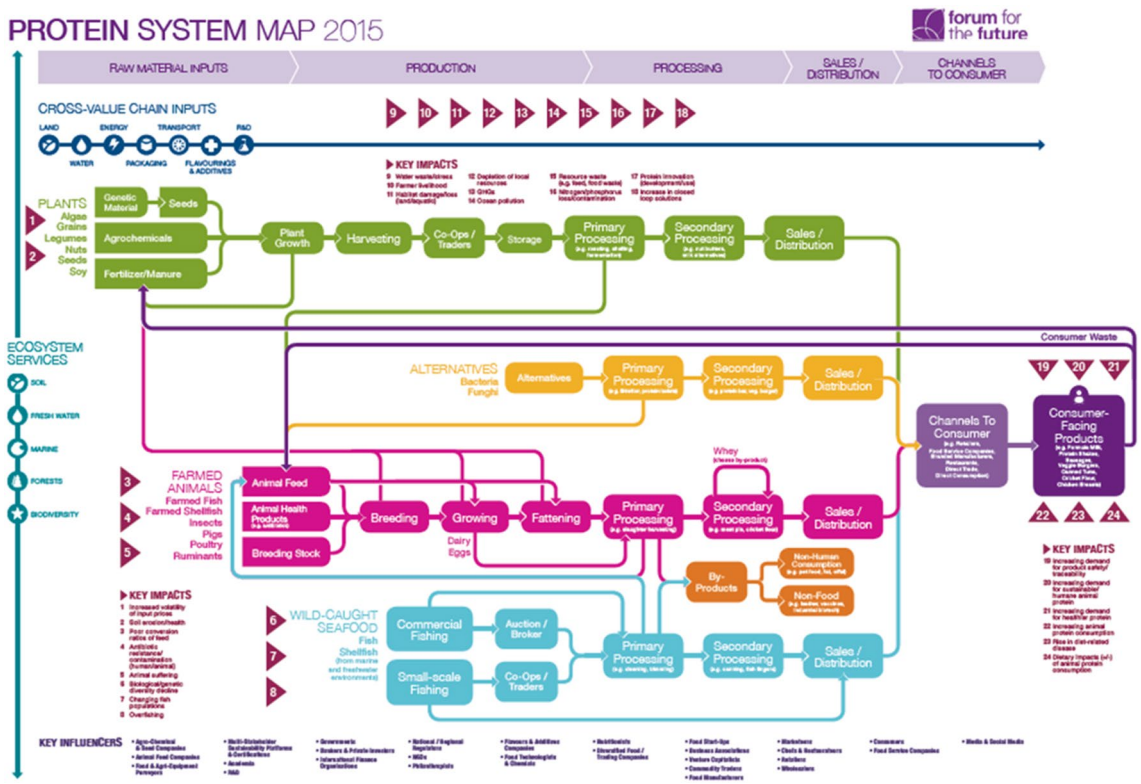


**Fig. 3** The Protein System Map, Forum for the Future, 2015

reconfigure the system rather than tackle it through singular approaches such as lobbying government or consumer based campaigns. These multiple interventions to rewire the new systems included rebuilding the infrastructure of fountains in London, whilst also working on new design solutions, working with the Greater London Authority on their policy, engaging retailers and other pioneers who were finding ways to eliminate single use plastic water bottles in the supply chain as well as supporting behaviour change through campaigns and ocean messaging (Fig. 5).

The type of systems changing interventions we are therefore seeking are the re-wiring of critical causal relationships; in the case of Oneless by addressing the social norms and infrastructure that drives us to drink water from a plastic bottle.

It might also be about restoring or adding information flows, that can help create accountability to decision makers to help the system see itself. In Cotton 2040, a similar value chain project to Protein, the information flow that was missing was understanding the traceability of cotton. By adding this to the system it might make it easier and more comparable for brands and retailers and help them shift their practices.

## Re-patterning of relationships, cultivating systemic ways of organising

Surrounding the visible structures and flows of a system is its ability to organise and relate to other parts (Checkland 1981). In our social systems, the ways we are in relationship with each other are usually set by the social arrangements we make (Giddens 2013, Habermas 2002). These might be the decision making processes we communicate with (Luhmann 1990), the way we set rules and policies, our governance frameworks and our models of exchange (Dryzek 2019), for example market mechanisms. They might also be ways in which a community influences its members, and more informal agreements.

