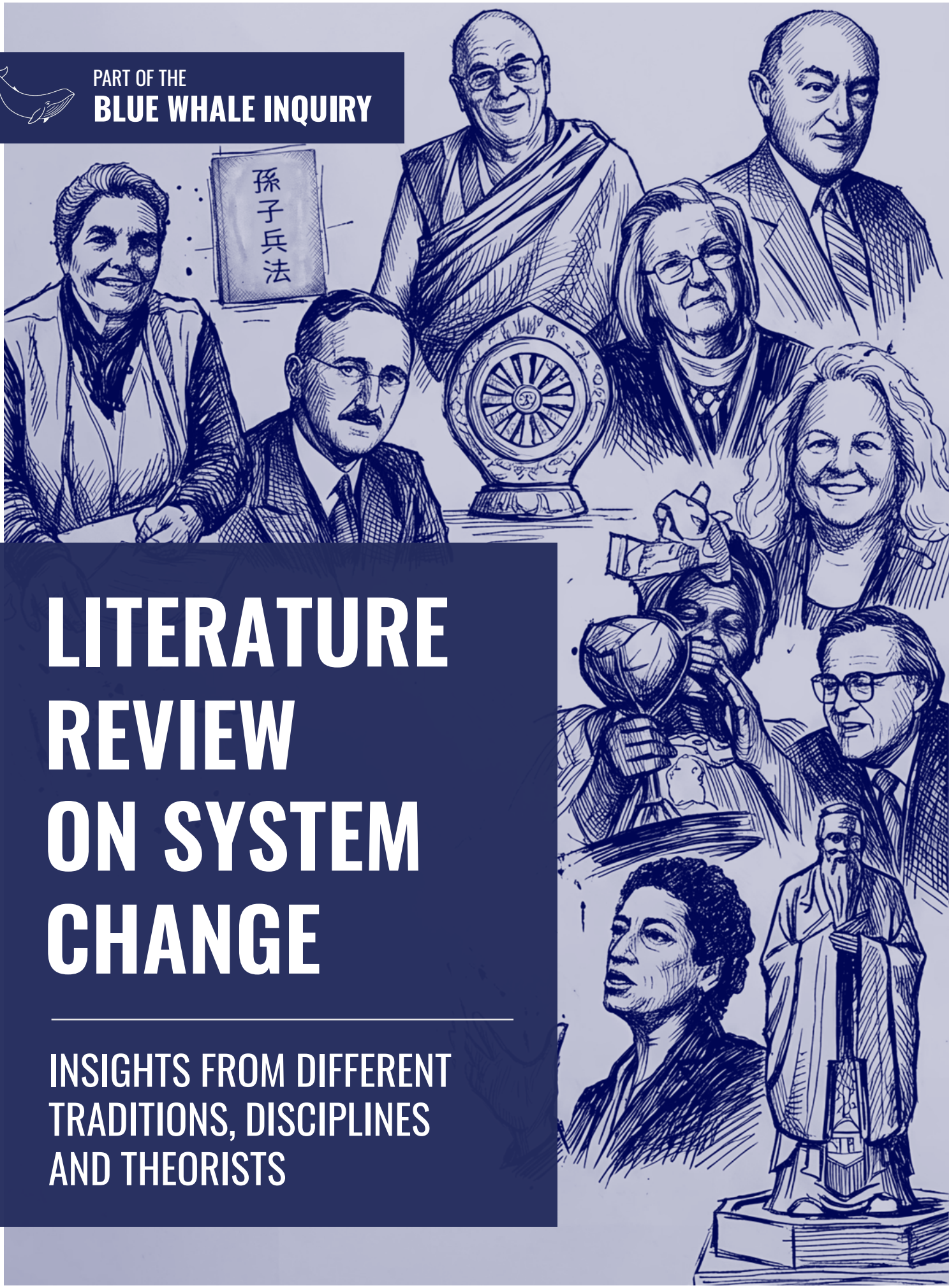
PART OF THE
BLUE WHALE INQUIRY



LITERATURE REVIEW ON SYSTEM CHANGE

INSIGHTS FROM DIFFERENT TRADITIONS, DISCIPLINES AND THEORISTS

DECEMBER 2025

SYSTEMIQ

SUN Institute for Environment and Sustainability

> In the hardest phase of the transition, we find strength in how others have tackled similar challenges. Their wisdom reminds us that lasting change is human-centred: technology is critical, but it is people that ultimately shift the system.

Jeremy Oppenheim

Founding partner

Systemiq

Introduction

Why is it so hard to meaningfully change an economic system, even when that system isn't serving the common good? And even when there are viable alternatives and strategies for change? Too often, well-crafted plans falter when confronted with the real-world complexity and entrenched interests of our most important economic systems. The Blue Whale Inquiry set out to understand why – and how to do better. We are learning from, and building on, the work of the many theorists and traditions that have grappled with similar questions: What are systems? What causes them to shift or to remain locked-in? And what kind of leadership does this require?

This literature review synthesises key insights from more than 20 theorists (listed in the Appendix), highlighting aspects most relevant for system change today. Specifically for accelerating the transition to cleaner, fairer, and more prosperous economies. These insights include how systems are structured, how they evolve, the pace at which different elements shift, and how patterns of feedback, behaviour, and mindset reinforce or disrupt existing dynamics.

Our review draws on diverse traditions and disciplines – including Confucian, Buddhist and Indigenous worldviews, alongside mid-20th-century Western foundational thinkers, complexity theorists and contemporary thinkers.[1] Together, these perspectives offer distinct yet complementary views on how systems behave and what it takes to transform them.

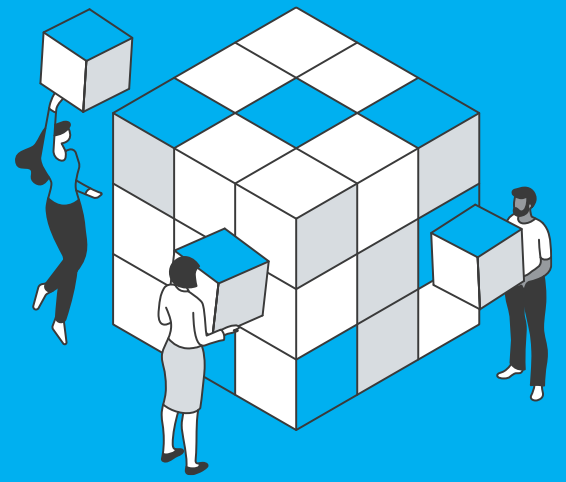
> **This review demystifies system change theory, encouraging us to tackle the hardest problems sooner and more effectively.**

[1] The theorists, thinkers and schools of thought included in this review are illustrative, not exhaustive. As work progresses on the Blue Whale Inquiry we will continue to learn from other knowledge systems and perspectives. We welcome suggestions and sources to help us keep this review current, plural and practical.

We conclude by introducing Systemiq's approach to system change – Inspire, Overtake, Lead – a practical framework designed to empower changemakers at Systemiq and beyond. We situate this framework in the context of recent tools that have been developed to bridge from theory to action. Our framework is informed by the literature and the broader work of the Blue Whale Inquiry, including practitioner interviews, in-depth case studies, and practical insights drawn from Systemiq's experience and that of our partners and broader community over the past decade.

We hope that this literature review will demystify the processes and practices of system change and, by doing so, allow us to engage earlier and more effectively with complex and hard-to-solve problems. Our aim is to make existing theory accessible for practitioners. It is both humbling and empowering to learn from the thinkers and traditions that have long sought to unravel the mysteries of system change. Understanding the divergences between their views, and the influence of their contexts on their thinking, reminds us that we too are shaped by the assumptions and circumstances of our time. Equally, seeing where they converge, sometimes across great distances in time and space, helps light our own path. There are no "right answers" to system change. But there are enduring features which prove important again and again. The role of participation. The nature of leadership. The relationship between top-down and bottom-up approaches to change.

By surfacing these and by understanding contemporary and historic approaches to system change, we can be much more intentional in our approach, with a real focus on action. It is in this spirit – and with gratitude to the theorists, traditions and practitioners we have drawn upon – that we offer this review.



Add your perspective…

As we continue to learn, we are curious to understand how this resonates with others working on system change. Are there perspectives we could add, or ways to strengthen the clarity and usefulness of the narrative?

Your reflections can help deepen and enrich our shared understanding of how systems shift.

GET IN TOUCH

AUTHORS

Astrid von Preussen, Diane Vu, Jeremy Oppenheim, Mashaal Khan, Zena Creed

System change
The literature

What have we learnt from the literature?

This section distils the divergent perspectives of more than 20 leading system change theorists (see Appendix) into key insights designed to inform and influence our practical approach to transforming complex systems.

1 **Systems are composed of interconnected and interdependent elements**

2 **Systems evolve and maintain stability through feedback, adaptation, and emergence**

3 **System change unfolds through gradual shifts and disruptive shocks**

4 **System change is an immersive process we can nudge, but never fully control**

5 **Lasting change combines top-down redesign, bottom-up prototyping, and mindset shifts**

6 **Adaptive leadership dances with complexity, rather than trying to dance around it**

INSIGHT

Systems are composed of interconnected and interdependent elements that create patterns of behaviour

Most theorists emphasise that elements within a system do not exist in isolation; they are defined by their relationships and interactions. However, thinkers diverge on the nature of these connections: mid-century Western thinkers and Confucianism tend to have a more hierarchical approach to the relationships between elements, while Indigenous knowledge systems see the world as a living network of beings bound by reciprocity.

Systems are composed of interconnected and interdependent elements

Elements within a system do not exist in isolation and are defined by their relationships and interactions, as defined by most theorists included in this review.

