

REFLECTIONS ON THE "LEADERSHIP UNDER COMPLEXITY" WORKSHOP

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Addressing complex societal challenges – or what are known as wicked problems – is placing ever greater demands on national and regional governments, international organisations and corporations. Although wicked problems are having a more profound effect on our future than ever before, we are reluctant to engage with their underlying complexity. Our policymaking and strategic tools are ineffective and our institutions and leaders ill-prepared. With this conundrum in mind, we convened the Leadership under Complexity workshop to gain a deeper understanding of how governments and corporate leaders could learn to thrive amid continuous complex change and turn wicked problems into fortuitous opportunities.

1. Why complexity matters

The most severe challenges we currently face, such as global warming, health and well-being, the very survival of democracy and the rise of militant and violent extremism, are all subject to high complexity. Our ability to address these fundamental wicked¹ problems successfully is crucial for longer-term success and even the future of humankind.

Growing interdependencies and unaddressed wicked problems make our societies more and more vulnerable². Our finely tuned, stable social and economic processes do not cope well with unforeseen shocks³.

On another level, growing complexity beyond the worsening of specific wicked problems poses a range of higher-order challenges, from the way we plan to the way our organisations work, and even our own personal behaviour and courage to face up to complexity.

In the face of complexity policymaking^{4,5,6} becomes bogged down. Unpredictable non-linear causality makes accurate forecasts impossible. In non-linear complex systems behaviour is emergent, making accurate forecasting impossible. Any action or intervention in the system will likely result in unintended second- and third-order consequences.⁷ Under these conditions, strategy implementation thus becomes impossible and it becomes clear why leaders in both the public and private sectors have traditionally shied away from complexity: politicians have tended to focus on short-term local issues where tangible progress can be made within an election cycle.

And corporate leaders have been judged and rewarded on their ability to execute a strategy that delivers strong quarterly results.⁸ Complexity is daunting and threatening to policymakers and corporate leaders nurtured on simpler and more fathomable linear cause-and-effect relationships.

COMPLICATED V. COMPLEX

Complex is very distinct from complicated. In complicated issues, there is a range of right answers to the question of what is the relationship between cause and effect. If sufficient expertise is available, complicated challenges can be analysed, thus enabling rational decision-making.

Complex systems – like battle-fields, markets, ecosystems and corporate cultures – cannot be “taken apart to see how they work”, because any actions may change the situation in unpredictable ways. Therefore, in complex examples cause and effect can only be deduced in retrospect.

A Swiss watch, for example⁹, may need to be very complicated to be outstandingly accurate. However, it absolutely should not be complex, at least if you want a reliable timepiece and not just an item of jewellery!

Too many people are still deeply misguided about the difference between complication and complexity, not just from a linguistic standpoint but in thought too.

1. Dictionary definitions of “wicked” will include evil, distressing, mischievous or mean but a “wicked problem” has come to define an intractable or seemingly insurmountable problem, which does not have any lasting solution because of the many cause-and-effect relationships. Its causes are often unclear, ambiguous or intertwined and may also change rapidly, creating volatility, uncertainty and frequent surprises. See also Rittel H. and Webber M. (1973), “Dilemmas in a General Theory of Planning”, in *Policy Sciences*, Vol. 4 Issue 2, pp. 155-169.
2. Tainter J. (1990), *The Collapse of Complex Societies*, Cambridge University Press, Cambridge. Hellström E., Hämäläinen T., Lahti V-M, Cook J. W. and Jousilahti J. (2015), *Towards a Sustainable Well-Being Society. From Principles to Applications. Version 2.0. Sitra Working Paper 1.4.2015*.
3. Rivkin J. 2000. “Imitation of Complex Strategies.” *Management Science*, Vol. 46 Issue 6, pp. 824-844.
4. Mulgan G. (2009), *The Art of Public Strategy*, Oxford University Press.
5. Chia R. and Holt R. (2009), *Strategy Without Design: The Silent Efficacy of Indirect Action*, Cambridge University Press.
6. Camillus J. (2016), *Wicked Strategies: How Companies Conquer Complexity and Confound Competitors*, University of Toronto Press.
7. For an entertaining dramatic parable, but one that shows the irony of true complexity well, we suggest watching the movie *Babel* (Alejandro González Iñárritu and Guillermo Arriaga, 2006).
8. Although in many countries we are now witnessing the beginning of a healthy time frame reversal: policymakers become more and more short-term tinkers, mindlessly responding to polls and social media waves, with corporate leaders retaking the longer-term strategic perspective.
9. Definitions are derived from the Cynefin framework developed by David Snowden: Snowden D. (2002), “Complex Acts of Knowing: Paradox and Descriptive Self Awareness”, in *Journal of Knowledge Management*, 6(2), May 2002, pp. 100-111.