Our social fabric is relational. If power, simply put is the energy between relationships, then it is a critical way to understand the structure of our relationships (Mindell 2014).

> *'Power is everywhere: not because it embraces everything, but because it comes from everywhere. Power is not an institution, nor a structure, nor a possession. It is the name we give to a complex strategic situation in a particular society.'* (Foucault, 1976:93)

There are many forms of power (Lukes 1974; Gaventa and Cornwall 2001; Gaventa 2003; Foucault 1976, 2000;

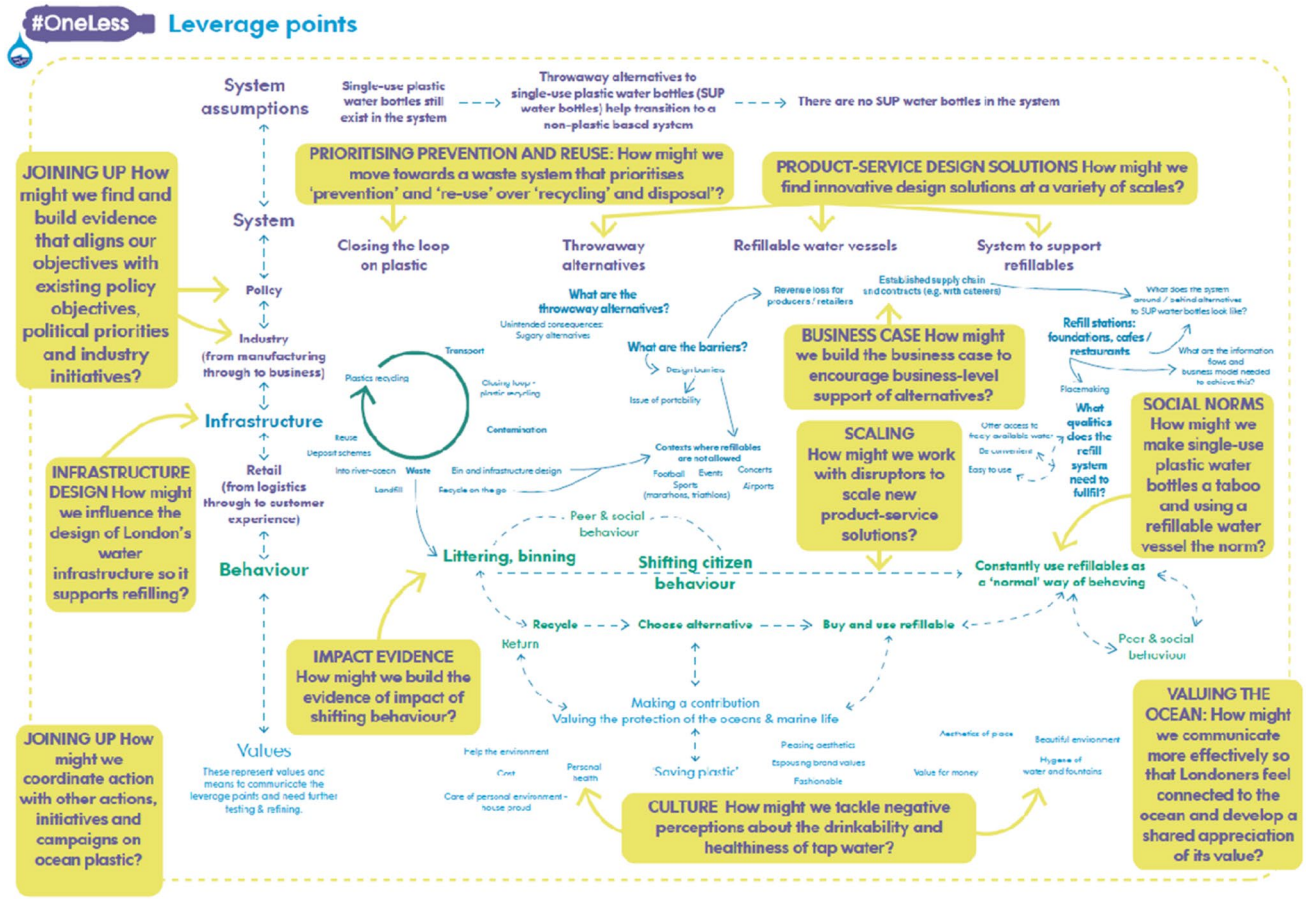


**Fig. 4** Oneless systems map with leverage points


**Fig. 5** Example of our Oneless campaign messaging


**Fig. 6** Summary of Civil Society PACT

Birney 2015), as there are type of relationships, from those with dominance, with mutuality in the relationship, power between to also the power we have within us to create change. As systems are patterns of relationships, they also have power. Much of this is the power to self-organise, that is.