- All phenomena arise in dependence upon other phenomena, according to Buddhist thought.
- A system is: “a set of things [...] interconnected in such a way that they produce their own pattern of behaviour over time”, as defined by Donella Meadows.

Different traditions emphasise different aspects of the relationship between elements. Some thinkers focus on hierarchy (e.g., mid-century Western thinkers and Confucianism), while others focus on reciprocity, responsibility and relational ethics (e.g., Indigenous thinkers such as Robin Wall Kimmerer).

Patterns of thought drive behaviour and structures

The relationship between thought and behaviour in systems is widely acknowledged by theorists.

Mental models[1] are viewed as leverage points that can be deliberately shifted to change behaviour by Western system thinkers such as Donella Meadows. Otto Scharmer considers that change happens through shifting the mindset of the intervener or change-maker and this is a view held by some other contemporary theorists.

Indigenous ways of knowing and being are fundamentally collective, rooted in relationships, and deeply connected to place. Tyson Yunkaporta understands patterned action and attention to shape collective action.

[1] A mental model is an internal representation of how we perceive and interpret the world, shaped by our experiences, beliefs, and cultural contexts. These models influence our understanding, decision-making, and actions within complex systems.

Patterns of behaviour shape system outcomes

Systems produce recurring patterns of behaviour over time, as understood by most theorists. According to Donella Meadows, systems “exhibit adaptive, goal-seeking, self-preserving and sometimes evolutionary behaviour”.

Feedback reinforces or shifts behavioural patterns, influencing how systems adapt over time, according to complexity theorists. Stuart Kauffman highlights that “adaptation can reinforce stability or trigger transformation”.

02

INSIGHT

Systems evolve and maintain stability through feedback, adaptation, and emergence

All schools of thought agree that feedback – the process by which a system monitors its behaviour – is central to learning and evolution in complex adaptive systems. While Eastern philosophies and Indigenous traditions may not use the formal language of feedback loops, adaptation and emergence, they reflect similar principles through their emphasis on cycles, reciprocity, rhythm, and harmony.

Feedback can enable systems to learn and adapt

Feedback from changing internal and external conditions is recognised by most schools of thought as central to how systems evolve.

- Indigenous thinkers and Eastern philosophies tend to understand feedback as cyclical, relational, ethical and place-based, and see adaptation as relational alignment through ceremony (e.g., Tyson Yunkaporta) or harmony with the natural order of the universe.
- Western complexity theorists view adaptation – the process by which a system adjusts its own behaviour in response to external changes – as encouraging resilience or regulation. Failure to adapt can result in instability and system collapse (e.g., Hyman Minsky and Rudi Dornbusch).
- Contemporary theorists focus on the importance of inner and outer sensing in order to be receptive to feedback. Inner transformation is a form of adaptation (e.g. Daniel Goleman and Otto Scharmer).

Feedback loops can either reinforce patterns or balance systems

Feedback loops are viewed as key to stability and systemic transformation by Western system thinkers. Ludwig von Bertalanffy focused on feedback as a means of maintaining balance, while Donella Meadows showed how reinforcing loops can drive systems towards tipping points.

Feedback principles are reflected in cycles, harmony, and reciprocity in Eastern and Indigenous traditions. Confucianism and Sunzi's Art of War emphasise ritual and hierarchy as stabilising patterns that reinforce behavioural order over time.

Systems can become locked into self-reinforcing paths that limit future change. W. Brian Arthur explains how early technological or policy choices create increasing returns, leading to path dependence and systemic lock-in.

Emergent properties create new patterns

Emergence is understood by complexity theorists as novel patterns, behaviours, or structures that arise from the interactions of simpler elements, demonstrating that the whole is more than the sum of its parts. Stuart Kauffman and W. Brian Arthur describe how new system structures and dominant technologies emerge through self-organisation, positive feedback loops, and path-dependent processes.

Emergence is not explicitly defined as a formal concept by Eastern and Indigenous thinkers, but it is instead described as cyclical and relational, guided by feedback from land, ceremony and story. Patterns are seen to emerge through relational balance and collective sensing, such as in Daoism or Indigenous ceremony.

INSIGHT

System change through gradual shifts and disruptive shocks

Shocks and slow change often work in tandem, and tipping points can arise from their interaction. Mid-20th century Western theorists, such as Hyman Minsky, emphasise rupture and instability as catalysts for systemic change. By contrast, Indigenous and Eastern philosophies often focus on slow, cyclical change grounded in reciprocity, harmony, and relational renewal.

Increasingly, contemporary theorists recognise that gradual, cultivated shifts can lay the groundwork for deeper transformation when a rupture eventually occurs.

Gradual shifts: From incremental change to tipping points

Slow and gradual change lays the groundwork for sudden transformation, a view shared by Indigenous thinkers and Taoist philosophy.

- Tyson Yunkaporta describes Indigenous systems as cyclical and patterned, where change unfolds through ceremony, story, and feedback from the land.
- Transformation arises through alignment with natural flows rather than force, according to Taoist philosophy.

Disruptive shocks as catalysts for transformation

Western system and complexity theorists often see crises or external shocks as a necessary condition for transformation. Entrenched systems rarely shift without external pressure or breakdown.

- Hyman Minsky observed that economic stability breeds complacency, leading to inevitable collapse – a dynamic where internal fragility makes systems ripe for disruption.
- Stuart Kauffman described how change emerges from systems pushed to the edge of chaos, where new patterns self-organise unexpectedly.

System elements evolve on different timelines

Different elements of a system change at different speeds – technological and financial shifts can be rapid, while institutional and cultural transformations unfold more slowly.

- W. Brian Arthur and Hyman Minsky show how technologies and financial dynamics can accelerate quickly through feedback and tipping points, often outpacing regulatory or social change.
- Donella Meadows and Robin Wall Kimmerer emphasise that deeper layers of the system, including values, mindsets, and cultural norms, evolve gradually, requiring long-term cultivation and stewardship.

INSIGHT

System change is an immersive process we can nudge, but never fully control

We are never separate from the systems we seek to change – our participation, whether intentional or not, shapes outcomes. While Western system thinkers often emphasise structural intervention, complexity theorists highlight emergence and adaptation through interaction. Eastern philosophies and Indigenous perspectives frame mindset shifts as an internal practice rather than a means of external control.

System change is a process…

System change tends to be framed in terms of radical transformation by mid-20th-century Western foundational thinkers. Hyman Minsky and Rudi Dornbusch understood there could be sudden shifts in financial markets leading to radical transformation in economic conditions.

Complexity theorists primarily emphasise system change as an ongoing, emergent and adaptive process.

- Stuart Kauffman showed that self-organisation and feedback generate unexpected new patterns at the edge of chaos.
- Elinor Ostrom emphasised adaptive governance: systems of commons management evolve through continual negotiation, learning, and relationship-building.

… in which we participate

Our participation in shaping systems – consciously or unconsciously – is widely recognised by many theorists and traditions.

- Otto Scharmer believes we are always participating in the evolution of systems: inaction reinforces existing structures.
- Indigenous knowledge traditions (e.g., Tyson Yunkaporta) teach that we are always part of the system – every action, thought, or story participates in maintaining or transforming the pattern.

Shifts in our inner state influence and are reflected in the systems around us, as emphasised by Eastern philosophies. Taoist and Buddhist philosophies understand shifts in inner perception to enable the flow of systems to change.

… but do not control

Our ability to effect change through structural intervention and leverage points, particularly through redesigning policies, institutions and governance mechanisms, **tends to be emphasised by mid-century Western economists and system thinkers.**

- Donella Meadows believes that shifting mindsets or paradigms is the deepest leverage point in a system.
- Rudi Dornbusch advocated policy-induced adjustments; Hyman Minsky argued in favour of institutional and regulatory design.

Explicit caution against the illusion of control is expressed by other traditions, which highlight our ability to influence systems through presence and ethical, adaptive participation.