For rather obvious reasons strategic management practitioners and researchers, as well as policy economists, have cast complexity in a negative light, as it undermines the central rationality and predictability tenets of their core strategic planning paradigm. Yet for both groups, complexity can no longer be avoided and most leaders are struggling to try and address it. Complex challenges emerge from multiple unforeseen interactions, they are impossible to anticipate and hard to make sense of. Furthermore, in dealing with complexity, actions can lead to unintended consequences and toxic side effects.

Addressing complexity calls for flexible adaptive and emergent cross-border collaboration between firms in different sectors and between private, social and public sector actors. Most governments and industrial-era institutions are woefully unprepared to address this type of challenge: their governance models were created to cope with a more orderly, predictable, less inter-connected world and to deliver simple goods, services and policies. Traditional hierarchical organisations and the logic of their policy planning, decision-making and action routines are well suited to achieve continuity and efficiency in the stable socio-economic environment of the post-war decades, but they are not suitable for addressing the complex challenges and wicked problems we face today.

Not just strategy making, but any purposive action, is made difficult by complexity. Complexity science has been successful in modelling complexity in the movement of crowds and flocks whose members follow simple rules, i.e. in situations of "organised" complexity.¹⁰ But it has not yet resulted in concrete and practical recommendations for governance, leadership and management in complex systems, i.e. in situations of "disorganised" complexity.

Although difficult for us, engaging with complexity and welcoming serendipity can also be favourable, as not all surprises are necessarily bad! What is certain is that, like it or not, there will be more surprises and, as Peter Ho, a key leader in Singapore's development, put it: "We better brace for them."¹¹

The workshop

With this conundrum in mind, on 21 and 22 June 2016 we convened the Leadership under Complexity workshop in Helsinki (the full programme of which can be found in Attachment 1). Our aim was to foster a dialogue to gain a deeper understanding of how governments and corporate leaders could learn to thrive amid continuous complex change and thus make complexity an opportunity instead of a threat (turning wicked problems into fortuitous opportunities). A group of 29 participants took part in the workshop, which was comprised of leaders who have been confronted with complexity first-hand, as well as experts and researchers from relevant disciplines (see the box on the next page). We would like to thank all the participants for sharing their experiences, thoughts and ideas through group dialogue and presentations.

To gain the most insight and shared experiences from the participants, we identified real-world problem areas that stem from complexity as the action contexts discussed in the workshop: sustainable development, asymmetric warfare, cybersecurity, emergency relief and the development of new business ecosystems. This selection provided a wide range of real-life complex challenges participants had to confront first-hand (for a more detailed introduction to these contexts, see Attachment 2). This enabled us to examine practical issues around governance, leadership and management.

We were mainly interested in identifying the kernels of common challenges and effective action across the different contexts. Although it was not in the main focus of this paper, it is important to note that some key differences also exist between the different contexts.

For example, the need for speedy effective reaction is common to cybersecurity, asymmetric warfare and emergency relief, as all have to deal with crisis situations, be it a cyberattack, terrorist act or a natural catastrophe (such as an earthquake or fast spreading pandemic). At the same time leaders in these contexts face long-term challenges in building network resilience against cyberattacks, running global intelligence operations to counter terrorism and preparing and planning for natural catastrophes.

10. Weaver W. (1948), "Science and Complexity", in *American Scientist*, Vol. 36 Issue 4, pp. 536-544; latest edition in *Emergence: Complexity & Organization*, 2004, Vol. 6 Issue 3, pp. 65-74.

11. In comments at the Small Advanced Economies' Initiative round table, Copenhagen, 12 November 2013.

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In contrast, sustainable development challenges are essentially long-term with the likely devastating consequences of inaction or misguided action only likely to be felt decades later. Similarly, although business and economic ecosystems suffer from path dependency, making current actions portentous for the future, it takes years for them to fully develop. And neither in sustainable development nor economic renewal is there a legitimate authority beyond negotiated agreements, standards, collaborative commitments and treaties.