> *'The self-organisation process in living systems is the constant moving of matter, and energy that creates regeneration and evolution and is a well-known characteristic of life' (*Capra 1997:177).

There is therefore huge potential for a self-organising power to evolve the system structure. How self-organisation can be enabled in social settings is by setting the rules or social arrangements, but which we might relate, organise and make decisions.

> *'if we want to understand the deepest malfunctions of systems pay attention to the rules and who has power over them'* (Meadows 1999) (Fig. 8).

Potential for change might be found in.

1. The emergence of new models and social agreements with innovative, self-organising ways of relating and operating. This can be found in models such as Holacracy and Sociocracy which are methods of distributive management and governance, where authority and decision making is self-organising, enable trust and are more open than more traditional hierarchical forms (LaLoux 2016, Enspiral, Robertson 2015). It can also be found in cooperatives and new business models that are regenerative and also seek to change power structures.
2. The ability and opportunities within the system to innovate, experiment and change ways of organising – this can be seen through investment in experimentation and learning—and giving space to thinking beyond the status quo.
3. Those who have the power to change the rules are shifting, opening up and re-distributing power, they are setting up new rules for self-organisation.

Below are some examples of projects and organisations seeking systems change through the potential of the capacity new ways of organising.

Civil Society Futures was a two year inquiry that identified models changing the way civil society organises itself so that it can flourish in a changing world. From this inquiry was created a PACT (standing for Power, Accountability, Connection, Trust) which many organisations have been signing up to. These organisations are now setting new rules of operating by embracing new behaviours and practices of shifting power and accountability, and investing in deeper connection and trust with the aim of shifting power to people and communities (Fig. 6).

Forum for the Future coached a project in Ghana where we were trying to establish where there was potential to shift the food system so that people might thrive and rights be protected. We identified new innovative models of aggregation that changes the power dynamic in the value chain between suppliers of agricultural products and the business


**Fig. 7** Lankelly Chase Foundations system behaviours

they are selling to. By supporting a learning function across these models they were able to might support the further experimentation and adoption of these models.

Lankelly Chase Foundation are changing the way their governance works, looking at ways that it is systemic. They see that the presence of systems behaviours around perspectives, power and participation (Fig. 7) account for positive change to change the systems that perpetuate severe and multiple disadvantage. They are applying this to their own organisation, ensuring decision making is devolved, accountability is mutual and equality of voice is actively promoted. They use participatory decision making processes to support this approach. They actively build skills of those they partner with in these methods, therefore growing the capacity of the system to self-organise.

The potential to change a system here is through creating new models of organising, organisation and business models that start to demonstrate a way the system can evolve. This includes the rules of how we govern our systems, with policies but also organisational frameworks and ways of working. These might manifest in constitutions, legal structures, incentives and others more informal agreements. It will also mean going on a journey of supporting those who have the power, and therefore make decisions about how to organise, to develop their ability to enable the distribution of power. This can be done for example through participatory methods and supporting learning. In this way, these new models are encouraged to continually self-evolve, ensuring there is outreach and expanding engagement that start to re-centre where power is held.

*"democratic participation in knowledge production can enable otherwise marginalised people to exercise greater voice and agency, and work to transform social and power relations in the process*" (Gaventa and Cornwall 2006:122).

A caution: something I have experienced with people who seek to create change is how quickly we think that the rules of society are purely held in government policy. However, much of our policy lobbying or influencing is not changing boundaries or ways of deciding, so it has limited systems changing potential. Policy change is often part of opening up windows for change or helping the momentum continue, for example a tax on plastic. At this level, we need to think about really changing the way our democracy works rather than just changing individual policies.

## Alignment and coordination towards whole system goals

As humans we bring our own intentions and purposes to what we are doing, whether we are conscious of what these are or not. These purposes, especially in today's world, are not driving towards a healthy system, that is to say one that has the capacity to sustain humans. Our goals are out of alignment with those that would enable a system to support human and ecological life (Raworth 2017, WWF, 2018). For this reason, we need to determine what goals will help serve the whole and keep asking big questions such as how can we ensure a sustainable future? How can we ensure we have the ability to sustain and regenerate life on earth?