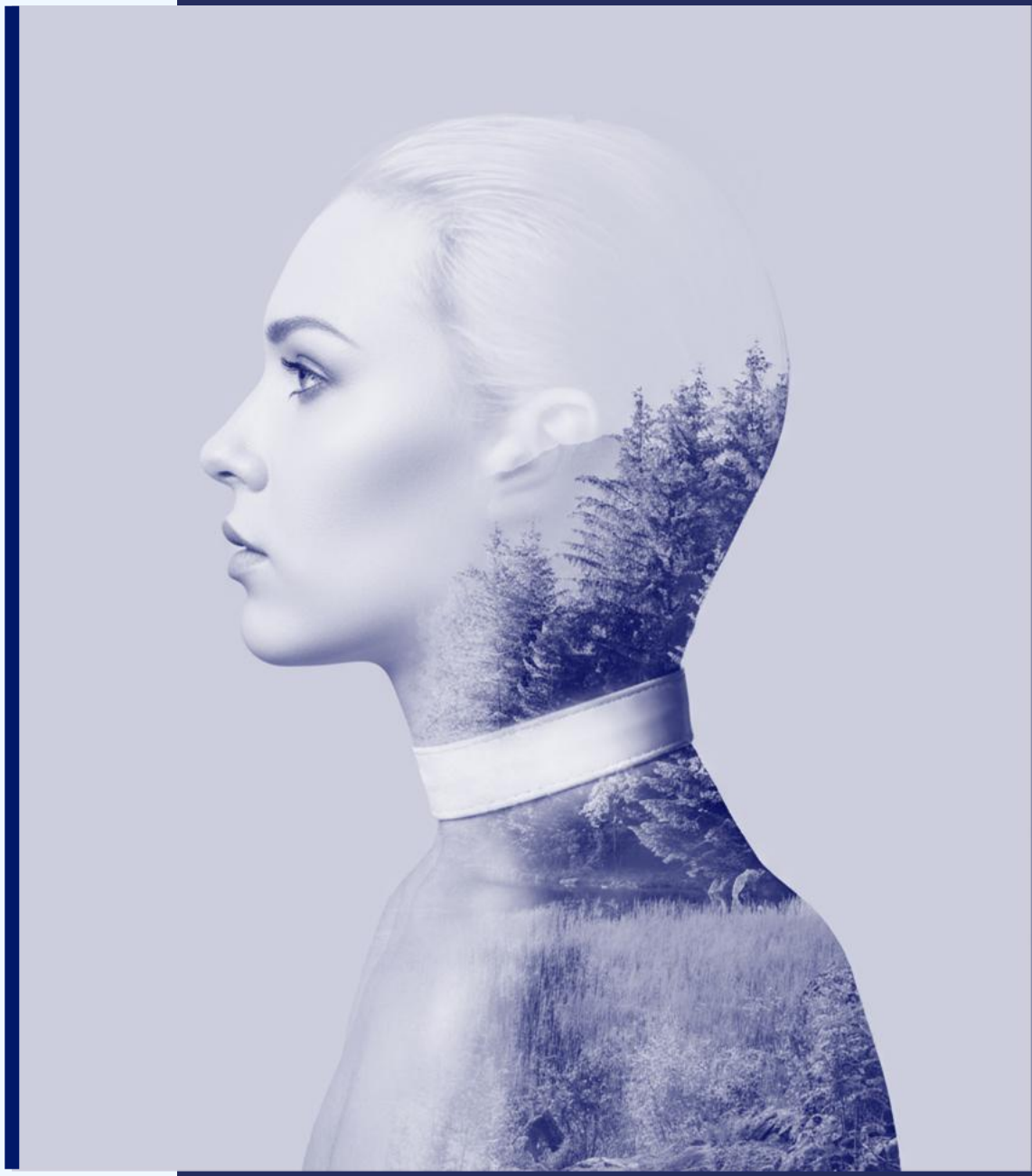
- Stuart Kauffman and W. Brian Arthur understand emergence and self-organisation as beyond centralised control; Otto Scharmer advocates presence.
- Daoism teaches wu-wei, a form of intervention that avoids force and instead aligns with systemic flows.

05

INSIGHT

Lasting change combines top-down redesign, bottom-up prototyping, and mindset shifts

Many contemporary theorists advocate for integrated change that combines structural reform, inner transformation, and collective action. Western system thinkers have historically emphasised top-down interventions to reconfigure systems, while Indigenous thinkers focus on relational accountability and bottom-up processes.



Top-down: Structural reform and market shaping

Western economists and system theorists often propose top-down interventions, focusing on the role of the state, innovation, macroeconomic design, and systemic education.

- **Mission-driven state leadership**: Mariana Mazzucato argues the state must lead with bold missions.
- **Innovation cycles**: Joseph Schumpeter sees elite entrepreneurs and innovation cycles as key drivers of systemic transformation.
- **Macroeconomic design**: Ha-Joon Chang and Rudi Dornbusch emphasise policy design and macroeconomic levers.
- **Systemic education reform**: Daniel Goleman calls for systemic education reforms.

Bottom-up: Grassroots and participatory action

Indigenous and participatory governance models emphasise relational accountability, and community-led processes that emerge through trust, and local context.

- **Decentralised stewardship**: Elinor Ostrom shows how communities manage common resources without central authority.
- **Relational governance**: Tyson Yunkaporta and Robin Wall Kimmerer emphasise Indigenous knowledge, relational governance, and cultural continuity.
- **Grassroots action**: Wangari Maathai mobilised grassroots movements to restore forests.

Hybrid approach: Integrating inner awareness with structural change

This approach integrates top-down structural reform with bottom-up action, and inner transformation at every level, including leadership. Change arises through awareness, presence, and co-design processes aligned with broader systemic shifts.

- **Linking intention and attention to institutional transformation**: by cultivating deep awareness of the systems they operate in, organisations can guide transformative change aligned with the emerging future, according to Otto Scharmer.
- **From small shifts to large-scale emergence**: W. Brian Arthur and Stuart Kauffman show how small changes can scale up through feedback and emergence.

INSIGHT

Adaptive leadership dances with complexity, rather than trying to dance around it

Adaptive leadership is increasingly understood as the ability to sense relationships, recognise patterns, and respond thoughtfully to complexity, rather than attempting to control it. Indigenous and Eastern philosophies emphasise leadership rooted in relationships with people, place, and ecosystems, highlighting reciprocity and pattern recognition. These ideas are increasingly echoed in Western system thinking, where leadership is framed as the capacity to understand interdependencies, identify leverage points, and anticipate systemic ripple effects.

Leadership Quality	Insight	Key Thinkers & Philosophies
 **Emotional intelligence and ethical responsibility**	▪ There is a strong **emphasis in Indigenous and Eastern philosophies on leadership being grounded in relationship with** people, place, community, and ecosystems. ▪ This is gaining traction in Western thought through ethics and psychology.	▪ Robin Wall Kimmerer highlights systems as "bundles of relationships", emphasising **gratitude and ecological reciprocity.** ▪ Confucianism advances **relational ethics and moral leadership** rooted in role-based responsibility.
 **System thinking and strategic foresight**	▪ **Leadership as the ability to understand interdependencies, identify leverage points, and anticipate systemic ripple effects,** according to Western system thinkers. ▪ **Holism, pattern recognition, and situational awareness** are emphasised by Eastern philosophies and Indigenous traditions.	▪ Donella Meadows proposed a **hierarchy of leverage points**, from shallow parameter tweaks to deep paradigm shifts. ▪ Sunzi's Art of War emphasises **strategic alignment with systems' internal dynamics and exploiting moments of instability.**
 **Presence, humility and adaptive learning**	▪ From Daoism to complexity theory and Indigenous thinking, there is a **shared emphasis on adaptive leadership that listens, senses, and responds** rather than dictates.	▪ Otto Scharmer's Theory U proposes that **transformation begins with "presencing" –** a leadership practice that shifts awareness from ego to eco, sensing and acting in alignment with the emerging future. ▪ Daoist philosophy teaches wu wei, or effortless action, **aligning leadership with natural flows rather than forcing outcomes.**

System change
In practice

From theory to action

Over the past two decades, several practical frameworks have emerged to translate system change theory into actionable strategies. Notable examples include the International Futures Forum's Three Horizons Framework, which maps current realities against future possibilities; the Berkana Institute's Two Loops Model, illustrating the decline of old systems and the rise of new ones; and Systemiq's System Change Compass, designed to guide decision-making in line with planetary boundaries.

These illustrative frameworks have successfully supported changemakers across a range of contexts: the Three Horizons Framework has informed strategic planning in government and non-profit sectors; the Two Loops Model has guided grassroots and community-based leadership; and the System Change Compass has supported the implementation of major policy initiatives such as the European Green Deal. These models offer valuable approaches for navigating complexity, identifying leverage points, and shaping long-term systemic transformation, and are frequently cited by leaders and practitioners driving system change. Notwithstanding these efforts, however, more can be done to demystify the processes and practices of system change and, by doing so, to increase the chances that we engage earlier and more effectively with complex and hard-to-solve problems. Our aim is to make existing theory accessible for practitioners.

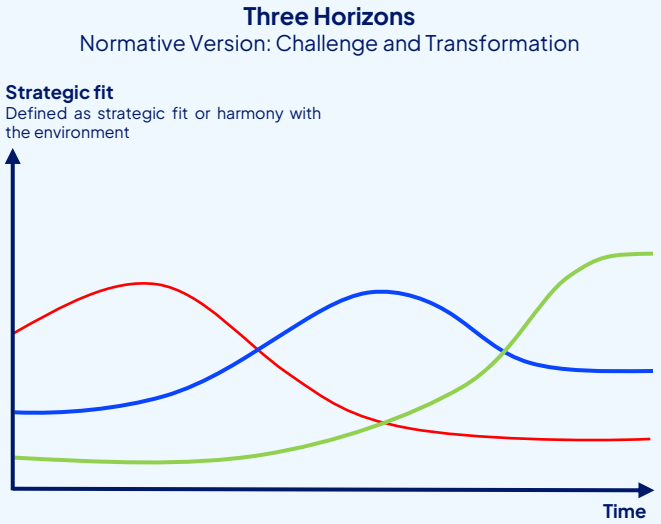
Systemiq's Three Arts of System Change – Inspire, Overtake, Lead – is a practical framework designed to empower changemakers at Systemiq and beyond. This framework is the product of listening and learning – across the literature, practitioner interviews, case studies, and Systemiq's work with partners. Systemiq's three-part framework enriches and adds to existing system change frameworks by combining powerful storytelling, strategic political alignment, precise mechanisms for scaling transitions and emphasising the critical role of collective leadership, resilience and perseverance. We hope this framework will help build the momentum needed to drive system change at scale, accelerating the transition to cleaner, fairer, and more prosperous economies.

Practitioners and organisations have developed frameworks to bridge the theory to action gap

Three Horizons Framework

The framework was developed by the International Futures Forum and helps organisations navigate complex, long-term change by mapping the transition from current systems to future possibilities.

It has been used in strategic planning by NHS Scotland and the UK Government Office for Science.