In addition to different time horizons, sustainable development, asymmetric warfare, cybersecurity, emergency relief and new business ecosystems exhibit a range of relational characteristics that have an impact on how complex challenges can be met. Cybersecurity and asymmetric warfare, for instance, are clearly conflictual and adversarial whereas emergency relief and sustainable development are in principle largely collaborative. This of course does not prevent rivalry and competition between actors whose stated missions are the same; emergency-relief NGOs for instance compete for media attention to

stimulate fundraising, and the specific agreements on global warming emissions may inescapably favour one country over another. Business ecosystems are both collaborative and adversarial in that actors must collaborate for value creation, but also compete for value appropriation.

It was reassuring, however, that despite these contextual differences many governance and leadership issues raised by complexity were rather similar, and many comments from participants from one context strongly resonated with those from some others contexts.

This report roughly follows the progression of our deliberations in the workshop (for the workshop programme, see Attachment 1). Instead of reporting all group discussions in the format of a traditional workshop report, this report presents our reflections of the workshop discussions.

We began the workshop with an introduction to complexity and wicked problems and an outline of the different contexts that we had chosen from which to

explore new leadership challenges. The group discussions of the first day then aimed at identifying governance and leadership challenges in the different contexts of complexity. Our reflections of the group discussions are presented in Chapter 2.

The introductory presentations and group discussions of the second day focused on identifying what

leadership capabilities are needed to respond to the challenges identified during the first day. Our reflections on the group discussions are presented in Chapter 3. Finally, the concluding Chapter 4 focuses on our perception of a series of intrinsic tensions and contradictions for leaders confronting complexity that warrant further thought and research.

2. Why are we reluctant to engage with complexity?

Complex challenges are by nature impossible to solve in one go, and are therefore very hard to address. And yet, in the face of these seemingly intractable problems, policymakers, government ministries and agencies, corporations and non-governmental institutions need to learn how to handle complexity.

In discussion groups on the first day participants brought to the fore various challenges that make addressing complex challenges difficult in the various contexts.

By reflecting upon the discussions of the first day, we clustered the outcomes of these discussions into five different types of hurdles outlining our understanding of why leaders and managers – be they business executives, civil servants or policymakers – seem so reluctant to acknowledge, let alone embrace, complexity. These include cognitive, behavioural, structural, relational and ethical/emotional barriers. The table below presents a fuller outline of each of these impediments to embracing complexity.

BARRIERS FOR EMBRACING COMPLEXITY

COGNITIVE HURDLES

Short-term bias

- Preoccupation with immediate problems
- Failure to recognise "weak signals" of emerging problems
- Lack of language for grasping messy problems
- Pressure to deliver measurable short-term results

Desire for logical narrative

- Reliance on evidence-based decision-making
- Confusing complicated (logically simple) with complex
- Search for overly rational explanations and visions

Focus on structured data

- Inability to make sense of unstructured, real-time, raw data, yearning for pre-packaged data
- Lack of absorptive capacity for conflict, fuzzy data
- Decisions based on extrapolation from retrospective data

Discounting "black swans"

- Natural inclination to dismiss likelihood of low probability, high-impact events
- Bounded decision-making ignoring interdependencies, making "Black Swan" events more likely

BEHAVIOURAL HURDLES

Planning instinct

- "Complexity contradicts our planning instinct"
- Processes based on linear cause-and-effect relationships
- Instinct to strengthen control in face of uncertainty
- Modularise problems (overlook interdependencies)

Plan, do, check and act

- Trained to act only when odds of success can be assessed. So, high uncertainty leads to avoidance of action

Technical leadership

- Reliance on familiar technical tools and processes
- Favouring trusted advisors over opening up to diverse inputs
- Not understanding inclusive, adaptive leadership
- Industrial age mental models

Debate over dialogue

- Preference for "winning" in debate (reinforces strong leader)
- Debate relies on evidence to reach "right answer"
- Lack of skill for listening, no joint exploration of emergent reality and ideas

STRUCTURAL HURDLES

Hierarchical bureaucracy

- Optimised routine operations in stable conditions
- Clear division of labour, silos and focused experts
- Focus on efficiency through routines and procedures
- "We have a policy to cover this somewhere in the archives"

Efficiency and effectiveness

- Structure and processes for delivering everyday efficiency leave no room for coping with emergence or wicked problems

- Rigid structures for efficiency with little flexibility to adapt

Limits to individual leaders

- Leadership seen as a person and position not an act
- Many leaders find collaboration difficult, strong egos
- People dislike uncertainty, preferring rules and structures

