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Aalto-yliopisto

Terminology-based Approach to the Research around Sustainability, Societal Grand Challenges and Key Enabling Technologies

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Global challenges

Two different approaches to address topics related to sustainability, societal grand challenges and key enabling technologies

- UN Sustainable Development Goals (SDGs) 
- Societal Grand Challenges (SGCs) and Key Enabling Technologies (KETs) defined by EU Horizon2020 (RISIS-KNOWMAK) 

The terminologies reflect the policy priorities of the organisations behind these challenge-based approaches

Need and use cases

- **Without necessarily knowing about each other, researchers and research groups at the same organization may be conducting research in the same topical areas. The need and use cases of terminology and ontology-based approach addresses the identification of these topics. The need and use cases of terminology and ontology-based approach address the identification of these topics**
- **The results of these approaches are complementary and there is not much overlapping coverage in different sources**

Results from the two different approaches on the same topic

- By using different terminologies, the picture of these complex societal challenges is deeper and more diverse
- The results showcase that the analyses provide valuable information for research organisations to identify the key areas and actors on these topics. This in turn may open new possibilities for collaboration between the actors

Keywords on same topic from different vocabularies

SDG11 Sustainable cities and communities



SGC Smart cities and communities (RISIS-KNOWMAK vocabulary)

Smart Cities & Communities

Sustainable development of urban areas is a challenge of key importance. It requires new, efficient, and user-friendly technologies and services, in particular in the areas of energy, transport and ICT. However, these solutions need integrated approaches, both in terms of research and development of advanced technological solutions, as well as deployment. The focus on *smart cities* technologies will result in commercial-scale solutions with a high market potential.

Terminology and ontology-based analysis

SDG9 Industry, Innovation and Infrastructure

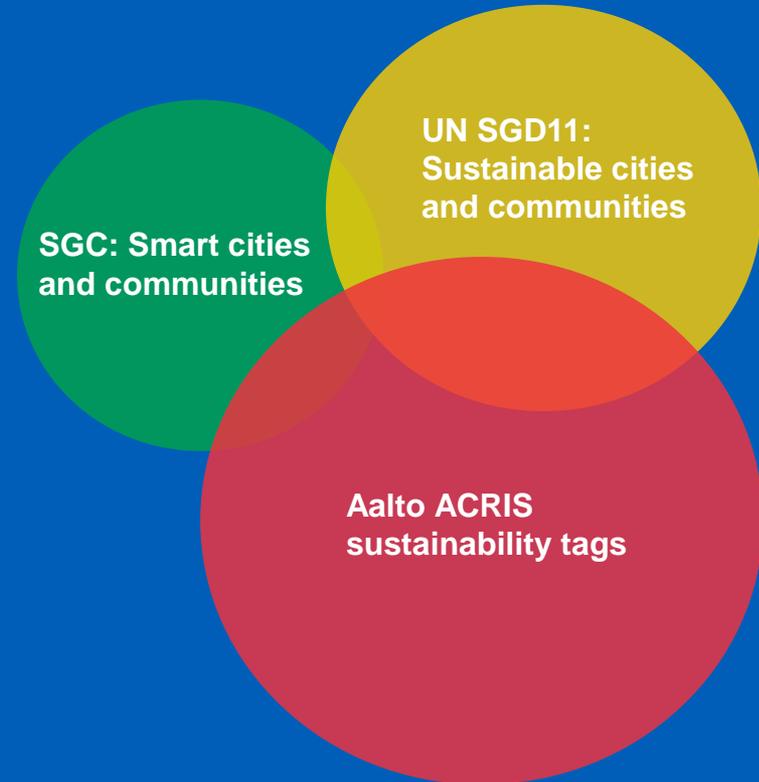


KET Nanoscience and technology (RISIS-KNOWMAK vocabulary)

Nanotechnologies can create materials and devices on a minuscule scale - 80,000 times smaller than a human hair. Nanotechnologies are touching every aspect of human life: electronics, medicines, everyday products, our cars and our homes. Research in this area will lead to new products and services developed by the industry, capable of enhancing human health while conserving resources and protecting the environment.