One of the biggest misalignments and a driver of an unsustainable system is the goal of continual growth (Meadows et al. 1972). Many of our systems are aimed towards this goal, and like a cancer's goal in the body is growth, it is runaway and will eventually cause collapse. To increase market share, means everything will be engulfed. We need to find goals that are more aligned to the living system we are a part of.

Before asking ourselves where in the system this potential lies, we might first look at how the systems we are working with are currently contributing to society and our ecology (Fig. 8). A system is there to transform something – so what

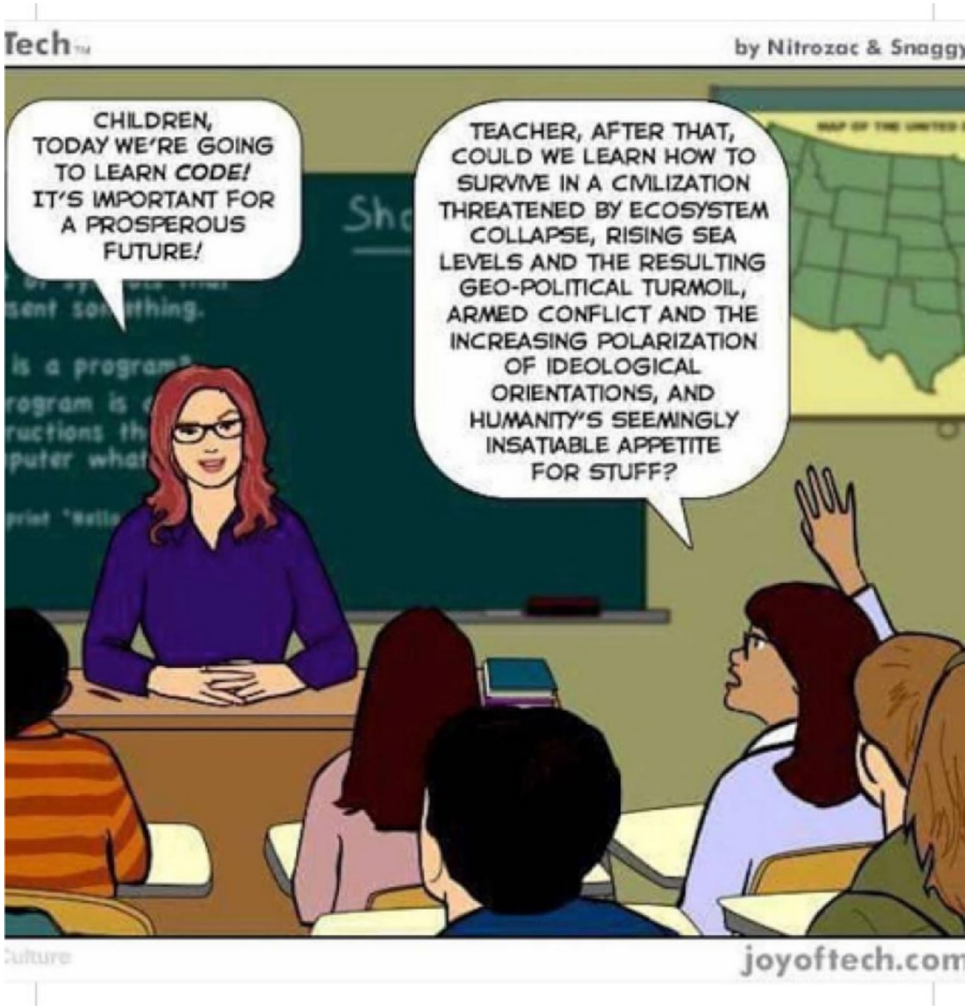


**Fig. 8** Cartoon showing different purposes of education

is the goal for example of the education system, is it to transform children that they can participate in society or is it to transform them so they have the capacity to learn and question, these two different goals might create different kinds of education systems[4]

Potential for change might be found in

1. Change makers, leaders and pioneers are reframing their strategies and work towards goals that serve healthy, just and regenerative systems.
2. The momentum is building around similar or shared goals, where action is starting to become coordinated and aligned and thus there might be the start of systems behaviours that are shift towards these ambitions.
3. That there are more collaborations, ecosystem and field building activities that are both valued and therefore funding or resources are flowing towards these activities.