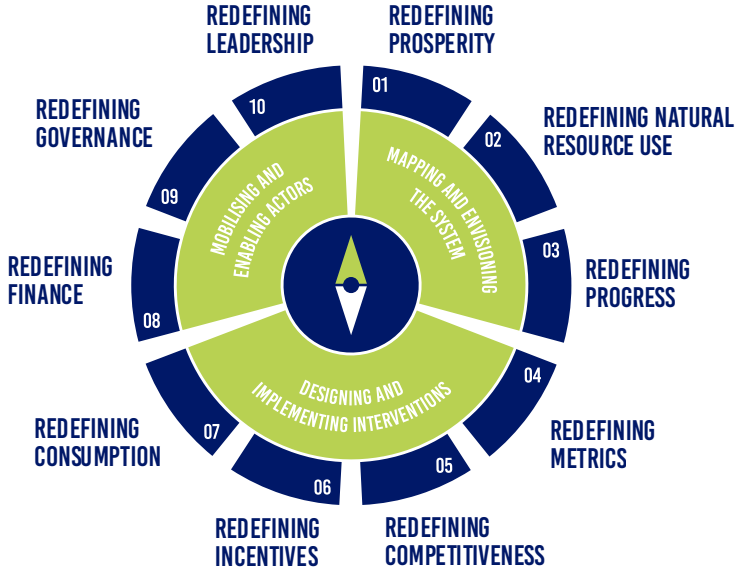


International Futures Forum; used with permission: https://www.internationalfuturesforum.com/publishing-statement CC BY-NC-ND 2.5 SCOTLAND

System Change Compass

The System Change Compass was developed to support the implementation of the European Green Deal, guiding policymakers to align economic activities with planetary boundaries using 10 principles and 30 system-level policy orientations.

It was used to write the Green & Digital Deal for Rotterdam in 2022.

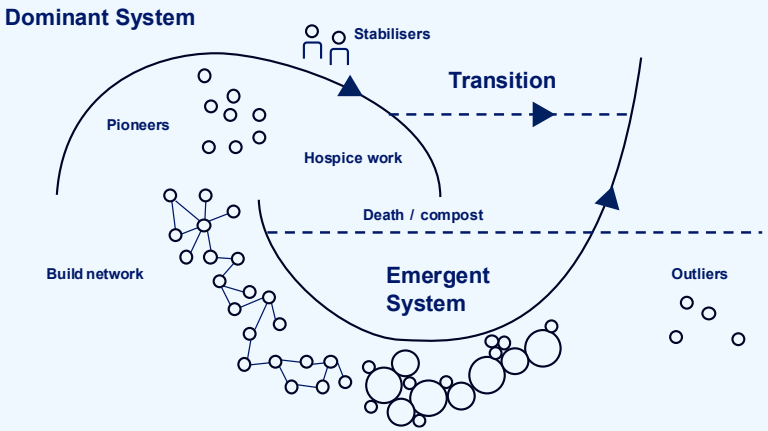


A System Change Compass: Implementing the European Green Deal in a time of recovery; Systemiq; October 2020

Berkana Institute's Two Loops Model

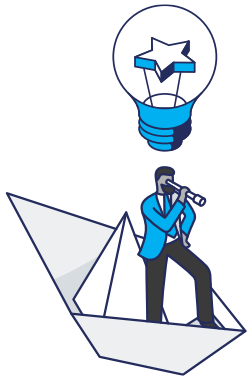
The model illustrates how old systems decline as new ones emerge, supporting community-led transitions.

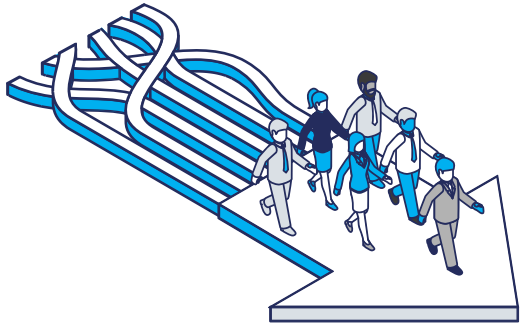
It has been applied across education, rural sustainability, and healthcare to help grassroots leaders navigate their role in systemic transformation.



Sketch illustrating Berkana Institute's Two Loops Model

The three arts of system change





INSPIRE

Make the change plausible and desirable

1. **Tell a compelling story:** mobilise the most important audiences with a credible and motivating vision
2. **Intersect with political priorities:** listen to and align with the issues at the top of the agenda
3. **Improve lives:** build support by delivering real, tangible benefits to people and places

OVERTAKE

Scale the new system so that it can outcompete the old

4. **Back the right breakthroughs:** scale innovations to tipping points
5. **Move enough money:** shift capital away from legacy systems and toward emerging ones
6. **Enable exit:** incumbent actors abandon the shrinking system

LEAD

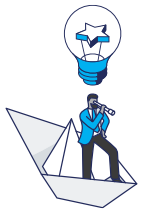
Empower the leaders who can work together and get the job done

7. **Move together**: find ways for state, business and civil society actors to co-create living examples of the new system
8. **Persevere**: stay the course, understanding that system change is almost always decades-long

Systemiq's approach to system change builds on existing literature and other practical frameworks

Systemiq's three-part approach to System Change – Inspire, Overtake, and Lead – adds practical depth to the theory and builds on existing frameworks on system change. Each part extends and operationalises core insights from leading theorists and adds to existing system change frameworks by combining powerful storytelling, strategic political alignment, mechanisms for scaling transitions, and the critical role of collective leadership, resilience and perseverance.

This actionable and comprehensive framework is designed explicitly for changemakers driving the transition to cleaner, fairer, and more prosperous economies.

	Support from literature	Connections with existing frameworks
INSPIRE 	Informed by the paradigm shift literature (e.g. Meadows, Kuhn, Scharmer) and relational system perspectives (e.g. Yunkaporta, Kimmerer), this part identifies the socio-political preconditions for change by connecting values and vision to political alignment and tangible impacts on people's lives.	This part provides a different lens from structural processes or timelines of transformation, by highlighting alignment with political priorities and acknowledging that emotional, cultural, and political dimensions are essential to build broad-based momentum.
OVERTAKE 	Learning from the theorists who discuss feedback dynamics, innovation, and path dependency (e.g. Minsky, Arthur, Kauffman), this part articulates practical levers to strategically guide and accelerate system transitions.	Building on the Two Loops and Three Horizons models, which conceptually depict the gradual transition between old and emerging systems, this part highlights the intentional effort to overtake the old system by actively building the new, while lowering the barriers that prevent the old from phasing out.
LEAD 	This part extends the theory on leadership (e.g. Scharmer, Snowden, Goleman) by clarifying the personal, institutional, cross-sectoral, and behavioural dimensions of orchestrated transitions.	This part offers an important addition to conventional system change frameworks by highlighting the critical role of collective action and resilience in sustained progress.

Appendix
Theories reviewed

Introduction to the theories reviewed

This review is not an academic exercise, but rather a high-level review of the current literature on system change. The theorists, thinkers, and schools of thought included are illustrative and not intended to be exhaustive. Some other highly influential figures in sustainability, ecological systems, and environmental stewardship – such as Herman Daly, Kate Raworth, Peter Senge and Vanessa Machado de Oliveira – are not explicitly included, though their contributions to system thinking are widely recognised and foundational. As work progresses on Blue Whale, we will continue to learn from different knowledge systems and perspectives

We acknowledge that many system change concepts are rooted in, or respond to, spiritual and religious traditions, from Buddhist, Daoist, Hindu, and other South Asian philosophies to Judaism, Islam, and Christian-influenced Western thought, even though this review does not delve into those dimensions explicitly.[1]

01

Eastern philosophies view systems as dynamic, interconnected, and in constant flux, calling for leadership rooted in reflection, responsiveness, and harmony with systemic patterns.

02

Indigenous thinkers focus on relationships, responsibility, ecological stewardship, and regeneration.

03

Mid-20th-century Western foundational thinkers focused on cycles, instability, and disruption within economic systems.

04

Late 20th-century Western thinkers explored how complexity, feedback, and emergence drive system change.

05

While most **contemporary thinkers** agree on the complexity of system change, their approaches to intervention differ.

06

Some contemporary Western thinkers highlight mindset shifts and inner transformation, inspired by Buddhism.

07

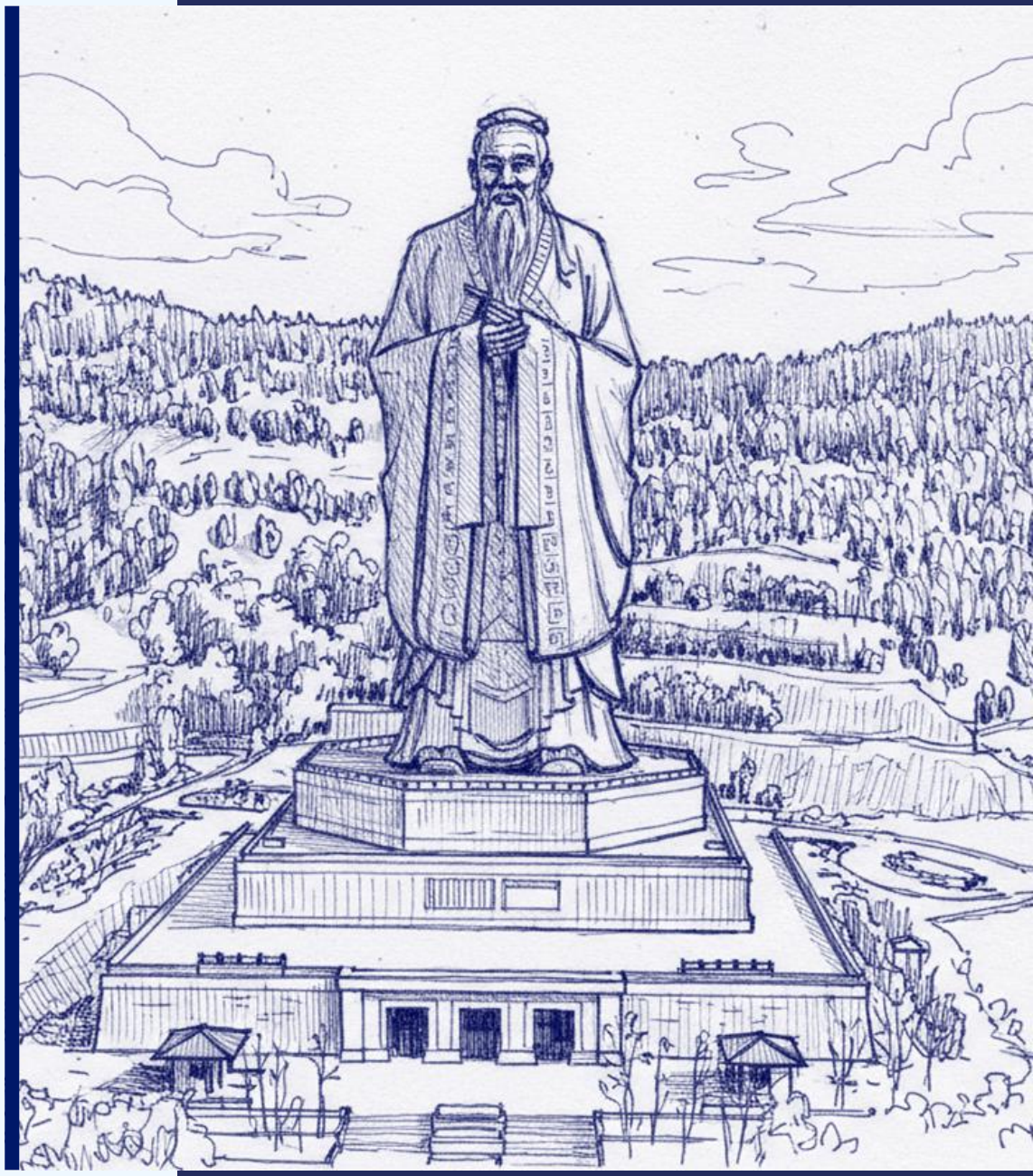
Cross-disciplinary theorists highlight the need for adaptive approaches to change.