Smart/Sustainable cities and communities

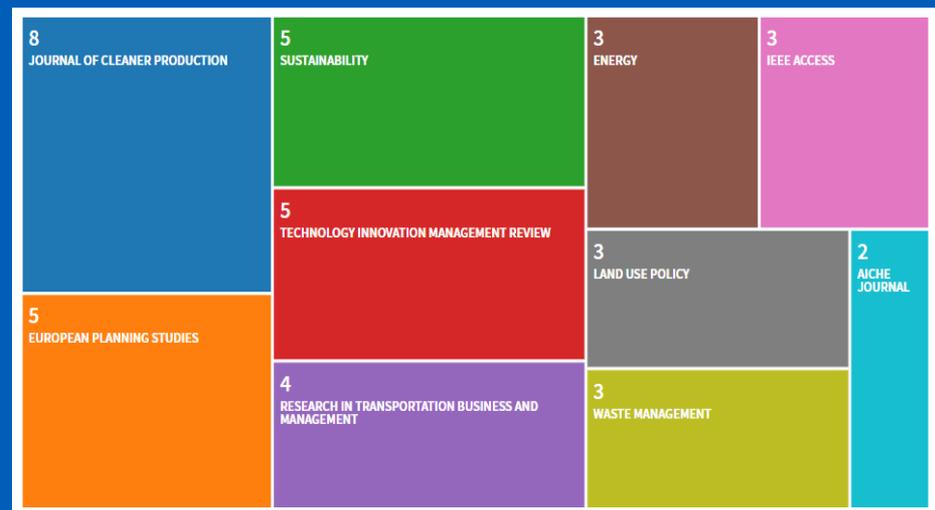
	ACRIS	SGC	UN SDG11	Joint publ. SGC and UN SDG11
	1365	143	184	28
Joint publ. ACRIS		34	90	2



Smart/sustainable cities and communities: Journals

SGC Smart cities and communities (RISIS-KNOWMAK)