RELATIONAL (POWER) HURDLES

Heroic leadership

- Tradition of strong leader as "saviour"
- Leader as a powerful individual with all of the answers

Narcissistic leaders

- Strong desire to control and look good
- Organisations structured to give narcissist leader control
- Ego of individual takes precedence over institutional interest and support for others

Growing powerlessness

- Deepening divide between the haves and have-nots, the rulers and ruled, the managers and managed results in increased search for control
- Danger of growing narrowly focused populism and nationalism

EMOTIONAL (ETHICAL) HURDLES

Personal agendas

- Individuals often act in broadly defined self-interest rather than wider or public interest

Fear of loss

- Desire to return to simpler better times
- Nostalgia and sense of pride about the past
- Reluctance to gamble on a certain present for an uncertain future

Fear of failure

- Reluctance to experiment for fear of failure (extent to which this is relevant is culturally dependent)

3. Navigating complexity

At the end of the first day, the organising team analysed each group discussion on the challenges of governance and leadership in the face of complexity and was able to cluster these challenges into broad action-based categories as a starting point for presentations and dialogue during the second day. With subsequent further reflection, tightening and framing, the following section outlines recommendations for leaders navigating complexity.

Recognising complexity where it is present

There is a danger of overestimating complexity simply because we lack the capability to analyse and understand interaction patterns sufficiently. Unless we are able to genuinely identify "core and true" complexity when we find it, we will be unable to understand where and when we need a different approach from usual policy or strategy making. Big data analytics enables us to draw a clearer line between what is genuinely complex and what has merely been under-analysed. But, there are other approaches too: one interesting example given in the workshop was the use of "sensor networks" – people collecting local descriptive and narrative information (such as schoolchildren reporting on the evolution of their neighbourhoods or informants in other interdependent units, for instance ministries in a government).

While seeing a situation as complex when it is not carries limited risk, the opposite error – not recognising and accepting complexity when it is truly present – leads to misguided and simplistic recipes. For example, some wicked problems – including education, youth insertion¹², health and welfare – have suffered from short-sighted narrow policies that have ignored their complexity. Trying to "modularise" interdependencies in a complex situation usually does not work, unless indeed the problem is decomposable, but "bounding" the area affected by complexity is key.

Enabling collective engagement

Wicked problems can only be addressed through consistent collective efforts and sustained well-co-ordinated action over time. Navigating complexity requires therefore mechanisms of **collaborative governance and leadership** that can support the co-evolution of multiple, mutually reinforcing activities in public, private and third sector organisations. Collaborative leadership brings different stakeholders together to address a common problem in a dialogical process. It can thus help to overcome defensive self-interests by giving responsibility to several actors for achieving collective improvement.¹³

Hence, except perhaps in totalitarian societies run through fear, wicked problems are not amenable to top-down edicts. Well-established channels for collective engagement cannot be relied upon – for instance, traditional parliamentary representation and electoral processes no longer elicit trust and commitment, and even at the local level people's trust is being eroded.

New forms of engagement are required. Some are well known, such as **fair process leadership**.^{14,15} In essence, fair process fosters engagement by giving a voice to all stakeholders, hearing and understanding their concerns and priorities, and reaching decisions only after careful consideration of their priorities and extensive deliberations. The decisions are not necessarily democratic, not based on explicit consensus, but on careful listening and understanding of all voices in a structured but patient dialogue and justifying the choices in a fair and analytical way. As one of the participants put it, a fully democratic and consensual process would carry the risk of "dumbing down" decisions and policies to the common denominator of different priorities.

Beyond fair process, **adaptive leadership** works directly on converging towards common priorities via a set of decision-making methods that enables actors to transcend their initial positions and develop new perspectives, rooted in a new framing of the problem at hand. The leader's role is to provide new frames and

12. Bundling a range of issues relating to young people (e.g. education, work, training, crime prevention).

13. Hellström E. and Kosonen M. (2016), "Governing the welfare state and beyond – Solutions for a complex world and uncertain future", Sitra Studies 107, January 2016.

14. Kim C. and Mauborgne R. (2003), "Fair Process: Managing in the Knowledge Economy", Harvard Business Review, January 2003, Vol. 81 Issue 1, pp. 127-136.