1 We acknowledge that paraphrasing authors and citing religious texts and doctrines out of their original context carries the risk of subtly shifting or oversimplifying their intended meanings. Readers are encouraged to consult the original sources.

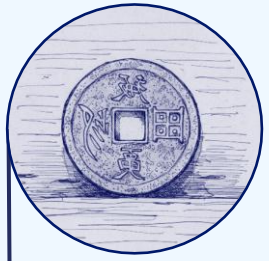
LITERATURE ON SYSTEM CHANGE

Eastern philosophies recognise change as constant, but vary in how to respond

Eastern philosophies view systems as dynamic, interconnected, and in constant flux, calling for leadership rooted in reflection, responsiveness, and harmony with systemic patterns. While Daoism and Buddhism emphasise alignment with natural rhythms and inner awareness, Confucianism and The Art of War propose more structured approaches to intervention, through moral leadership and strategic adaptability.



Sketch derived from an image of a statue of Confucius in Qufu, Shandong Province



c.1000 BCE

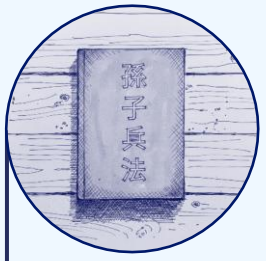
Foundational text on the dynamic nature of the system

- **I-Ching or Book of Changes** is the one of earliest Chinese theories on system change (the universe).
- Some key insights:
  - **Change is the only constant in the universe**: all phenomena are in a perpetual state of flux governed by yin and yang.
  - **Opposing forces are necessary** for system balance and transformation.
  - **Leadership is not control** but sensing and responding.
  - **Change is rooted in self-reflection and ethical cultivation**

c.500-600 BCE

Three distinct schools of thought on the dynamic nature of the system and guidance for personal conduct

- **Daoism acknowledges the fluid, ever-changing nature of systems and encourages humans to act with humility and responsiveness, aligning with natural flows rather than imposing control.**
  - Yin & Yang: the interplay and dynamic balance of complementary opposites and feedback loops as a driver of change and transformation.
  - Wu Wei (effortless action): acting in alignment with natural rhythms, adapting rather than forcefully imposing change.
- **Confucianism focused on social and moral obligation – as the "Way" of proper human conduct and order in society (interventionist theory).**
  - Systems as networks of relationships guided by moral order and integrity. Leaders are expected to set a moral example that inspires others.
  - By internalising and practising shared norms, individuals contribute to the resilience and adaptability of the system and create feedback mechanisms which stabilise and guide behaviour.
- **Buddhism insisted on detachment from egoic control to focus on the change within oneself.**
  - Systems are not fixed and instead ongoing processes: all things are impermanent and in constant flux. Reality is a web of interconnected processes.
  - System change begins with inner awareness and detachment from egoic control: Emphasises the importance of presence, perception and consciousness. Personal development and systemic transformation are deeply interconnected.



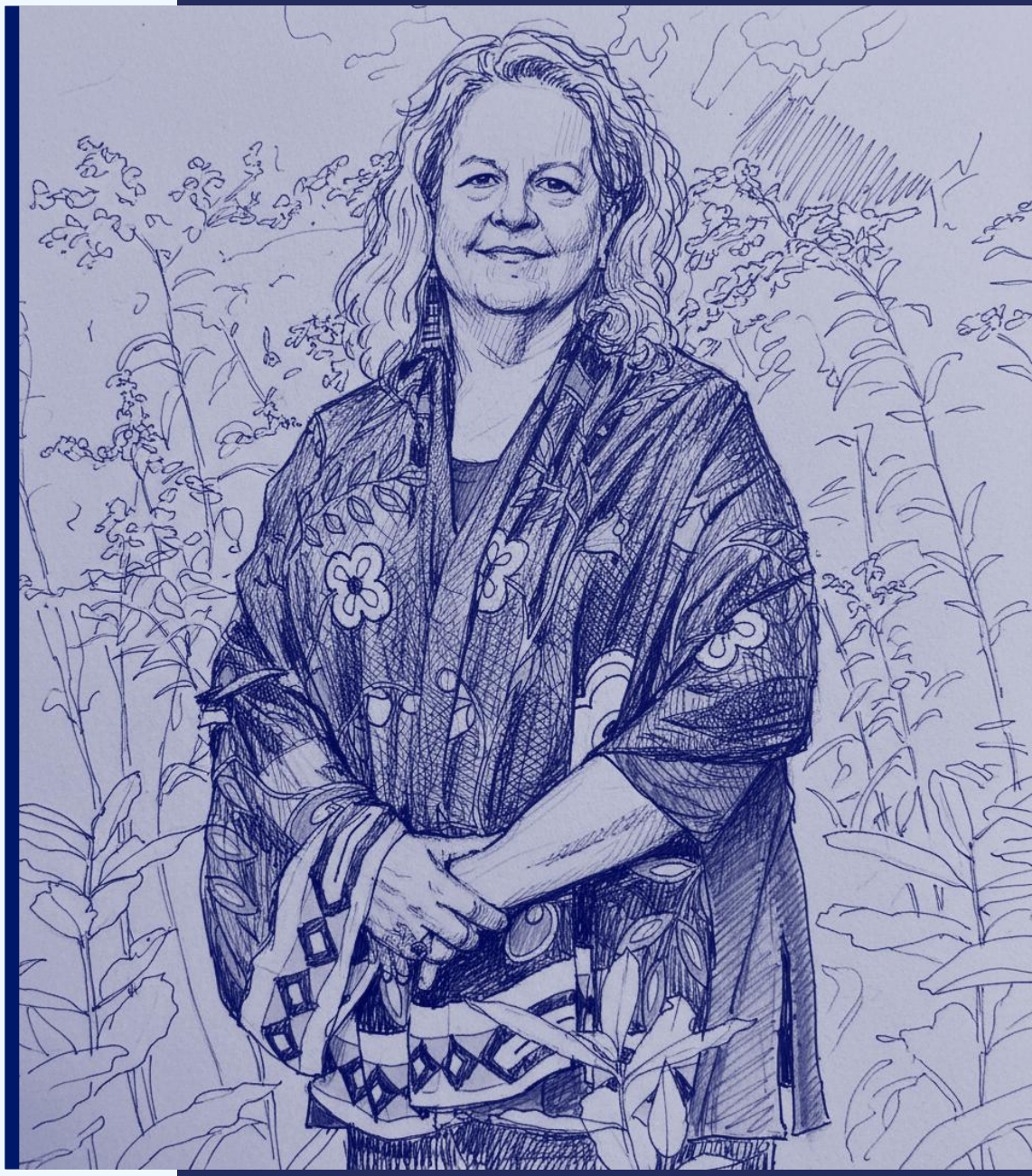
c.500 BCE

The Art of War: A tactical guidebook on system interventions

- **The Art of War emphasises the importance of timing, adaptability, and understanding change** beyond the context of warfare**.** Its core ideology often aligns with Daoist principles such as wu-wei (non-action) and strategic minimalism.
- Some key insights:
  - **Effective strategy in warfare arises from adapting fluidly to change:** reading patterns, relationships, and flows.
  - **Avoiding battle altogether is the highest form of victory:** relying on subtlety, leverage and indirect action.
  - **Strategic leadership is adaptive and agile,** remaining flexible and responsive to changing conditions.

Indigenous thinkers focus on relationships, responsibility, ecological stewardship and regeneration

Indigenous thinkers focus on relationships, responsibility, ecological stewardship, and regeneration. Rather than viewing systems as mechanistic or problems to be fixed, Indigenous perspectives emphasise the interconnectedness and interdependence of all living things, embedded in ancestral memory, ecological cycles, and sacred responsibilities. The term "Indigenous" generally refers to original inhabitants and Native Peoples worldwide. We recognise that, despite vast geographic and temporal diversity, many Indigenous knowledge systems often share core values rooted in ancestral epistemologies and cultural practices. Because much of this wisdom exists in oral traditions, and lived practice, the vast majority of Indigenous perspectives are not reflected in academic literature and the thinkers discussed here represent only a small sample of the rich wisdom Indigenous communities from around the world hold on system change.



