

GENERAL SECRETARIAT

THE NEW APPROACHES TO ECONOMIC CHALLENGES (NAEC) INITIATIVE

REJUVENATING THE DEBATE

Since 2012, the NAEC Initiative has catalysed a debate at the OECD and beyond on how to understand the economy and its complex behaviour and interactions with other systems. It has evolved from a focus on Lessons from the Crisis (Phase 1) to Systems Thinking, Anticipation and Resilience (Phase 2). As Member countries recover from the Covid-19 crisis, there is an opportunity to launch a new phase, From Analysis to Policy Answers. This could strengthen the involvement of Members in setting the agenda and produce more policy-relevant output linked to the priorities of Committees and building on NAEC findings on new analytical capabilities, complexity/resilience frameworks and policy narratives.

Juan Yermo – juan.vermo@oecd.org

William Hynes – william.hynes@oecd.org

JT03465784

Table of contents

The New Approaches to Economic Challenges (NAEC) Initiative Rejuvenating the Debate	3
Introduction	3
The Evolution of the NAEC Agenda	4
Phase 1: 2012-2016 – Lessons from the crisis	4
Phase 2: 2016-2020 – Systems thinking, anticipation and resilience	4
The Next Phase – From analysis to policy alternatives	5
1. Promoting New Economic Narratives and Paradigms	6
2. Building Systemic Resilience	6
3. Developing New Analytical Tools and Techniques and Crisis Simulation	7

The New Approaches to Economic Challenges (NAEC) Initiative

Rejuvenating the Debate

Introduction

OECD Members established the New Approaches to Economic Challenges (NAEC) initiative in 2012 to better understand the interconnectedness and complexity of the global economy. From its early days the Initiative recognised that the economic system is inherently intricate and interlinked through financial markets, global supply chains, social networks and a shared ecological foundation. Complex interactions at the individual level give rise to unstable properties at the macro level.

Such a system is subject to crises and cascading failures, which can emerge from a variety of sources including financial crises, natural disasters, geo-political tension, cyber-attacks and pandemics. These risks are amplified by several overarching trends: the intensification of inequality, financial instability, the rise of digitalisation, market and wealth concentration and environmental emergencies such as climate change and biodiversity loss. These are not only boosting the frequency and intensity of certain shocks, but enabling their impacts to cascade from system to system.

Since 2012, NAEC has promoted tools needed to analyse the many, often irrational-seeming, behaviours that are generated by the uncountable interactions of billions of people, firms and institutions locally or globally, in small groups or as nations, at timescales ranging from nanoseconds to millennia. The objective was to understand the shortcomings of the analytical frameworks the Organisation had relied on before the Financial Crisis, and to establish the basis of a better way of producing policy advice based on new frameworks.

NAEC is anchored in MCM and Council decisions and its institutional arrangements, mandate and governance were established by the Council [C(2012)109/REV1]. To govern the initiative, Council established the NAEC Group, Chaired by the Secretary General, and composed by Ambassadors, Committee Chairs and directors, in a multidisciplinary effort. It relies on a very modest budget and seeks to leverage support through internal and external networks and partnerships. The current budget of the NAEC programme is just over EUR 300K per year in part 1 funding – about 0.15 percent of the overall part 1 budget – less than half the cost of one Economic Survey per year. While NAEC has delivered impactful and influential output, its budget has declined, in particular after 2016 and is re-enforced by support from Member government agencies, foundations and the private sector, highlighting the engagement by a range of stakeholders in the NAEC agenda.

Since its establishment, NAEC has catalysed a debate across the OECD and beyond on how to revise, update and improve policy thinking and action. The Initiative involving Committees, Directorates and representatives of Member Governments develops a systemic perspective on interconnected challenges with strategic partners, identifies the analytical and policy tools needed to understand them, and crafts the narratives best able to convey them to citizens and policymakers. This has evolved through three phases. Phase one was the horizontal project phase focused on *Lessons from the Financial Crisis* (2012-16). Phase two *Systems Thinking, Anticipation and Resilience* highlighted the interconnectedness, complexity and fragility of human-made systems and developed resilience frameworks to manage shocks as part of policies and strategies for [Averting Systemic Collapse](#).