15. Van Der Heyden, L., Yaozhong W., Loch, C. 2008. "A Model of Fair Process and Its Limits." Manufacturing & Service Operations Management, Vol. 10 Issue 4, p. 637-653.

enable the group to recognise and accept them (one of the key leadership skills), help the actors work together on making commitments and developing common co-ordinated actions, and guide the group at work through the process of convergence on commitments.^{16,17}

A required enabler of both fair process and adaptive leadership is the development of a common language (avoiding the overly abstract) to sustain rooted, practical and strategic dialogues.¹⁸

To overcome risks of divergence between goals and policies once decisions have been made, leaders need to communicate a "script" so people taking action know when to engage and when they can deviate from policies and rules. As one participant put it, "Leadership is still about command, but not control."

Engaging people also requires one to be credible, sincere and display humanity and empathy, as well as abstraction skills (i.e. be able to see the real causes beyond the symptoms of problems). As stressed by several participants, this makes narcissistic leaders particularly dangerous and toxic when confronting complexity. Ego-driven leaders serving themselves have no room here; one needs to be results-driven, not power-driven.

Participants also stressed that **leadership is an act, not a position**, and, depending on the nature of the complex challenge and of group dynamics, the leadership role may move from person to person (in a heterarchic rather than hierarchic process). A participant stressed the need to use the word "crew" instead of team, suggesting that different people could take on critical leadership roles depending on circumstances and issues, like sailors taking turns to skipper a sailboat.

Simple rules provide perhaps not so much guidance to individual decisions (as local feedback loops can be misleading) but a set of normative principles to set the standards for decision and commitment, and to allow explanation and justification of actions taken under complexity. The leadership challenge here is that simple rules work only when the external systemic complexity patterns are stable enough to allow rules to emerge through experiments and trial-and-error learning. If the rate of change in the system exceeds that of learning about the system, trying to create an action environment

based on rules is dangerous: they may apply for a while and provide effective guidance but also, unless frequently reviewed and revised, make adaptation to system change increasingly difficult.¹⁹

Rules are also important as they provide an alternative to rational outcome-based choices ("evidence-based" in public policy parlance). Short of reliable evidence-based yardsticks to measure and assess the success of a policy, the quality of the motives and values that have driven the choice of that policy become the basis on which to evaluate the choice. This also allows us to separate mistakes from well-made and good-faith decisions that have gone "wrong" (although there is still option value and learning to these decisions) and to mitigate the risks decision-makers take.

But learning can take place only if there is active support for reviewing, testing and challenging the rules. The risk of a smart adaptive response turning into a mindless bureaucratic role blindly adhered to is always present. Human beings are creatures of habit – one of the reasons why accepting complexity is so difficult.

Leading adaptation

Adaptation is difficult, particularly in complex situations where experiments under conditions of uncertainty and ambiguity are (rightly) perceived as risky in incumbent organisations.

Participants stressed the role of **positive narratives** that integrate past trajectory, present position and the path into the future, and provide a sense of organisational identity in interpreting this journey. In other words, under complexity, it is impossible to "solve" a wicked problem, but feasible to create a sense of identity around how to deal with the problem over time. (A strong identity also allows greater reliance on semi-structured approaches and leaves room for adaptation and emergence rather than on tight and inflexible structures). The response is not a solution, but an adaptive journey, and narratives provide a sense of steady direction and perceived coherence to that journey. This may be true at the level of a specific organisation, or of a whole country.

Adaptation is not a continuous journey – it may have stages and "rest days", like a bicycle race. Human

16. Heifetz R. (1994), "Leadership Without Easy Answers", Harvard University Press. 348 p.

17. Heifetz R. A. and Laurie D. (1997), "The Work of Leadership". Harvard Business Review, Jan/Feb 1997, Vol. 75 Issue 1, p.124-134.

18. Brannen M. and Doz Y. (2012), "Corporate Languages and Strategic Agility: Trapped in Your Jargon or Lost in Translation?" California Management Review, Vol. 54 Issue 3, pp. 77-97.

19. Sull D. and Eisenhardt K. (2015), Simple Rules: How to Thrive in a Complex World (Chapter 7), Houghton Mifflin Harcourt, Boston.

beings cannot operate constantly out of their comfort zone, they need to periodically retreat to a "safe" zone, to what they see as a haven in which to put their quest for identity at rest. **Balancing stretch and rest** becomes a task of leadership, between the twin shoals of complacency and burn-out.