Sketch derived from a photograph of Robin Wall Kimmerer . © John D. and Catherine T. MacArthur Foundation–used with permission. CC BY 4.0

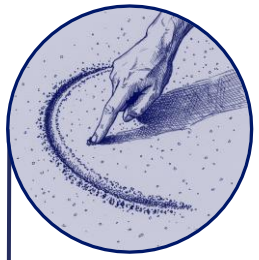
Deganawida

c.1142

Spiritual vision, ritual, and prophecy in guiding collective transformation

- **Deganawida's approach to change was based on spiritual vision, ethical leadership, collective dialogue, and regenerative law.**
- He emphasised healing, forgiveness, and the restoration of relationships through **diplomacy rather than domination.**
- Decisions were guided by the Seventh Generation Principle: **systems must be sustainable for those yet unborn.**

Sketch derived from an original photograph by U.S. Fish and Wildlife Service (public domain) of an Eastern White Pine, a symbol of the Haudenosaunee "Tree of Peace".



Tyson Yunkaporta

1972-present

Change comes from listening, humility, and pattern recognition over time

- **Tyson Yunkaporta views complexity not through the lens of control and instead that of responsibility and humility.**
- He applies Indigenous governance, cognition, and economic models to contemporary problems, offering new pathways for system change.
- **He highlights the absurdity of trying to fix complex crises with the same worldview that caused them**: the system needs to be embedded in the Indigenous context.

Robin Wall Kimmerer

1953-present

Reciprocity as a systemic principle with human systems as part of a larger ecological kinship web

- **Robin Wall Kimmerer understands system change as a relational, reciprocal, and sacred process of restoring kinship with the living world** – rather than technical innovation or institutional redesign.
- **She emphasises the power of narrative transformation** as leverage for deep change.

LITERATURE ON SYSTEM CHANGE

Mid-20th century Western foundational thinkers focused on cycles, instability, and disruption in economic systems

Mid-20th-century Western foundational thinkers focused on cycles, instability, and disruption within economic systems. Thinkers such as Joseph Schumpeter, Hyman Minsky, Rudi Dornbusch, and Thomas Schelling analysed how large-scale shifts occur – exploring economic cycles, innovation, and systemic crises – and emphasised the structural forces and feedback loops that drive both stability and transformation. Their work laid the groundwork for viewing systems as inherently dynamic, interconnected, and susceptible to abrupt change.

Sketch derived from a 1945 portrait of Joseph Schumpeter via Wikimedia Commons (public domain)

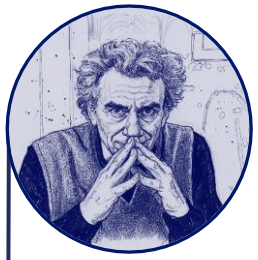
Joseph Schumpeter

1883-1950

Creative destruction, innovation drives economic evolution

- **Joseph Schumpeter introduced the concept of creative destruction,** where innovation disrupts and transforms economic structures, leading to cycles of growth and decline.
  - Capitalism evolves through cycles. New innovations disrupt and replace existing systems.
  - Change is cyclical and driven by innovation, not external shocks or top-down design.
- **He also emphasised the role of entrepreneurs** as agents of disruptive change in capitalist economies.

Sketch derived from a 1945 portrait of Joseph Schumpeter via Wikimedia Commons (public domain)



Hyman Minsky

1919-1996

Financial instability would lead to cycles of systemic crisis

- **Hyman Minsky proposed the Financial Instability Hypothesis** arguing that periods of stability in financial systems breed risk-taking, ultimately leading to systemic crises and cycles of boom and bust.
- **His hypothesis highlighted endogenous instability –** crises emerge from within the system, not just from external shocks.
- Minsky saw strong public institutions as essential to stabilising unstable systems.

Sketch derived from a photograph of Hyman Minsky via Wikimedia Commons (public domain).

Rudi Dornbusch

1942-2002

Overshooting model & abrupt shifts in macroeconomic systems

- **Rudi Dornbusch introduced the "overshooting" model explaining sudden, disruptive shifts** in economic systems can happen due to delayed adjustments and expectations, not just external shocks:
  - "The crisis takes a much longer time coming than you think, and then it happens much faster than you would have thought."
- He considered slow political systems often fail to act until collapse is imminent.

Sketch derived from a photograph of Rudi Dornbusch via Wikimedia Commons, Universitätsarchiv St.Gallen | Regina Kühne | HSGH 022/000754/04 | CC-BY-SA 4.0

Thomas Schelling

1921-2016

Path dependence and lock in effects

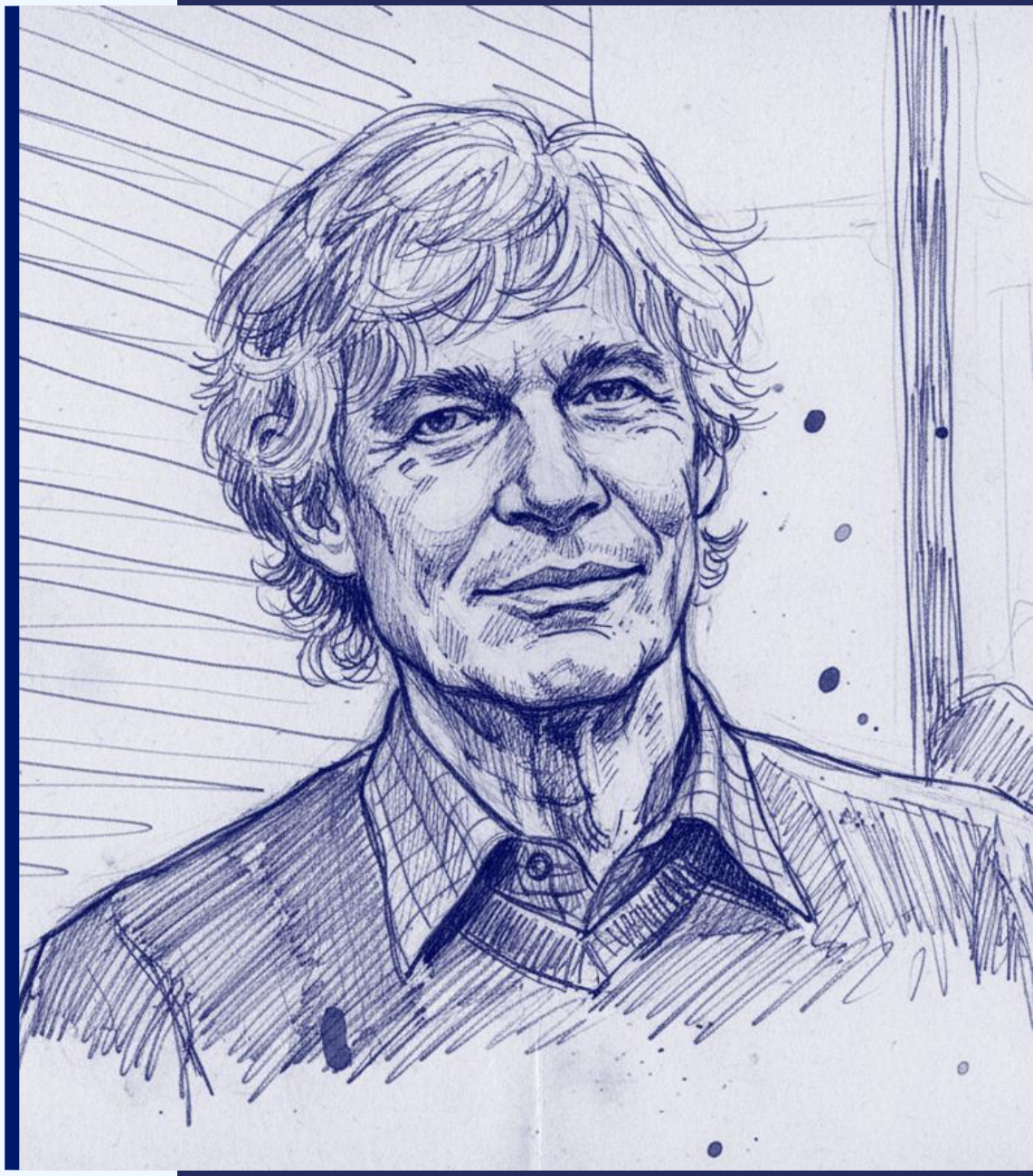
- **Thomas Schelling showed that individual behaviour can aggregate into large-scale systemic patterns.**
- **His models demonstrate how systems can reach tipping points.**
  - Once a certain threshold is crossed, a system can shift rapidly to a new state.
- Schelling showed that once a system crosses a tipping point, it often becomes locked into a new path.

Sketch derived from a portrait of Thomas C. Schelling via Wikimedia Commons, CC BY-SA 2.0

LITERATURE ON SYSTEM CHANGE

Late 20th-century Western thinkers explored how complexity, feedback, and emergence drive system change

Late 20th-century Western thinkers further explored how complexity, feedback, and emergence drive system change. The works of von Bertalanffy, Donella Meadows, W. Brian Arthur, and Stuart Kauffman focus on the complex and emergent nature of systems, emphasising that change arises from the interactions of many agents or components. This perspective does not necessarily contradict earlier theories, but doubles down on the unpredictable and complex aspects of change – introducing concepts such as feedback loops, leverage points, path dependence, and self-organisation.



Sketch derived from a photograph of Stuart Kauffman via Wikimedia Commons, CC BY-SA 3.0.