Phase three, developed in consultation with Members, launches as part of the recovery from Covid-19 with the NAEC Group on [Confronting Planetary Emergencies](#) and will focus on moving from analysis and diagnoses of systemic challenges to policy answers. This involves tightening the links between NAEC and Committees, Directorates and Members. It builds on the key strengths of NAEC in 1.) promoting new economic narratives and paradigms, 2.) building systemic resilience of human-made systems and 3.) developing new analytical tools and techniques to simulate crises.

The Evolution of the NAEC Agenda

Phase 1: 2012-2016 – Lessons from the crisis

The first phase of NAEC concluded that policymakers and economists underestimated the tensions that were building up before the crisis. This was because traditional modelling and analytical approaches often failed to capture the complexity of the global economy and society as a whole, the interconnectedness between and within economies, in particular the relationship between financial markets and the real economy, as the financial system increasingly moved away from its original purpose of funding productive activities. A range of new measurement frameworks, data, analytical approaches, and modelling were needed to fully realise these shifts in perspective.

Key publications:

[New Approaches to Economic Challenges – A Framework Paper \(2012\)](#)

[NAEC Synthesis Report \(2014\)](#)

[Final NAEC Synthesis Report \(2015\)](#)

[Update on the Mainstreaming of NAEC \(2016\)](#)

[Debate the Issues: New Approaches to Economic Challenges \(2016\)](#)

Phase 2: 2016-2020 – Systems thinking, anticipation and resilience

In the second phase, NAEC looked at how the economy itself was changing, how innovative economists were trying to understand these changes and reform the discipline, and what this meant both for how policies were designed and what the goal of those policies should be.

NAEC examined how complexity-based thinking could contribute to the understanding of the systems attributes of interest to policymakers, notably emergence, uncertainty, and resilience, the most important of a system's properties for well-being. A Strategic Partnership with the International Institute for Applied Systems Analysis (IIASA) will reinforce the scientific basis of this component of NAEC's work.

In trying to anticipate future threats to system stability and integrity, improving efficiency and optimisation may seem like the best solution. However, sometimes trying to optimise (or "harden") a complex system makes it even more unstable, and increasing efficiency can mean less robustness. NAEC supports the view that approaches are needed based on resilience that focus on the ability of a system to absorb, recover from, and adapt to a wide array of shocks to help individuals, communities, and larger groupings not just deal with adversity, but adapt to change in a positive way and take advantage of the opportunities it offers.

Establishing the NAEC Innovation LAB provided a space for experimentation to broaden the OECD's policy toolkit and analytic approaches needed to better model systemic and complex interactions. New analytical tools and techniques promoted by NAEC such as agent-based modelling (ABM), machine learning and big data applications are becoming mainstream in OECD Directorates. See for example a recent ABM study on corporate fragility with researchers from ECO and ELS. While there are numerous machine learning efforts underway at STI, CFE and elsewhere. Synergies between the LAB and the OECD Smart Data Strategies are being re-enforced.

This phase highlighted the interconnectedness and fragility of human-made systems culminating in the NAEC Group on Averting Systemic Collapse. It also highlighted the importance of systemic resilience working with IIASA and the Army Corps of Engineers. This preceded the Covid-19 crisis.