Be purpose-driven

Participants from the military all stressed that a cardinal principle of good "Generalship" is to be mission-driven. This means troops are given a mission, and leadership helps them commit to that mission, but does not provide detailed directions for action. In other words, the "why" and, to an extent, the "what" are determined by the leaders; the "how" is delegated. This leaves room for local and situational decision-making on how to handle problems. Interestingly, cognitive dissonance – although very uncomfortable, incorporating diverse and even contradictory goals – forces local decision-makers to think and attempt to discover creative approaches to meet these multiple goals, rather than follow simple "marching orders". Common goals under complexity are not feasible anyway, as interpretations of the situation are bound to differ among different participants, particularly in public policies where ideological differences are a barrier; nor would they even be useful. The reconciliation of conflicting goals calls for imagination and careful thinking.

All participants also stressed the importance of a culture where "speaking truth to power" is encouraged, as providing the only way to maintain the adaptiveness of an organisation. The need for modern-day court jesters

to speak out honestly without fear, was highlighted as one way to legitimise speaking truth to power.

Leadership behaviours

Identifying and understanding which leadership behaviours are most effective when addressing wicked problems is crucial, even though it is difficult to isolate leadership "traits" specific to complexity. The workshop participants highlighted a few key points:

- Emphasising listening, engaging
- Enabling risk taking and experimenting
- Providing context by framing and reframing wicked problems as they become better understood
- Working externally, and engaging laterally, across organisations and parties to a problem
- Being multidisciplinary and putting process skills above substantive specialist skills
- Developing multicultural sensitivity (for example, by involving those who have lived in multiple countries and/or worked in both public and private organisations)
- Embracing ambiguity and suspending judgement rather than rushing into conclusions and actions
- Reinforcing principles of fairness and being explicit and transparent about them
- Absorbing some of the external ambiguity and uncertainty that might otherwise paralyse action initiatives locally
- Relying on communities, delegating and accepting self-structuring teams
- Questioning rules, challenging them and not letting them mature into rigidities

4. Conclusions

The concluding section of this report focuses on a series of intrinsic tensions and contradictions for leaders confronting complexity that warrant further thought and research. These "dualities" arose in discussions during the workshop and in synthesis discussions post-workshop.

Critical dualities

Vision v. purpose, values and virtue

Humans are naturally comfortable with vision, which enables us to assess where we stand and where we would like to be in the future. Defining goals and an accurate

plan to achieve them is straightforward. Yet vision belongs to the realm of heroic leadership and fails in the face of uncertainty brought about by complexity.

Complexity requires us to be able to frame and reframe an adaptive challenge iteratively. Without the ability for precise planning, vision is of little use. Instead, purpose, strong values and virtue provide us with flexibility to guide decisions as the environment around us constantly changes. We need "phronetic" and modest-scope decision-making to move in the right direction, based on values of doing no harm and trying to do good.

United teams v. diversity and collective commitment

Most of our experience tells us that effective teams are those in which people are united by shared goals, mental models, trust and complementary skills. Yet, navigating complexity calls for something quite different: a diversity of inputs coupled with the collective commitment to action.

In teams with strong diversity (in culture, skills, experience or approach) members will inevitably have irreconcilable differences, which, when unchecked, can become destructive. But a strong collective identity and fair decision processes can mitigate the likelihood of individuals pursuing and promoting their own values and agendas. Diversity needs to be harnessed through processes of inclusion and commitment that are adaptive and legitimate.

Continuity v. fast adaptive responses

In traditional strategy making and less complex circumstances strategy provides a way to reconcile the short term and the long term: today's actions take place in a strategic framework that specifies how they contribute to long-term goals. In complex situations this simple teleological assumption does not hold, as it becomes very difficult to know how current actions actually contribute to future outcomes.

Fast responses may be needed and seem effective but their longer-term consequences are unknown. Over-adaptation becomes a risk, particularly in political processes: what is urgent receives attention and action, irrespective of long-term considerations, and policy continuity is impossible. But wicked problems specifically require continuity in purpose and effort, and flexibility and opportunism in action. Leaders need to be judged on what they leave behind of lasting value. This is not only a duality but also a real conundrum.

Action v. inaction in the face of complexity

In both public and private sector organisations, there exists "fear of action": people are more often criticised or punished for errors of commission (that is, actions which failed to deliver against expectations) than for errors of omission (actions which should have been taken but were not). We cannot control or precisely plan for complex situations and this exacerbates the fear of inaction.