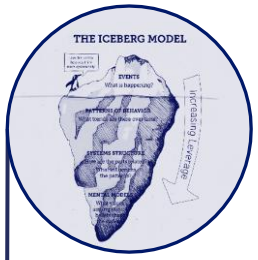
Ludwig von Bertalanffy

1901–1972

Systems are more than the sum of their parts

- **Ludwig von Bertalanffy's "General Systems Theory"** highlighted that systems are more than the sum of their parts, challenging the dominant scientific paradigm of the time, which treated complex phenomena as reducible to the sum of their parts.
- **He viewed systems as living, evolving, and adaptive** rather than static mechanisms.
- **He emphasised that system change arises through dynamic interactions and feedback** with the environment, stressing the importance of open systems, adaptation, and achieving dynamic equilibrium (steady state).

Sketch derived from a portrait of Ludwig von Bertalanffy (1926). Image via Wikimedia Commons (public domain)



Donella Meadows

1941-2001

Pioneering sustainability system thinking

- **Donella Meadows was a pioneer in explicitly integrating sustainability and ecological concerns** into system thinking.
- **She advocated for addressing the root causes of complex problems**, rather than merely treating their symptoms. She emphasised that achieving deep and lasting system change often requires shifting underlying paradigms and mindsets.
- **Her key concepts are "leverage points"** – places within a system where small, strategic changes can produce significant, long-lasting effects – **and "feedback loops"** – behaviour-shaping interconnected elements.

The Iceberg Model, by the Academy for Systems Change, CC BY-NC-ND 4.0

W. Brian Arthur

1945-present

Increasing returns & path dependence concepts

- **W. Brian Arthur introduced "increasing returns"** concept, challenging traditional economic theory of diminishing returns.
- **He also introduced "path dependence"** – system outcomes highly sensitive to initial conditions:
  - Early advantages in a system are self-reinforcing, leading to lock-in.
  - Positive feedback loops which entrench existing paradigms must be identified and disrupted.
- **He showed how increasing returns and positive feedbacks shape the evolution of economic and technological systems.** His insights have been influential in understanding technology-driven markets.

Sketch derived from a photograph of W. Brian Arthur by World Economic Forum, CC BY-SA 2.0, via Wikimedia Commons.

Stuart Kauffman

1939-present

Self-organisation in complex adaptive systems

- **Stuart Kauffman is a pioneer in the study of complex systems and emergence.**
- He argued that complex systems – whether biological, economic, or social – exhibit emergent properties.
  - The notion of the "adjacent possible" is the set of all things that could emerge next given the current configuration of a system.
  - Systemic shifts cannot be explained by causation but emerge through enablement.
  - Transformational change emerges by nurturing diversity, interaction and adaptive feedback.

Sketch derived from a photograph of Stuart Kauffman via Wikimedia Commons, CC BY-SA 3.0.

LITERATURE ON SYSTEM CHANGE

More recent thinkers offer divergent views on the role of governance, institutions, and collective action

While most contemporary thinkers agree on the complexity of system change, they differ in their approaches to intervention. Ha-Joon Chang and Mariana Mazzucato advocate top-down reforms through institutions and policy, whereas Wangari Maathai and Elinor Ostrom champion bottom-up, community-led solutions. David Snowden emphasises a context-dependent approach, promoting emergent, and adaptive strategies.

Sketch derived from a photograph of Wangari Maathai via Wikimedia Commons, CC BY-SA 2.0

Wangari Maathai

1940–2011

Grassroots activism & community-based initiatives

Elinor Ostrom

1933–2012

Governing through polycentric, adaptive institutions

David Snowden

1954–present

System thinking for adaptive leadership

Mariana Mazzucato

1968–present

Entrepreneurial state through mission-driven innovation policy

Ha-Joon Chang

1963–present

Institutional change through state-led initiative

BOTTOM-UP APPROACH → **TOP-DOWN APPROACH**

- **Wangari Maathai considers system change as a matter of community** empowerment and planetary stewardship.
- She challenged both extractive capitalism and authoritarian governance as systemic roots of ecological breakdown.

- **Elinor Ostrom argues that communities can sustainably manage the common pool resources without top-down control:** solutions must be tailored to specific problems in specific contexts.
- **She makes the case for polycentric governance** – complex overlapping institutions and for systems that co-evolve with local cultures, ecologies, and histories.
- She identifies 8 design principles that enable effective long-term stewardship.

- **David Snowden developed the Cynefin Framework to help leaders match their approach to different system states – ordered, complex, or chaotic.**
- He advocates for "safe-to-fail" experiments to navigate complexity, allowing solutions to emerge through adaptation and learning.
- He warned against using linear solutions in complex systems, emphasising the risks of misdiagnosing the nature of a system.

- **Mariana Mazzucato makes a strong case for governments with clearly defined-missions** to address societal challenges: the state should be the first mover with high-risk, high-impact innovation.
- **She contends that it is not enough to merely "fix" capitalism;** instead, we must fundamentally rethink what we value.
- **She points out that we have confused value extraction with value creation,** resulting in inequality and underinvestment in real innovation.

- **Ha-Joon Chang criticises GDP fetishism** and economic theories that ignore inequality, power and well-being. He calls for a more holistic approach that incorporates social and institutional factors.
- **He argued that there is no such thing as a free market,** emphasising the role of state intervention, industrial policy, and protectionism.

Sketch derived from a photograph of Wangari Maathai via Wikimedia Commons, CC BY-SA 2.0

Sketch derived from a photograph of Elinor Ostrom via Wikimedia Commons, CC BY-SA 3.0

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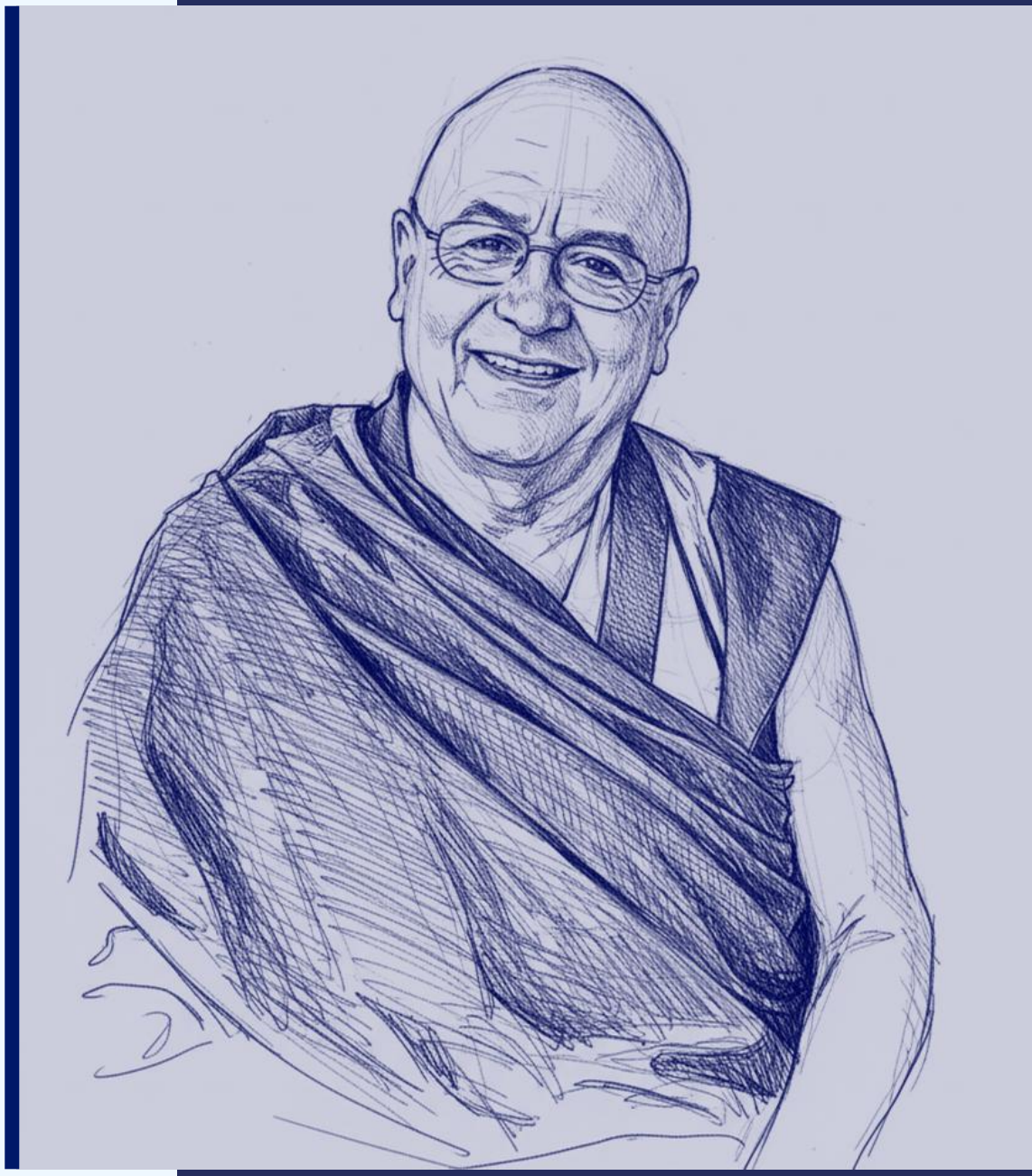
Sketch derived from a photograph of Ha-Joon Chang. via Wikimedia Commons, CC BY-SA 4.0

LITERATURE ON SYSTEM CHANGE

Contemporary thinkers highlight inner transformation and mindset shifts inspired by Buddhism

Some current Western leading thinkers focus on the impact of individual mindset, values, and inner change in driving collective and system change. Otto Scharmer, Matthieu Ricard, Daniel Goleman, and Ken Wilber set aside the discussion on policies or institutional influence to focus on inner individual transformation – how people see themselves, others, and the world – often through reflection and dialogue. Their concepts around awareness and consciousness resonate with Eastern philosophies.



