Next Generation of Sustainable Development in EU: Going Beyond n-Tuple Helix Interactions via New Institutional Constellations and Cross-Boundary Interfaces

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Dr. Adrian Solomon

THEPRESENTER

Project Manager (SEERC (GR) & AREC (UK))
Environmental Sustainability & Digital Projects

Associate
THA Chapter of Greece

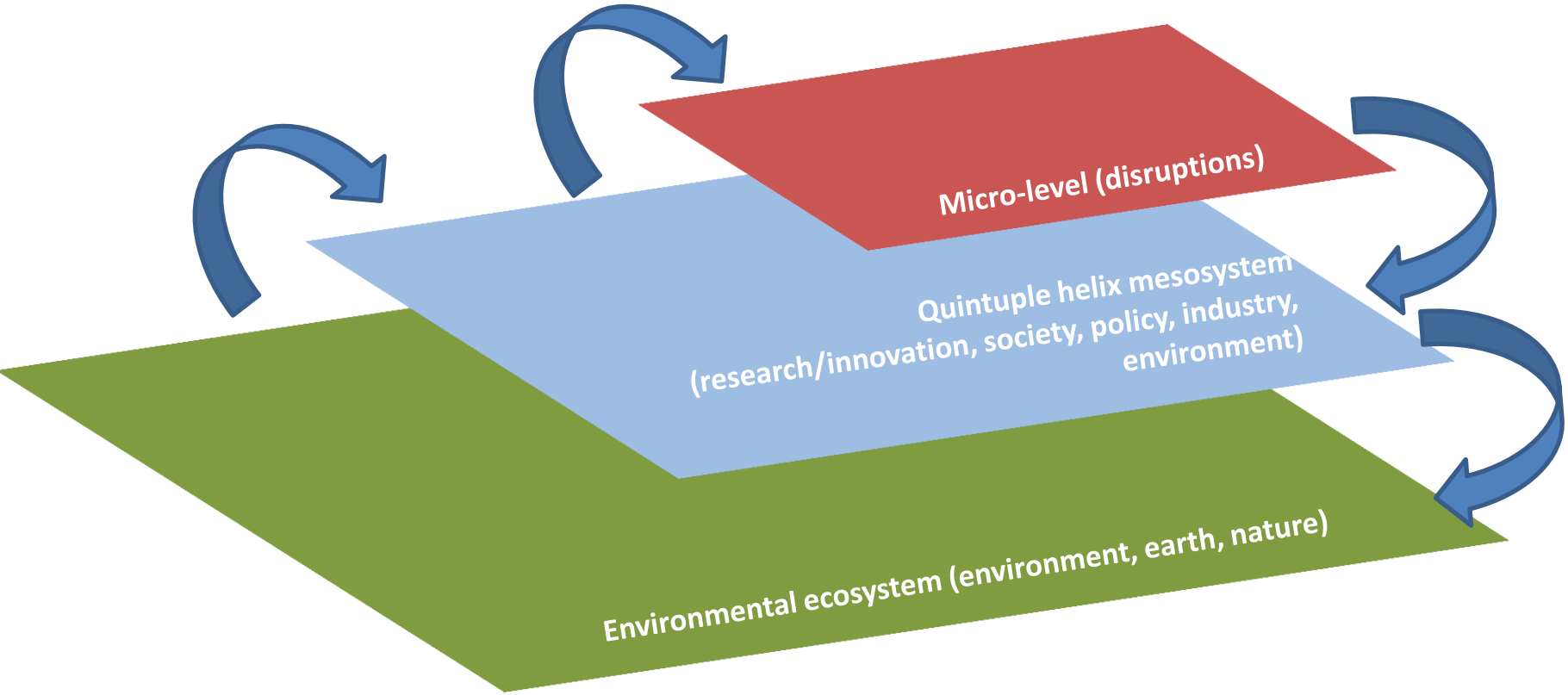
Lecturer
The University of Sheffield International Faculty,
CITY College, Greece