But complexity can be positive, opening new unforeseen opportunities, allowing entrepreneurship,

serendipitous and propitious developments. So, we should be careful not to be overwhelmed by an aversion to risk and fear of change or close ourselves off to new emerging opportunities.

Impulses for further reflection

The motivation for organising the workshop in June 2016 was to understand if similar effective ways of coping with complexity within different contexts could be found. We wanted to raise discussions about how different sectors and fields could learn to thrive amid continuous complex change and thus make complexity an opportunity instead of a threat.

It would be interesting to analyse the different needs of these different contexts in complex situations. Now, we want to learn about similarities and connective factors between the chosen contexts when facing complexity. It is, however, clear that these contexts also require context-specific actions, responses and strategies to thrive in complex situations.

Sitra has been actively working on these governance challenges for several years.

Much of our thinking on governance at the whole-of-government level is summarised in the report **Governments for the Future: Building the Strategic and Agile State** (Sitra Studies 80).

As an example of governance in a specific policy area, Sitra has produced **Governing the welfare state and beyond – Solutions for a complex world and uncertain future** (Sitra Studies 107).

Both publications are available online at www.sitra.fi/en

Attachment 1. Workshop programme

Leadership under Complexity Workshop

21-22 June 2016, Helsinki

SESSION 1. Introduction to the workshop

Round of short introductions

Introduction to the programme and working methods

SESSION 2. Setting the stage – real-world problems in a complex world

Sustainable development governance – Farooq Ullah

Emergency situations – Wolfgang Herbinger

Demographic and economic issues – Jaakko Kiander

Cybersecurity – Jarno Linnell

SESSION 3. Identifying governance and leadership challenges

Panel discussion: Yves Doz, Olli-Pekka Heinonen, Ingeborg Niestroy and Joan Moh

SESSION 4. Working groups on contexts

1. Asymmetric warfare
2. Emergency situations
3. Sustainable development governance
4. Creation of new business ecosystems

SESSION 5. Synthesis of the first day

SESSION 6. Introduction to the second day: presentations on leadership requirements

Andrea Cuomo

Vincent Desportes

Don Laurie and Rob Newsom

Dave Snowden

SESSION 7. Group discussions on governance and leadership capabilities

1. Enabling collective engagement
2. Building personal adaptive behaviour
3. Driving change
4. Organisational learning and unlearning

SESSION 8. Synthesis and conclusion

Attachment 2. A brief description of the action contexts discussed

Cybersecurity

The global cyber infrastructure domain consists of a multilayered worldwide information network. It comprises ICT networks operated by national security authorities, other public authorities, the business community and the public. The increasingly fast and intense flows of information in the global cyber domain are bringing states, businesses and the general population ever closer together. While this development has significantly increased well-being, it has also introduced an entirely new set of risks. When the ICT infrastructure crashes or serious cyberattacks occur these risks may result in extremely negative impacts on the viability of society as a whole.

The increasing intensity and frequency of cyberactivism, cybercrime and cyberespionage denote growing activity among states and non-state actors. Consequently, the cyber domain has transformed the traditional power structure, providing even small states and non-state actors with the ability to launch disruptive attacks. In cyberspace, it is no longer size and mass that matter, rather expertise and stealth.

By exploiting system vulnerabilities, the openness of the cyber domain makes it possible to carry out attacks from all over the world. Such vulnerabilities exist in human action, organisational processes and the ICT technology being used. It is very difficult to protect oneself against sophisticated malware and identify or locate the perpetrators. The speed with which the cyber domain is changing, including its complexity, requires a new kind of networked approach that relies on strong co-ordination and common rules across the whole of society. Any action must be able to combine the benefits of centralisation (for aligned purposeful action) and decentralisation (for speed and agility).

Asymmetric warfare

One workshop participant reminded us that General von Moltke, head of the Prussian general staff, said in 1850 "no plan survives contact with the enemy" thus stressing the intrinsic complex nature of fighting war. He was following von Clausewitz, whose treatise *On War* provides an insightful early description of the challenge of military leadership under complexity.²⁰ Faced with the technological dominance and superior resources of Great Powers, weaker local enemies have increasingly resorted to asymmetric warfare, with the Vietnam War being the watershed.