Sketch derived from a photograph of Matthieu Ricard via Wikimedia Commons, CC BY-SA 3.0

Otto Scharmer

1961-present

System change begins with inner change

- **Otto Scharmer argues that real system change begins with changing the inner condition** of leaders and participants, fostering awareness and intentional action.
- **He emphasises the importance of "Presencing" –** connecting to one's highest future potential **–** as a means to shift mindsets and unlock collective innovation.
- **His "Theory U" framework** guides individuals and organisations through a process of deep listening, reflection, and co-creation to enable transformative change.

Sketch derived from a photograph of Otto Scharmer via Wikimedia Commons, CC-BY-SA 4.0

Matthieu Ricard

1946-present

Systemic change is rooted in inner change

- **Matthieu Ricard is a Western biologist and scientist turned Buddhist monk.**
- **Ricard emphasises that systemic change is rooted in inner change**, where personal transformation fuels positive impacts on communities and the environment.
- He believes that cultivating altruism and compassion is foundational to individual well-being and societal transformation.

Sketch derived from a photograph of Matthieu Ricard via Wikimedia Commons, CC BY-SA 3.0.

Daniel Goleman

1946-present

Emotional intelligence & effective leadership

- **Daniel Goleman argues emotional intelligence is crucial for leading complex organisations and creating cultural change**.
- **His concept of "The Triple Focus – Expanding Systems Awareness"** demonstrates how leaders and change agents can deliver system change through individual actions, interpersonal dynamics, and systemic factors interacting to shape outcomes.
- His work has had significant influence on education, business, and leadership

Sketch derived from a photograph of Daniel Goleman by World Economic Forum, CC BY-SA 2.0

Ken Wilber

1949-present

Integrating inner and outer dimensions of system change

- **Ken Wilber's Integral Theory and AQAL framework offer a holistic map for understanding complex systems** through multiple perspectives: individual and collective, interior and exterior.
- He argued that system change must integrate mindset, culture, behaviour, and structure for transformation to be truly holistic.
- **His work advanced the idea that no single perspective is sufficient on its own,** encouraging leaders and change agents to work across disciplines, levels of development, and ways of knowing to foster truly inclusive transformation.

Sketch derived from a photograph of Ken Wilber via Wikimedia Commons, CC BY-SA 3.0

07

LITERATURE ON SYSTEM CHANGE

Cross-disciplinary theorists highlight the need for adaptive approaches to change

Cross-disciplinary thinkers challenge linear views of change, showing that systems transform through tipping points, feedback loops, and emergent adaptation and system change requires adaptive, bottom-up processes. Their insights – from ecology and science to economics, law, and media – highlight how transformation depends not only on dynamic system behaviour but also on the structures, cultures, and institutions that shape it. Together, they point to the need for adaptive, integrated strategies that engage feedback loops, cultural mindsets, and both formal and informal institutions.

Sketch derived from a photograph of Carlota Perez via Wikimedia Commons, CC BY-SA 4.0

HISTORICAL & SCIENTIFIC PERSPECTIVES

Thomas Kuhn

1922-1996

Reframing system change through paradigm shifts

- **Thomas Kuhn introduced the concept of paradigm shifts:** systems undergo periodic upheavals when prevailing frameworks can no longer explain emerging anomalies.
- **He argued that systemic change is non-linear,** unfolding through periods of stability disrupted by crises that accumulate until a tipping point leads to a revolutionary shift.
- **He also highlighted the role of perception and belief** in maintaining systems, showing that evidence alone rarely changes paradigms – change requires shifts in collective mindset and meaning-making.

Sketch derived from a portrait of Thomas Kuhn, via Wikimedia Commons, CC BY-SA 4.0

Naomi Oreskes

1958-present

Revealing how lock-ins can prevent evidence-based shifts in complex systems

- **Naomi Oreskes exposed how vested interests manufacture doubt to delay action on systemic crises like climate change**: misinformation can be a structural force that preserves the status quo.
- **She understands trust in science to be a collective social process:** scientific authority emerges from consensus and institutional integrity, not individual certainty.
- **She emphasises that system change requires confronting power and ideology**: shifting systems depends on transforming public narratives, epistemologies and the governance of knowledge.

Sketch derived from a photograph of Naomi Oreskes, via Wikimedia Commons, CC BY-SA 3.0

ECOLOGICAL & BIOLOGICAL PERSPECTIVES

James Lovelock

1919-2022

Depicting Earth as a homeostatic living system

- **James Lovelock formulated the Gaia Hypothesis**, proposing Earth as a self-regulating system in which organisms and their inorganic environment interact to sustain conditions for life.
- **He established the field of Earth system science**, shifting scientific and policy discourse toward viewing planetary processes as dynamic and integrated feedback-driven subsystems.
- **He developed the Daisyworld model** (with Andrew Watson) to demonstrate how biological feedback loops can stabilise the planet's temperature without external regulation – an illustration of emergent homeostasis.

Sketch derived from a photograph of James Lovelock via Wikimedia Commons, CC BY-SA 3.0.

Fritjof Capra

1939-present

Pioneering a living systems view of interconnected change

- **Fritjof Capra emphasises that living systems are defined by networks, relationships, and patterns** rather than isolated parts in his system view of life that integrates biological, cognitive, social, and ecological dimensions.
- **He champions the idea of interconnectedness**, arguing that sustainable change depends on recognising the dynamic, nonlinear nature of systems and the feedback loops that sustain or shift them.

Sketch derived from a photograph of Fritjof Capra via Wikimedia Commons, CC BY-SA 3.0

ECONOMIC PERSPECTIVES

Friedrich Hayek

1899-1992

Championing law and markets as spontaneous and self-organizing

- **Friedrich Hayek argued that no central authority can aggregate the vast, tacit information held by individuals**; instead, decentralised actors using their unique insights drive adaptive system change.
- **He pioneered the theory of "spontaneous order,"** showing that complex legal, economic, and social systems emerge organically within a framework of abstract rules and property rights, rather than through top-down design.
- **His critique of central planning exposed the "knowledge problem" –** central planning fails due to information deficits, with interventions often causing inefficiency and unintended consequences.

Sketch derived from a photograph of Friedrich Hayek, via Wikimedia Commons, CC BY-SA 4.0

Carlota Pérez

1939-present

Positioning techno-economic paradigm shifts as drivers of systemic transformation

- **Carlota Pérez identifies five successive technological revolutions** and shows how each follows a two-phase pattern of installation (finance-led boom and bubble) and deployment (production-led golden age).
- She argues that speculative financial capital fuels early innovation and infrastructure while production capital brings technologies into widespread use – both are essential for long-term transformation.
- **She emphasises the importance of reforming the "social and institutional bricks"** – institutions, regulations, infrastructure, and social norms – to steer technological revolutions toward inclusive growth.

Sketch derived from a photograph of Carlota Perez. via Wikimedia Commons, CC BY-SA 4.0

LEGAL PERSPECTIVE

Bruce Ackerman

1943-present

Framing "constitutional moments" as drivers of systemic legal reform

- **Bruce Ackerman distinguishes between normal politics and rare "constitutional moments"** when intense public mobilisation and political will override ordinary amendment processes to redefine a nation's fundamental legal order.
- **He demonstrates how mass movements and elite leadership forge new constitutional commitments** that courts and legislatures are then compelled to interpret and implement.
- **He analyses pivotal episodes in US history,** such as the Civil Rights Revolution of the 1960s, to show how these inflection points redistribute power, enshrine new rights, and recalibrate institutional norms.

Sketch derived from a photograph of Bruce Ackerman via Wikimedia Commons, CC BY-SA 4.0

MEDIA PERSPECTIVE

Marshall McLuhan

1911-1980

Coining "The medium is the message"

- **Marshall McLuhan introduced the concept that "the medium is the message,"** arguing that a medium's form, rather than its content, reconfigures human perception and broader social structures.
- **He showed how transitions (e.g. from print to electronic) rebalance our senses and reorganise institutions,** enabling new forms of interaction and control.
- **He devised the "tetrad of media effects":** a framework for assessing any medium's systemic impact by looking at how technologies enhance, obsolesce, retrieve, and reverse social functions.

Sketch derived from a photograph of Marshall McLuhan via Wikimedia Commons, CC BY-SA 4.0

KEY TERMS

Glossary

Terms we use and what we mean

Complexity theorists	This term refers to Stuart Kauffman, W. Brian Arthur, and David Snowden who study complex adaptive systems, emphasising how their behaviour emerges through feedback loops, self-organisation, adaptation, and emergence.
Contemporary theorists	This term refers to current thinkers such as Otto Scharmer, Matthieu Ricard, Daniel Goleman, and Ken Wilber who emphasise the importance of individual mindset, values, and inner transformation as foundational to achieving systemic and collective change.
Cross-disciplinary theorists	This term refers to Thomas Kuhn, Naomi Oreskes, James Lovelock, and Fritjof Capra who integrate insights from multiple disciplines, including philosophy, history and ecology.
Eastern philosophies	This term refers collectively to I-Ching, Daoism, Confucianism, Buddhism, and Sunzi's Art of War.
Mid-20th century Western foundational thinkers	This term refers to Joseph Schumpeter, Hyman Minsky, Rudi Dornbusch, and Thomas Schelling.

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We are engaging with hundreds of leaders and practitioners across business, finance, policy-making and civil society. We are learning from different thinkers and traditions, as well as some of the most important system change episodes of the last century.

Our growing community is driven by one urgent aim: to put this learning into action, so that we can accelerate the messy, multi-speed transition on the basis of what works.

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