How to solve societal challenges by exploiting synergies in space and energy

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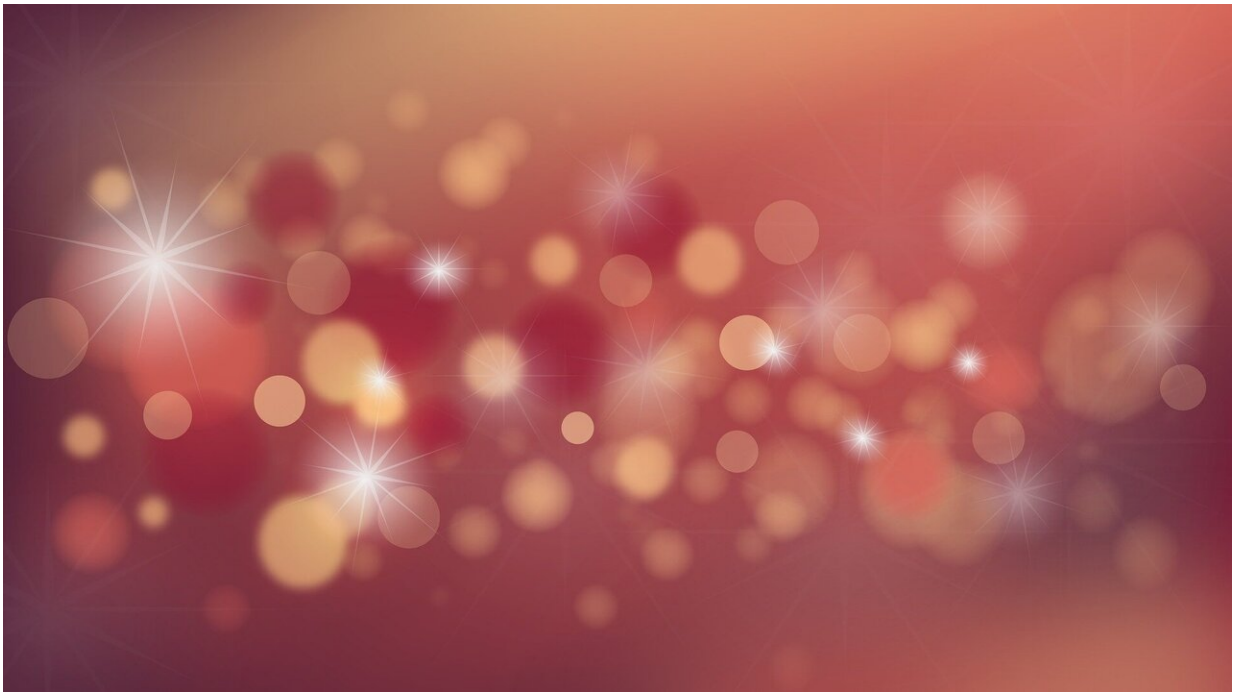

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Grand societal challenges call for more integrated, complex solutions that transcend national and sectoral boundaries, making the related innovation processes increasingly complex. Yet, establishing and managing a functional connection between various sectoral domains is a challenge in itself. As an example, Nathalie Kerstens shows how we could exploit synergies between the space and energy sector from an

organizational and policy perspective. Her work builds on insights from a multitude of actors (from high-ranked government officials and politicians to high-tech spinoffs and entrepreneurs) regarding the use of satellite data from space to address pressing challenges in the energy sector. She defends her Ph.D. on January 19.

Innovation is a key driver of economic growth, competitiveness and societal progress. Despite economic prosperity and technological progress over the past decades, capitalism has also been a catalyst for rising global challenges, such as climate change, resource depletion, and waste production. There is an ongoing paradigm shift towards innovation for grand societal challenges adding directionality towards societal goals in addition to economic growth and competitiveness.

These grand challenges involve the whole of society across the globe, thus calling for integrated solutions that stretch beyond the boundaries of a single nation or industry sector, making the related innovation processes increasingly complex. Effective integrated solutions need to originate from an expanding variety of industry sectors or domains and with different resources and capabilities.

The direction of innovation towards societal challenges thus requires managing innovation processes across sectoral boundaries. New forms of collaboration between a multitude of actors (such as public, private and civil society organizations) across various boundaries, industries and disciplines are crucial to allow for co-creation of integrated solutions to address these challenges. The success of these processes depends on the involved actors or organizations, their (inter)actions and ability to collaborate and build a network to diffuse innovative ideas.

Moreover, uncertainty surrounding innovation and technological outcomes necessitates long-term commitments to facilitate the required institutional change. In this respect, the ongoing transformational

changes challenge both public and industry actors to dissolve sectoral boundaries and calls for working towards converging value propositions across various sectoral domains.

Synergies between space and energy

This research contributes to better understanding managing innovation across sectoral boundaries, by considering both organizational dynamics as well as policy interventions to stimulate and facilitate these types of innovative developments. This phenomenon is explored in a case on synergies between the space and energy domain. Space technology has the ability to contribute to solving all societal challenges.

An important way to address these challenges, and hence to increase the number of innovations that are successfully brought to the market, is by exploring and exploiting synergies with other sectors. The thesis focused on synergies between the energy and space sector, such as the use of satellite data to better monitor energy infrastructure or to determine optimum locations of renewable energy plants.

More information: Title of PhD-thesis: Managing innovation across sectoral boundaries – Synergies in space and energy. Supervisors: Isabelle Reymen, Sharon Dolmans and Christina Giannopapa. Other main parties involved: Netherlands Space Office, European Space Agency

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