Since then asymmetric warfare has made war even more complex because the enemy is often unexpected, unknown, and imaginative, and may have tolerance for prolonged wars, lack of comfort, high casualties and different criteria for defining victory. Often the ignorance and arrogance of the conventional army's commanders compounds the problem (many Americans had no idea that toppling Saddam Hussein might reignite a 1300-year war between different branches of Islam in Iraq, and that this war would draw foreign powers into an endless conflict.)²¹

Personal arrogance and hubris, as well as narcissistic leaders, often add further complexity to the situation, and as one participant said: "the opposite of good leaders are narcissistic ones."²² "When the mission shifts from sinking as many Soviet submarines before they leave port in the first few hours of World War II to nation building in Iraq or Afghanistan, the complexity it faces increases drastically", as one participant, a former leader of the Navy Seals, put it. The US forces in Iraq, or the French in Mali, had to learn completely new ways of military action, be it decentralised and autonomous or integrated and collective, thus creating an improvised complex adaptive system.^{23,24}

20. Clausewitz C. (von) (1832), *On War*. Edited and translated by M.E. Howard and P. Paret in 1989. Princeton University Press. 752 p.

21. Mondelbaum M. (2016), *Mission Failure: America and the World in the Post-Cold War Era*. Oxford University Press, New York.

22. Ricks T. (2012), *The Generals*, Penguin Books, New York.

23. McChrystal S. (2015), *Team of Teams*, Portfolio/Penguin Books, New York.

24. Peacock T., Presentation at the 2016 Academy of Management meeting in Anaheim, 7 August 2016 in the Symposium on heterarchic organizations and agility.

Emergency relief

Emergency situations call for effective, immediate and well-organised relief in a poorly known context. It may not just be the physical damage that is hard to assess (is a bridge still usable? Is the water polluted?) but also tensions between communities, between people and governments. The true scope of the emergency needs to be discovered and assessed first. The flow of information and transparency of information are also typical challenges in the field of emergency relief. Co-operation between locals and international emergency-relief agencies may not be easy. Intervention in one aspect of the problems may have negative consequences for others. Different rescue bodies may vie for leadership positions. Typical challenges also include socio-cultural and organisational aspects, both among victims and among rescuers (for example, military and firefighting teams may have very different methods from those of NGOs).²⁵

Sustainable development

Sustainable development challenges, such as climate change, energy reforms, biodiversity loss, competition for scarce natural resources, greening of the economy, etc. are all hugely complex, both in relation to their many ecological, social and economic dimensions and the multitude of societal actors needed to tackle these challenges.

The common discourse on sustainable development lacks the same sense of urgency as in emergency relief or asymmetric warfare. Accordingly, an important governance challenge related to sustainable development is the challenge of achieving something in the long run, while also achieving democratic buy-in and acting in an accountable way in a short-term political system based on electoral cycles.

Being based on long-term thinking, sustainable development policies often refer to visions and goals, but often the long-term targets remain too abstract and distant to induce action in the short term.

Creating new business ecosystems

Nation states around the world are currently struggling with economic renewal and growth. Conventional top-down (vertical) innovation policies focusing on specific industries and individual companies have not been successful in addressing new horizontal business opportunities opened by new forces such as digitisation and the circular economy. Why? Simply because our policies and institutional structures have been built to sustain and further improve existing industries and businesses, not to create completely new solutions. Our conventional vertical policymaking approach based on linear top-down planning and specialist ministries and agencies is not capable of dealing with emerging bottom-up growth opportunities with uncharted development paths and unknown consequences. Acknowledging complexity and adopting new behaviours such as "letting go", experimentation and trusting multiple stakeholders to come up with new solutions is very difficult for responsible civil servants and business people.

The evolutionary policymaking approach under development in many countries such as Finland attempts to overcome these governance challenges with customised interventions without sacrificing the benefits of decentralised decision-making. These customised public sector interventions include, among other things: organising multi-stakeholder searches for new global business opportunities; opening up the public infrastructure (energy, electricity, data, etc.) to private sector business development; the active use of innovative public procurement for solving social and ecological problems; and allocating public innovation funds to regional multi-stakeholder ecosystems rather than individual companies. In other words, government is not "picking up" winners but providing enabling conditions for multiple stakeholders (cities, companies, universities) to come up with new solutions.

25. Doerner K., Gutjahr W. and Wassenhove L. (van) (2011), Editorial and Introduction, "Special Issue on Optimization in Disaster Relief", in *OR Spectrum*, July 2011, Vol. 33 Issue 3, pp. 445-449.

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