Dr. Adrian Solomon

VISIONMOTIVATION

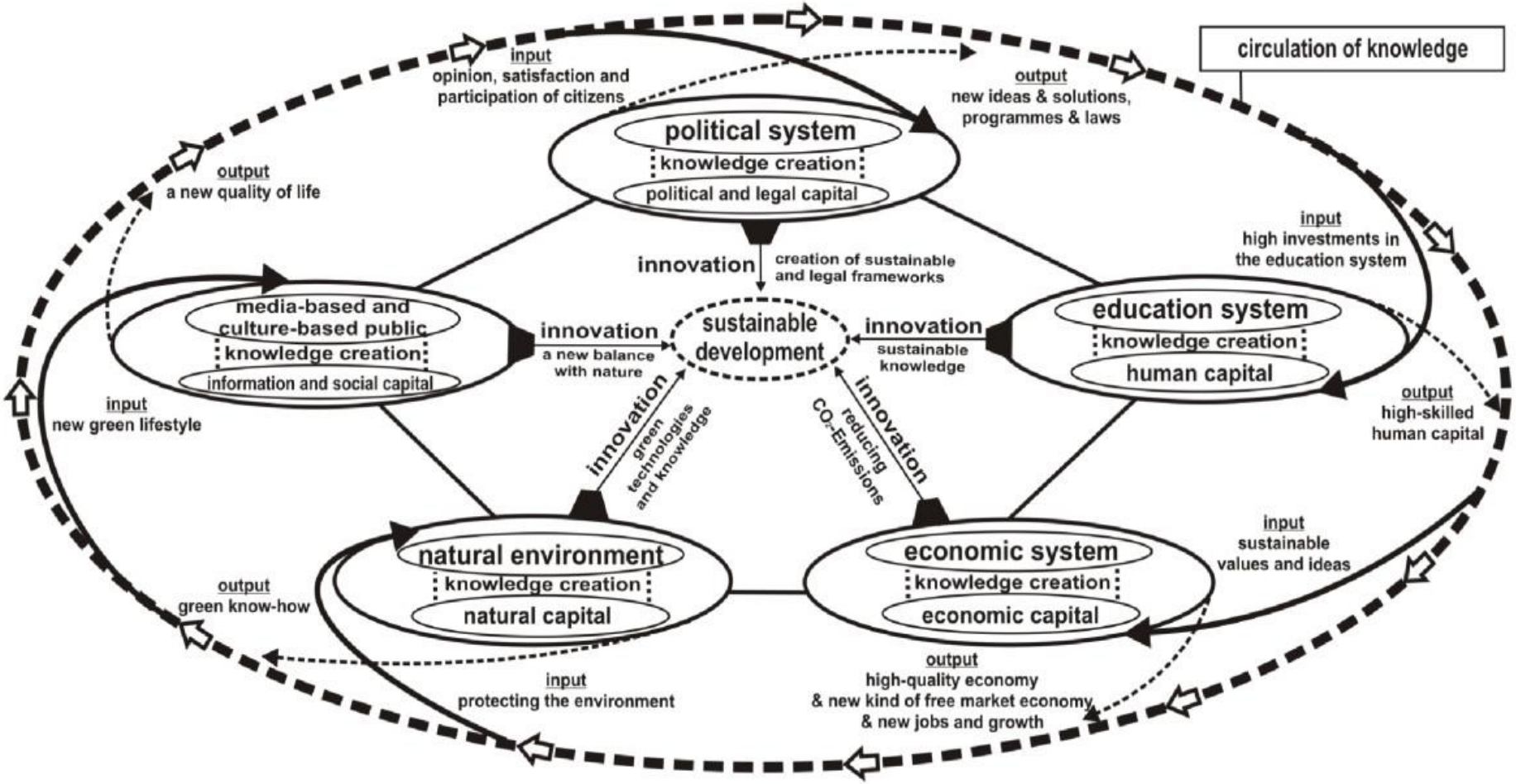
Lowering environmental damage (through sustainable industries) =>
Limiting climate change =>
Limiting extreme weather conditions =>
Limiting disruptions within societies

THEPROBLEM


Micro-level (disruptions)
Quintuple helix mesosystem
(research/innovation, society, policy, industry,
environment)
Environmental ecosystem (environment, earth, nature)

HOW CAN THIS PROBLEM BE OVERCOME ?

The quintuple helix model (Carayannis, Barth & Campbel, 2012)



BUT EVEN IN A QUINTUPLE HELIX MESOSYSTEM… SUSTAINABLE DEVELOPMENT PRACTICES NEED TO BE IMPLEMENTED BOTH INSTITUTIONALY AND AT THE STAKEHOLDER LEVEL AND THIS REQUIRES CERTAIN INTERFACES & “MOTORS”

AIMRQs

The **aim** of this research was to research the quintuple helix framework for the implementation of sustainable development practices (supported by n-tuple institutional constellations) by underpinning how institutional interactions can scale-up to stakeholder/constellation level by potentially forming new constellations & new cross-boundary interfaces.