So when thinking about a change initiative a powerful intervention is to reframe what the goals are. For example, for years at Forum for the Future we recognised that meat was a big challenge in the food system in terms of our carbon footprint. However, it was difficult to know where and how to start intervening in this problem as many of the actors that needed to change had much resistance towards addressing the issue. When looking at it through the lens of the whole system goal, we can reframe it to fulfilling the global protein needs of nine billion people. This change enabled us to work with current meat production as well as alternative protein production and to find interventions that help innovation. This re-framing also led us to changing our food system programme to sustainable nutrition and articulating our purpose here.

In the Oneless project, one of the first thing we did was ask what is the purpose of the system we were trying to work with, what function is it trying to serve? By asking this question, we reframed our goal as the hydration of Londoners without single use plastics. When we started mapping out the dynamics (Fig. 4) this purpose helped us make decisions

[4] Thanks to Rupesh Shah, Open University for this example.

about where to put our energy – where there was most potential in the system and where interventions were most aligned to this goal. Instead of working on closing the loop on plastics and supporting plastics recycling, we decided to focus our energy on building an alternative system that was sustainable and kept Londoners hydrated. Subsequently, it also helped us make resource decisions about who we would work with and where we wanted to put our energy and effort.

We should not underestimate how hard this setting of goals is – as Meadows says—"*Even people within systems don't often recognise what whole-system goal they are serving*" (1999). Our assumptions and current worldviews (see next level) keeps pulling us back to the current way of working and yet once we hold the new goals and start working towards them, we must also not underestimate the role of articulating them, repeating that articulation, insisting on it and making it part of public discourse.

This is where coalitions or networks or collaborations becomes the work of systems change. Those who are leaders and pioneers of change can work together towards whole system goals. They can align their interventions towards these shared goals that enable people and planet to thrive.

> *"Network development is systems change because the system "change" that we want is really the integration (or re-integration) of parts of the whole system that have been broken off, neglected, fragmented or even disowned. When a network is developed that is a true fractal of the larger system, that reintegration starts to happen, at least at the level of the fractal, by the very act of the coming together of the parts, the shared recognition of the value of each part, and the work of reintegrating those parts that have been fragmented*" (Russ Gaskin, Co-Creative, personal communication)

At the heart of many of the examples I am sharing—Marine CoLAB, Cotton, Protein—is the need for coordinated action. Often the purpose of the diagnosis and analysis process is not really to find the precise leverage point but to find the potential with those who are involved to create change together. This is often the mistake we make: we are hoping that if we look at an analysis long enough it will give us the silver bullet to change the system, whilst systems approaches are there to help understand where transformation might be sought, and to engage people in participation in the change.

Therefore, we put our energy is in helping coordination towards transformational whole system goals, and helping to bring together coalitions, networks, collaborations to work towards these goals. This can then help those who participate change their actions, projects and interventions so they start aligning, enabling shared learning and sparking new interventions.

## Shifting paradigms

The way we believe the world works, our paradigm, is important as it informs how we take action (Boulton et al. 2015:52). The world has thus been continually co-created through our evolving worldviews and beliefs (Macy and Brown 1998). So we might say it will change again through the worldviews and paradigms we hold today. The deepest potential (and therefore leverage) to change the system is at this level of paradigm shift, as it is the source of where our systems come from (Senge et al. 2005; Scharmer 2007). What we put into the systems becomes the system.[5] Furthermore, if we can also hold a diversity of ways to view the world, a fluidity in the ways of being and let go of any one paradigm (Wilber 2000; Fisher et al. 2003; Scharmer 2007), this might have greater potential to transform our future.

Looking for paradigms and mental models is not easy, as it involves trying to uncover what is happening behind what is going on and seeing the way our minds operates.

> '*It is hard to talk about worldviews. It is like trying to see the lenses of one's own eyes, trying to bite one's own teeth, trying to explain one's language without using language'* (Meadows 1999:105).

Asking questions about unstated assumptions about the way the world works is a very good first step. This often also requires a process of checking where you personally stand in relationship to the analysis, asking how you are getting in the way of what you might be seeing, opening up to not knowing and suspending assumptions.