Key Publications:

[Debate the Issues: Complexity and Policymaking \(2017\)](#)

[NAEC: Towards a New Narrative \(2018\)](#)

[Resilience at OECD: Current State and Future Directions \(2018\) *IEEE Engineering Management Review*](#)

[Systemic thinking for policymaking: The potential of systems analysis for addressing global policy challenges in the 21st century \(2020\)](#)

[A Systemic Resilience Approach to Covid-19 and Future Shocks \(2020\)](#)

[Bouncing forward: a resilience approach to dealing with COVID-19 \(2020\), *Environmental Systems and Decisions*; NIH Public Health Emergency Collection and WHO COVID-19 Global literature on Coronavirus Disease](#)

[Beyond Growth: Towards a New Economic Approach \(2020\)](#)

[The Financial System \(2020\)](#)

The Next Phase – From analysis to policy alternatives

The first two phases of NAEC looked at why the old approaches failed, and established that policymaking had to change to take account of changes in the economy and society and to take advantage of the innovative ideas and methods being proposed to account for those changes. This line of argument implies developing a new framework that would integrate the economy, and economics, with a range of other activities, insights and approaches to help tackle challenges such as climate change, immigration, and inequality that dominate the policy agenda. These challenges are dynamic, poorly structured, persistent and social in nature. Often, they are easier to recognise than to define, are highly intertwined with other social issues, and involve many actors. Each issue involves multiple drivers, impacting various policy domains and levels of government. Any intervention could set off a chain of new unintended consequences.

Integrating the multiple critiques of traditional approaches and proposals into a coherent synthesis ultimately means proposing a new approach that redefines the nature of well-being to balance economic, social and environmental capabilities. This requires theoretical debate, institutional change, new tools and methodologies, and leadership to work for change and present a picture of what that change could be. This must be based on facts, but facts have to be presented in a way that corresponds to the reality of people's lives and offer them the possibility to make their lives better.

A crucial aspect of this phase of NAEC is to link capacity development in systems thinking/analysis and new tools and techniques to the key policy agendas of Members. There are opportunities to contribute to a range of key agendas including:

- environment (new systems approaches to environment-economy-finance linkages)
- science, technology and innovation (systems transformation, innovation eco-systems)
- competition (anti-trust and the resilience of the international production system)
- trade (network models of GVCs)
- healthcare systems (resilience and modelling)
- economic policy (new approaches to macroeconomics and finance)
- the digital economy (impacts of AI and machine learning on systems)

Moving from analysis to policymaking requires NAEC to build closer links with Directorates, Committees and Members through the following activities to be developed over the course of the next biennium 2021-22:

1. Promoting New Economic Narratives and Paradigms

- Balanced series of debates focused on policy solutions (involving Members in selecting topics and speakers) called ***The Future of Economics***. This series, which should be international, inter-disciplinary and inter-generational, brings together various organisations and individuals committed to debating new ways of understanding the economy and transforming economic thinking and acting. The opportunity to develop such new approaches is unprecedented in our lifetimes. The combination of new thinking about the structure of systems, and new thinking about the nature and structures of our economies provide an intellectual opening. The unnecessary severity of the various shocks caused by the COVID 19 pandemic provide the impetus. NAEC provides an intellectual forum designed to draw the necessary lessons from this event, and to promote a constructive integration of the new thinking and innovative public policy. This series building on [Exit Strategies and Lessons from Covid-19](#) will distil the shared elements, definitions and goals of a policy narrative and paradigm. It will be set up as a debate and speakers will not always agree with each other, but the series will generate a convincing, balanced and visionary report on *the Future of Economics*.
- Responding to the requests of specific Members and better integration of new thinking into policy processes such as the G20. [NAEC and the Italian G20 Presidency](#) will explore new policy thinking and acting and host a number of dialogues at the OECD to consider and prepare key priorities. Notable commentators and analysts from Italy will be drawn into the discussion in which substantive experts from OECD will make comments and proposals.
- Building an **informal network of government officials** engaged in new economic thinking and systemic perspectives to transform public policy. New economic thinking and systems-based approaches offer enormous potential and the OECD would benefit from a platform for debating, experimenting and discussing policy alternatives and the analytical approaches, which underpin them, among capital-based delegates. This informal network responds to the need to bring NAEC closer to Member countries.
- NAEC has previously brought together the fields of economics, behavioural and cognitive sciences, psychology and philosophy to explore [neuroeconomics](#) – the study of the neural processes involved in decision-making. There is growing interest in the concept of ***Brain Capital***, which integrates elements of brain health, and skills to better understand how individuals, communities and societies can respond to an increasingly digitalised and globalised economy.