UN SDG11 Sustainable cities and communities

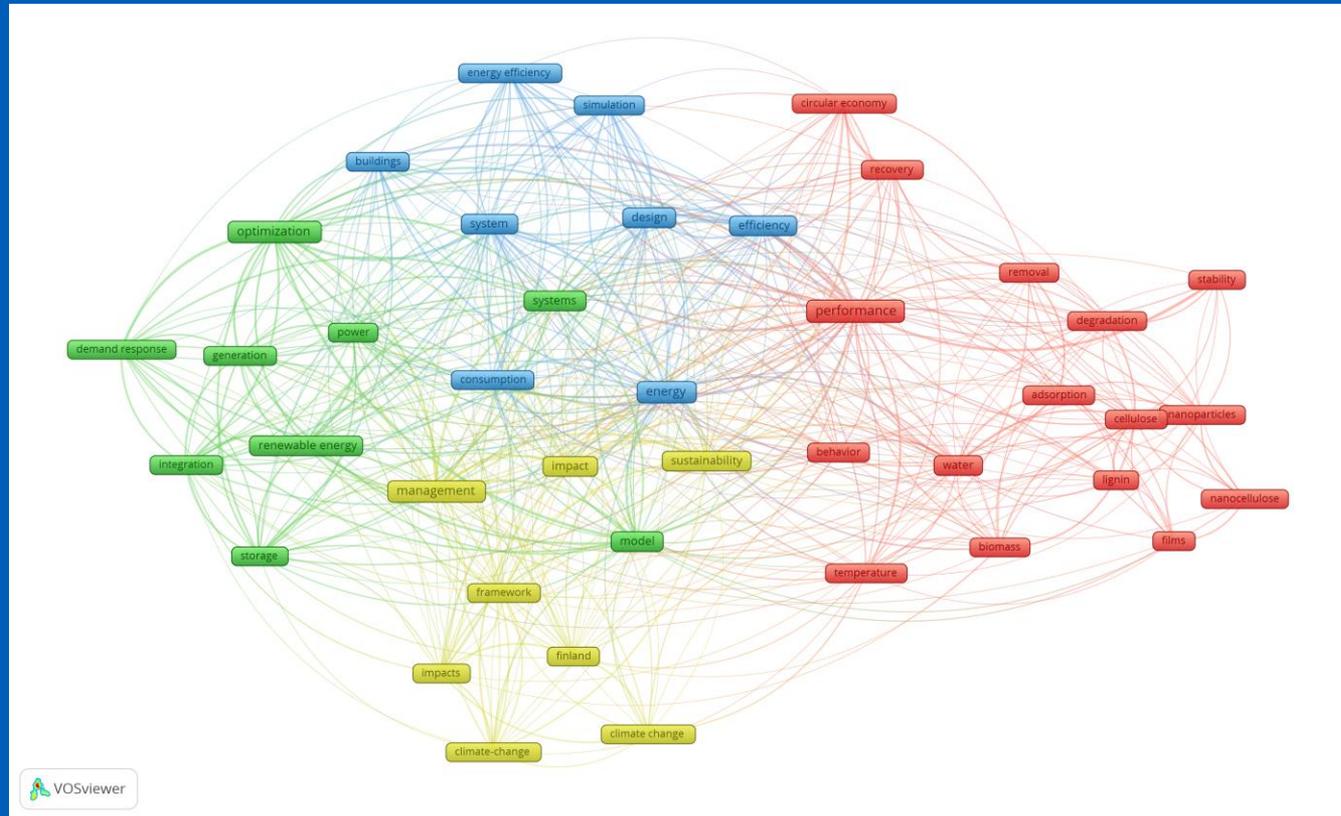


Publication indicators

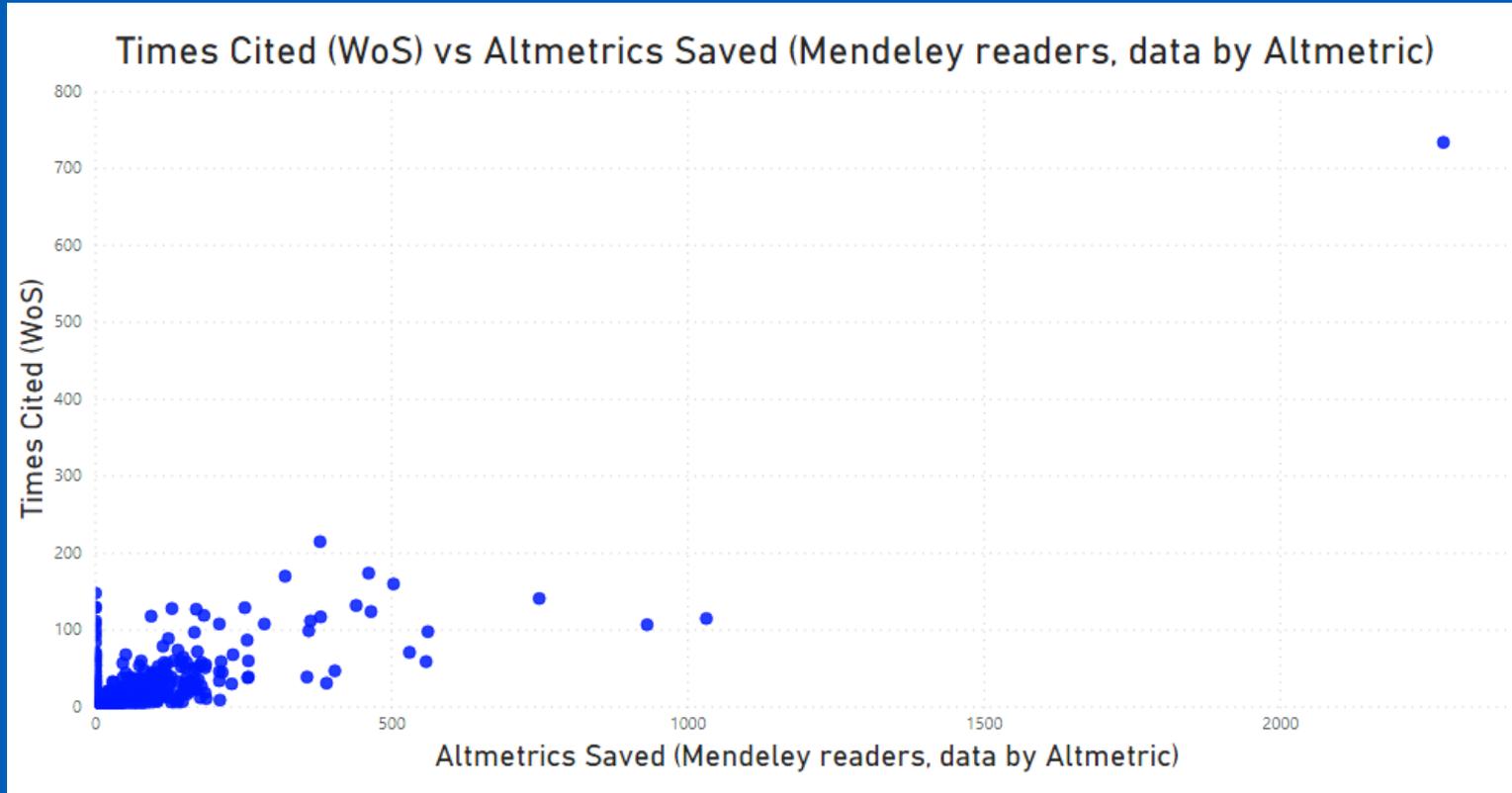
The results excel the overall publication indicators of Aalto University

WoS publications 2016-2019	Number of publications	Number of citations	Top10 %	Mean Normalized Citation Score MNCS	Share of int. collaboration %
Industry, Innovation and Infrastructure (SDG 9)	59	585	13,56	1,55	54,24
ACRIS Aalto sustainability tag (SDG 9)	11	121	0,00	0,96	54,55
Sustainable Cities and Communities (SDG 11)	184	1756	15,76	1,49	50,54
ACRIS Aalto sustainability tag (SDG 11)	90	1216	20,00	1,64	53,33
SGC Smart cities and communities (KNOWMAK ontology)	133	1236	23,31	1,98	75,19
ACRIS Aalto sustainability tag (SGC)	25	454	36,00	2,64	88,00
KET Nanoscience and Technology (KNOWMAK ontology)	1668	21848	17,69	1,41	72,48
ACRIS Aalto sustainability tag (KET)	214	3802	25,70	1,60	67,76
Aalto publication register sustainability tagged (found in WoS)	1297	17575	19,12	1,55	59,14

Diversity of Aalto Sustainability Tagged Publications



Aalto Sustainability Tagged Publications vs Altmetrics Indicator



Acknowledgements

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Thank you!