> *'Those who do not have power over the story that dominates their lives - the power to retell it, rethink it, deconstruct it, joke about it, and change it as times change - truly are powerless, because they cannot think new thoughts*.' (Rushdie 1991:104)

Examining what people and organisations are putting value on, the values they are holding (Crompton 2010), how society is framing something or the narrative that exists is also a useful way to understand paradigms.

The Marine CoLAB is trying to convey the intrinsic as well as socio-economic value of the ocean. The ocean is indeed valued through what is traded in our economy, for example through fishing and shipping, but much of the value people attach to the ocean and many of the benefits we derive from it has no monetary basis. We are trying to shift the narrative on how the ocean is framed in policy and communications so that we have an ocean friendly society that values the contribution our ocean makes to our continued well-being. We design our experiments from this basis

[5] Thanks to Jean Boulton for this quote.

and it informs all the work we do. As you see from Oneless (Fig. 5), the messaging relates back to the value of the Ocean.

This process is not so much about looking into your analysis of where to leverage change but looking at the paradigms that are informing your analysis. This involves questioning your own context and situation as well as that of people doing the analysis, and the stakeholders you might be working with. One way to do this is for the inquirers to tune into what the future is calling for in this work, seeing what new patterns of thinking are emerging so as to find the potential.

In Boundless Roots, we are using an inquiry process to help uncover the questions of how we might address the magnitude, urgency and scope of the climate crisis. It is creating a space to help the community take an honest look at what it will take to transform lifestyles. This requires us to examine what is at the root of our current approaches. It creates a safe space for people to push boundaries, explore the edges of what might be possible. We are able to explore paradigm changing questions around shifting power, scaling the reach for revolutionary change, as well as issues of collective psychology and our collective paradigms that might enable or inhibit transformation.

The inquiry approach was also used by Civil Society Futures to explore the paradigms shifts that are happening and need to be further cultivated. Lankelly Chase uses inquiry as the foundation of their strategy, allowing them to reach into answers and ways forward that are still unknown and are difficult to address.

At the School of System Change our learning programmes are designed and facilitated to cultivate our collective ability to flourish in a changing world, we help people navigate multiple approaches, such as working with futures, sustainability transitions, deep democracy, action inquiry but also have an appreciation of the deeper assumptions of the world. This helps people to open up their worldview and explore a systemic mind-set.

The Forgiveness Project is a small charity that explores the possibilities of forgiveness through real stories collected from both victims/survivors and perpetrators of crime and conflict. It then uses these stories to influence the media and the cultural narrative around violence and harm, to shift the paradigm of how we see the world to one of hope, empathy and understanding.

The way we might shift paradigms, the systems change interventions become the way we also find the potential – these might include:

1. Shifting paradigms might have huge potential but that does not mean there is not resistance to change, as it will call into question people's whole way of seeing the world. This is why taking an inquiry approach that invites people in to explore together what the unknowable future helps us challenge our assumptions and be comfortable with the work of not knowing.
2. As we inquire into this future, it is important to find practices that help you listen into what the future is calling for. In Theory U (Scharmer 2007), they call this prescencing – sensing into the potential of whole in the present. Where is their potential for transformation?
3. In order to shift mind-sets self-appointed change makers need to be open-minded. This work requires us to find and attract people to come on the journey, to start the process of loosening or unattaching to their worldviews. A systems changing intervention is to cultivate the ability of people to navigate multiple ways of seeing and being in the world.
4. Simply changing individual people is not enough. We also need to change the shared minds of society, both by pointing out the old paradigm, but also by communicating new narratives and frames about who we are and how the world works, so we expand our sense of self, as part of a flourishing people and planet, thus authoring a shift in perspective (Birney 2015), providing new cultures to help shift how we operate and organise.

And as Meadows gives her own caution– we so long for a list of what to do and how to do it, that we grab it when it is offered and yet we need to continue to expand our understanding of where might we intervene as an inquiry in itself, this is not really a science it is a dance into the unknowable.

> "Tell me, what is it your plan to do
> With your one wild and precious life?"
> Mary Oliver[6]

Sometimes it comes down to a choice of you, the team you work with, and the organisation being mindful about what you want to do. We need a mix of analysis and inquiries – using multiple methods as well as sensing into our own purposes and that of the whole of humanity, ecology and the universe.