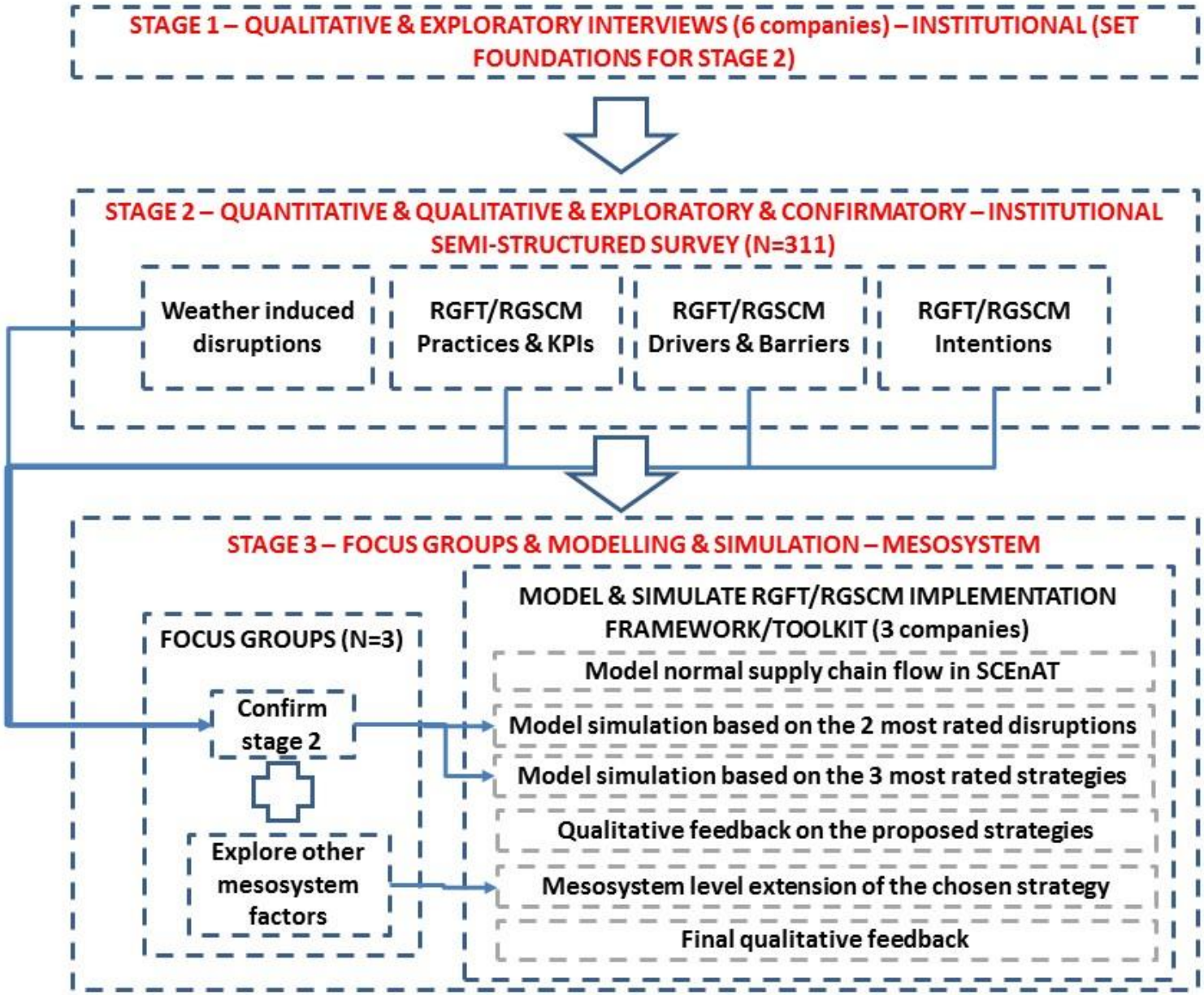
Research questions:

CRQ1: How can institutional eco-innovations diffuse faster to stakeholder level ?

CRQ2: How does the modernized ecosystem generate exogenous pressures on institutions?

CRQ3: What is the effect of institutional interconnectedness during disruptions ?