2. Building Systemic Resilience

- The increasing collaboration between systems analysis, science and policy is already showing the practical benefits of applying the systems approach in a number of domains. It is a means to modernise economic analysis, to integrate existing modelling tools from different fields and to test alternative policy interventions to reduce systemic risk and build resilience. The aim now is to ***integrate the NAEC-IIASA Task Force on Systems Thinking into the networks and structures of policymaking*** and build country engagement and support. In advance of the Third Task Force meeting in February 2020, government representatives held an informal pre-meeting to discuss collaboration, exchange of experience and support for the Strategic Partnership.
- Advancing the ***Systemic Resilience agenda at the OECD*** including through contributions to horizontal projects on resilient health systems and climate and economic resilience. In trying to anticipate future threats to system stability and integrity, improving efficiency and optimisation may

seem like the best solution. However, sometimes trying to optimise (or “harden”) a complex system makes it even more unstable, and increasing efficiency can mean less robustness. NAEC supports the view that we need approaches based on resilience that focus on the ability of a system to absorb, recover from, and adapt to a wide array of shocks to help individuals, communities, and larger groupings not just deal with adversity, but adapt to change in a positive way and take advantage of the opportunities it offers.

- Working with the Open Markets Institute (OMI) and relevant OECD policy communities to examine the consequences of the concentration of vital production capacities and **Shock-Proof the International Production System**. Most students of resilience – in engineering and in economics – have not fully integrated their thinking with a sophisticated understanding of corporate and market structures, or the effects of concentrations of financial and political power within our political economies. As a result, there is little to no understanding of the role played by the radical changes in competition policy and trade policy in recent decades. OMI and NAEC intend to address this and swiftly develop a set of principles and rules policymakers can use to shock-proof all vital human-made systems.

3. Developing New Analytical Tools and Techniques and Crisis Simulation

- Strengthening the links between NAEC and the Economics Department and Statistics and Data Directorate through the **NAEC Innovation LAB** established in 2018. The LAB is providing novel insights that are being integrated agent-based approaches, network analysis, machine learning and big data applications into the mainstream work of the Organisation and led to the progressive upgrading of analytical approaches in key policy areas. Staff at all levels have engaged with the LAB community and training activities (including NAEC Masterclasses) and seminars have made an impact on OECD research.
- NAEC has invited world experts on **state-of-the-art policy applications** emerging from [new analytical tools and techniques](#) to show how methodological innovations and interdisciplinary approaches such as agent-based modelling, nowcasting, machine learning, and network analysis are applied. They contribute to a better understanding of the complexity and interaction of our economic, financial, social and environmental systems through [Integrative Economics](#). The Covid-19 shock has further underscored the need for the type of work the LAB supports and accelerated progress. For instance, there are new applications on corporate fragility, innovation diffusion, anti-microbial resistance, changing skill-demand, real-time analysis and forecasting using Google Trends etc.
- NAEC will help OECD Members to better anticipate, prepare and build resilience for future crises with **Crisis Simulation**. The NAEC initiative has built up over 8 years a solid foundation and a network of experts specifically qualified to analyse and deal with the sort of crises we are experiencing. Working with Committees and Directorates, NAEC can help develop the advice needed to reform and reinforce our capacity to face up to crises. Epidemics whether a disease, fear or a financial panic can exhibit similar non-linear, exponential properties where interactions lead to emergent crises. They can be modelled in similar ways using Agent-based Models and there is potentially a lot of benefit to organising modellers from different communities to work together.
- Building up skills to analyse these problems, leveraging strategic partnerships (ABM LAB at New York University, Econophysix Group at Ecole Polytechnique and Complexity Group at Oxford INET) would use external expertise to boost internal capabilities. The Integrative Economics Conference in 2021 will be themed Simulating and Modelling Crises (supported by Baillie Gifford). Partners will include Santa Fe Institute, Rebuilding Economics, Fields Institute and others.