## Reflections and implications for our understanding of impact

This phase in systems change—the choosing of where to intervene—is not an exact science. Many initiatives and teams we have coached are looking for the right answer. For me, working with leverage is more about bringing a systemic awareness, looking at the analysis and issue through a perspective that it is dynamic and in movement. Over the decade or so of working with the concept of leverage, and

[6] Summers Day, Mary Oliver, 2004

through not understanding the original paper when I first read it, I have come to see it as the questions we might ask about potential,[7] where a small amount of energy can create big changes or impact into the future. Giving the ability and creating the conditions for that new system to emerge.

The four levels of potential are based heavily on professional experience, and are asserted here as for actionable knowledge – that is for the use by practitioners. As an integrative framework it also has limitations, as it draws on a vast array of tools and methods. The process of analysing systems that inform strategic decision making can be often be overwhelming for practitioners as it requires both an understanding of the theories and ideas in systems and complexity as well as a skills in pattern spotting and critical reflection from this perspective. As such this practitioner framework is presented in a normative way to both help practitioners find the archetypes in the patterns and make it more useable in action. It also relies heavily on the integrity of the original work of Meadows leverage points as it assumptions that these levels still stand true for working with systems. What it has offered is a critical reflection on these from the position of practitioner and the experience of working with this framework over many years, decades. More critical reflection and research could be brought to challenging the underlying assumptions in this original model (Angheloiu and Tennant 2020), for example the important role of shifting our consciousness or awareness that informs our strategies and goals in systems change work rather than perhaps changing the structures or rules that might then create systems shifts without this awareness.

However as change makers we do wish to know if we are having an effect or influence on the systems we are working on and so lets return to these questions about how we might understand our impact. Questions of influence and impact are being grappled with at the moment by many people and organisations in the field of systems change (Preskill et al. 2014; Cabaj 2018; Hargreaves 2018). In such explorations many are using Meadows leverage points to help to explore where there is leverage and therefore be indicators of change. There is a strong move to help practitioners also appreciate how to work with complexity and dynamically moving systems. The four levels of potential in changing systems are seeking to bring our awareness to and expand our thinking on the following areas.

Firstly by urging change makers, practitioners and funders alike to focus perhaps on the less obvious, but potentially more effective and powerful areas of intervention that were seen in Meadows leverage points and have been highlighted strongly here—the new ways of organising and relating, aligning towards whole system goals and shifting paradigm, indicating that systems change needs to really operate at these deeper levels to enable the impact in practice, behaviours and structures and flows.

Meadows (1999) in increasing order of their effectiveness, building on Fischer and Riechers (2019). As Fischer and Riechers note, interventions in 'deeper' leverage points (such as system structure or mental models) can potentially have more transformative impact, yet are more difficult to devise, implement and measure, while 'shallower' leverage points have more incremental impact

Secondly really encouraging change makers to think about change as something that is constantly moving – like a living system. A lot of both strategy and evaluation and impact measurement approaches are trying to catch and hold down this movement – to know the key conditions (Kania et al. 2018) or to find the results (Cabaj 2018). This paper wants to encourage practitioners to see impact and change as working with change, rather than trying to box, quantify or make static the way we view impact. This is important as many programme cycles, are at best three years whilst when and how the system will have shifted is likely to not be in this timescale or at least is unknown. Thus we need to find indicators that we are monitoring and tracking that works with the potential that the system is changing.

Thirdly this then has implications about how we align our strategies and approaches as we design programmes and interventions so that they align with our understanding of potential and knowledge of how a system is changing.

To help practitioners work with these ideas, we often at the School of System Change, translate them for others to use in practice – to support their strategy and impact framework design. This worksheet is used to open up the conversation around different projects to and to think through what the contribution they are having to systems change (Fig. 9).

We should not underestimate how difficult it for programme strategies, based on these levels and seen in the case studies above; to be valued and therefore cultivated. Decisions makers, funders and others who wish to participate often seek more concrete and understandable (that is ones they are familiar with) approaches. This is mainly because the paradigm of working in systems – working with the potential of living systems – is not the dominant paradigm of management, organisations and how we do strategy (Carlisle and McMillan 2002). Therefore there is a deep need to cultivate a systemic mind-sets and practices of change makers in order to have an effect on changing systems, and thus have impact in the world, or more redefine impact as being able to work with a dynamically changing world.