THE METHODOLOGY



THEFINDINGS

- **A disruption takes places and causes disorder within the society and constellation/stakeholder group (industries, governments, etc).**

- **In order to recover, presumably one (or more) institution will eco-innovate (emerge a green and socially friendly solution) to recover – but this requires co-creation with the 5H stakeholders (to ensure that the solution is proper).**

- **This is usually disruptive innovation and a very limited number of institutions will adopt it. Usually the emerged eco-innovation will be based on the smart specialization strategy of the region/country as usually it is easier to have co-creation on that axis.**

- **Disruptive innovation may come either as an aftermath of a disruption or simply as a desire to lead the market (but this is very rare).**

THEFINDINGS

- **Then, based on coercive/competition drivers, complemented by the desire to satisfy the stakeholders, other institutions will adopt that eco-innovation through eco-transformation/modernization – because eco-modern institutions will not co-create with non eco-modern ones.**

- **Slowly, as more institutions adopt such practices (moderated by goal alignment) throughout more and more disruptions (and not only) a cross-boundary normalized stakeholder block that will tacitly impose the utilization of such practices to any new entrant will be formed and thus the entire mesosystem will be eco-modernized. Still, this requires true co-creation and raises concerns of isolated stakeholder groups.**

- **Such behaviour will lead to the alteration of the 5H model by driving co-creation and emergence of new types of institutions and constellations (n-tuple) and thus, through the common cross-boundary moderator (the eco-innovation), each institution will self-adapt to ensure a proper sustainable development of the affected society.**

IMPACT

Extension of academic literature: 5H in RGSCM, the 5 theories, mixed method research

Industry gained confirmed disruptions and strategies to mitigate + a framework for the assessment and implementation at the 5H level of RGFT/RGSCM solutions.

Society and Environment – a step ahead to ensure sustainable development

5H: through the focus groups – stakeholders were brought together and the co-creation already started

700K research funding to continue these efforts

LIMITATIONS

Flexible rigorousness regarding the triangulation process.

Expert sampling in Stage one and Stage three is pertinent to a certain bias and isolated clustering of the research findings.

The qualitative analysis part in Stage one and Stage three (following inductive content analysis) is highly biased on the transcript interpretation capacity of the primary researcher and may also have led to certain inaccuracies

The overall assumptions of the proposed theoretical framework are high level and have been developed widely through an exploratory strategy with very limited confirmation

NEXTSTEPS/ FUTURERESEARCH

Replicate the methodology utilized by this research on other quintuple helix mesosystems in order to cross-validate the findings and build up scientific value for this approach at a higher granularity level

Provide an answer for the remaining problematic gaps such as: differentiation between strong and weak EMT and its impact on dematerialization vs supramaterialization in a circular economy context, the role of the environmental flows ideology, the role of localized interactions, the role of panarchy governance.

Foster/support more 5H co-creations to boost regional sustainable development as core platform for eco-inoovation implementation

All 5H/n-H actors must become more proactive

THE END

RELATEDPUBLICATIONS

- Solomon, A., Koh, S.C.L., Ketikidis, P.H. 2016. Towards a new Theoretical Foundation Convergence as a Key Enabler of a Low Carbon Economy: Practical evidence for Quintuple Helix Co-Creation Towards Solving the Challenge of Low Carbon and Resilient Supply Chains. *Journal of Cleaner Production*.

- Solomon, A, Ketikidis, P. 2016. Empirical evidence for Quintuple Helix Co-Creation Towards Solving the Challenge of Low Carbon and Resilient Supply Chains under Innovative Theoretical framework Convergence. In *XIV International Triple Helix Conference 2016*, 25-27 September, Heidelberg, Germany.

- Solomon, A., Choudhary, A., & Ketikidis, P. H. (2015). Drivers and Barriers to Green Freight Transportaiton: Industry Evidence from UK and India. In *20th International Symposium in Logistics*. Bologna, Italy.

- Solomon, A., Ketikidis, P. H., & Choudhary, A. (2014). Leveraging Green Freight Transportation through an ICT Modelling and Simulation Framework. In *International Conference on Green Supply Chain*. Arras, France.

- Solomon, A., Ketikidis, P. H., & Choudhary, A. (2012). A Knowledge Based Approach for Handling Supply Chain Risk Management. In *Proceedings of the 5th Balkan Conference of Informatics*. Novi Sad, Serbia.

- Solomon, A., Ketikidis, P. H., Choudhary, A., & Tiwari, M. K. (2012). A Knowledge Based Decision Support System for Supply Chain Risk Management. In *Proceedings of the 3rd European Decision Sciences Institute Conference*. Istanbul, Turkey.