[7] I have been searching for a word to sit next to the word leverage – due to its mechanical nature – and am proposing that the word potential could be an alternative. Other options I have seen used are social acupuncture (Dr Orit Gal—http://www.socialacupuncture.co.uk/), or Nodes (Carol Sandford, 2020 via Ben Haggard, https://regenesisgroup.com/).

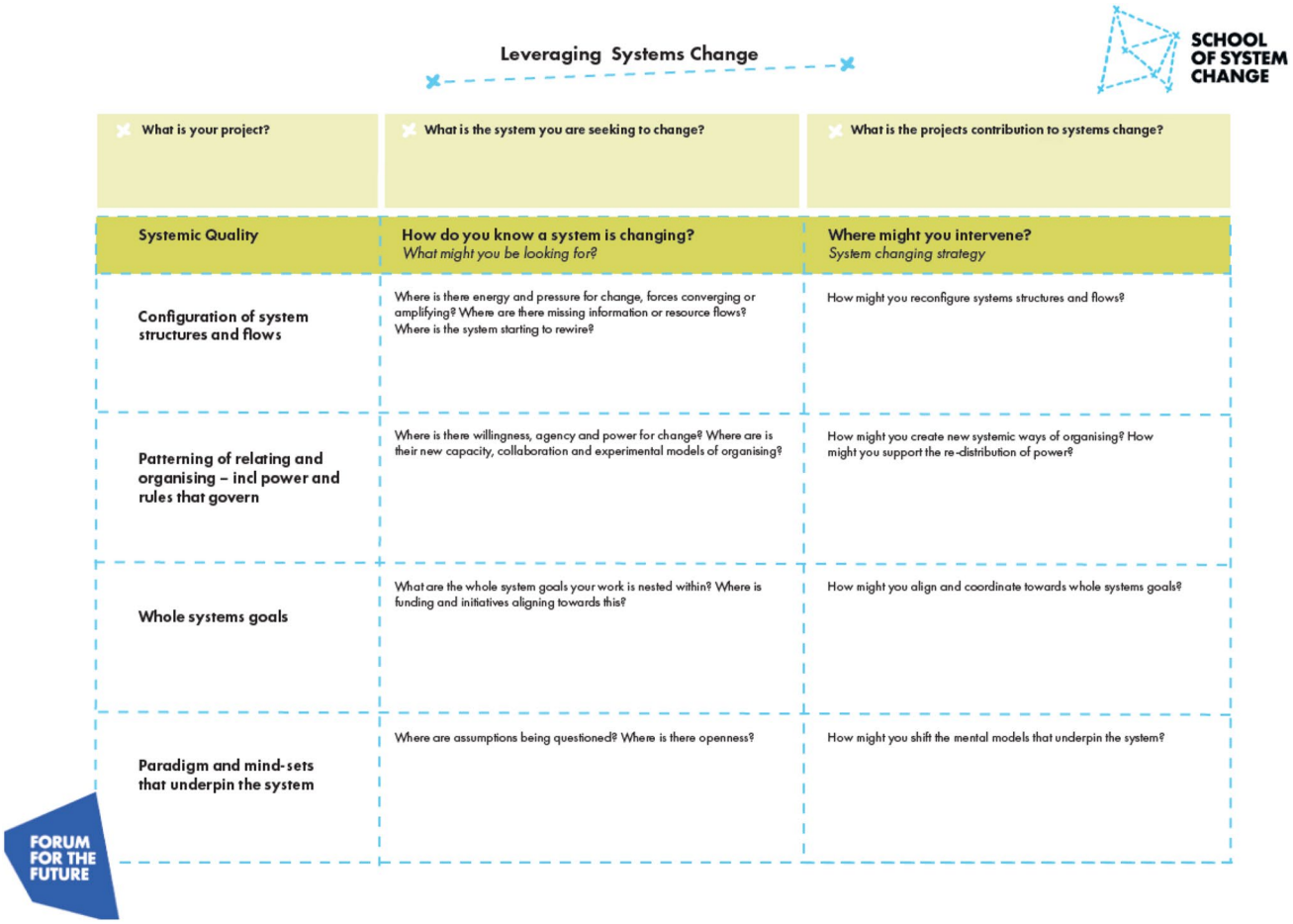


**Fig. 9** A worksheet for practitioners: Helping understand where and how to leverage systemic impact



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Boundless Roots Community https://www.boundlessroots.org/
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Oneless Oneless: https://www.onelessbottle.org/
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The Forgiveness project: https://www.theforgivenessproject.com/