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D60-Report: Societal Change Drivers

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Abstract	<p>The report is meant to present an overview of the coverage offered on key societal change drivers by the research activities carried out at ENGAGE.EU's partner universities. Using as key societal change drivers the Sustainable and Development Goals (SDGs), in line with the UN and EU's approach, the mapping has been accomplished by each partner on research outputs/publications (2015-2020), on research centres and on nationally and internationally funded research projects under way. The report highlights that across the ENGAGE.EU Consortium research activities tend to converge around three main SDGs: no. 8, on decent work and economic growth; no. 3 good health and well-being; and no. 16, on peace, justice and strong institutions. By the same token, the report also reveals that amongst the main and emergent research themes are digitalization and sustainability.</p>

REPORT TASK 3.1

Map and analyse societal change drivers

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Introduction and methodology

The mapping exercise has been supported by the constant cooperation between the task 3.1. team members from the various universities. To this end three task 3.1. virtual meetings were organized on 26 January (the kick-off workshop), 23 April and 15 June 2021, precisely devoted to preparing the basis of the Report.

The kick-off workshop was the occasion for brainstorming the way the mapping of the key societal challenges could be conducted. The views expressed and the conclusion reached tried to balance, on the one hand, the need for a bottom-up process, whereby each partner University and, in particular, the Faculty could contribute to identify those societal challenges that not only had already been the object of academic investigation and of scientific outputs, but that, in prospect, could become key drivers for the research in their home institutions. On the other hand, the importance not to disperse resources and time and to arrive at a selection of the most significant challenges for the ENGAGE.EU consortium, instrumental to guide the other tasks, was remarked, also in light of the general description of the project, making reference to ageing, digitalization, migration and sustainability.

One of the most significant challenges was to detect criteria and standards against which the mapping could be carried out through a sound methodology, allowing the unpacking of the societal challenges and to make the outcomes of the research comparable across the partner universities. Such standards were found in the Sustainable and Development Goals (SDGs).¹ The choice was made in line with the EU's top priority to implement the UN Agenda 2030, consistently with the challenges tentatively selected in the ENGAGE.EU application project and with the approach followed by some of the partner Universities (notably Luiss University and Tilburg University), already oriented toward the mapping of their various activities according to the SDGs. During the kick-off workshop it was also agreed to focus the mapping by SDGs on the faculty's research outputs/publications of the last six years (2015-2020), on the focus and themes of investigation by the research centers in operation and on the national and international research projects funded and presently run by the seven partners. Each University team would have been responsible for carrying out such a mapping by SDGs according to a common template to select in the end the SDGs and the topics most frequently recurring across the ENGAGE.EU partners.

The task leads have then shared a series of keywords identified by the LUISS ethics, responsibility and sustainability office in collaboration with the Library in order to guide the selection of the scientific outputs and publications by the 16 SDGs. Indeed, compared to the mapping of the research centers and projects, the cataloguing of the publications has been by far the most problematic, due to the peculiar features of the Universities, to the administrative support available, to the variety of Departments established, and to the different sizes of their Faculties, though being mainly oriented to social sciences.

Thus, the meeting on 23 April was devoted to discussing the methodological problems in the selection of the keywords representative of the various SDGs. It was suggested to resort preferably, though not exclusively, to Scopus as a reliable database of the keywords, also

¹ The SDGs are: 1. No poverty; 2. Zero hunger; 3. Good health and well-being; 4. Quality education; 5. Gender equality; 6. Clean water and sanitation; 7. Affordable and clean energy; 8. Decent work and economic growth; 9. Industry, innovation and infrastructure; 10. Reduced inequalities; 11. Sustainable cities and communities; 12. Responsible consumption and production; 13. Climate action; 14. Life below water; 15. Life on land; 16. Peace, justice and strong institutions; 17. Partnerships for the goals. Given the focus of the 17 goals, content-wise, it was decided to only deal with the first 16 goals.

because it is available in most University libraries. Some team members even offered cross-University support in the mapping through Scopus for those fellow partners who could not rely on this resource. It was decided that each University would have carried out the mapping according to the internal administrative organization and the specificities of the institution (some involved research offices, some the library, some both as well as other administrative structures), to use Scopus or other databases deemed useful, and to deliver the relative documents by the second week of June 2021.

Therefore, the partners have shared three main (comparable) sets of documents (enclosed in the appendix to the Report): 1) the list of research outputs and publications by Faculty members according to the keywords identified for each SDG; 2) the list of relevant research centers; 3) the list of the ongoing relevant national and international research projects.

Furthermore, the meeting held on 15 June served to discuss the preliminary outcomes of this mapping and how to move forward. While some evidence has emerged for what concerns the three SDGs most widely and consistently covered by the partners, how to “convert” them into key societal challenges was still to be addressed. Indeed, challenges such as sustainability, migration and digitalization appear “represented” in more than one SDG. To move ahead it has been agreed that each partner would have condensed the outcomes of the mapping into a document, following again a common template and outlining the approach and methodology on which the mapping drew, a brief overview of the SDGs’ publication results (enriched by graphs illustrating the main trends, where needed), the overview of the research institutes and research centers, and the list of the main emerging research themes that can inspire future directions of investigation.

While the systematization of the results of the mapping was underway, the first evidence was shared at the meeting of ENGAGE.EU task leaders 3.1-3.4. on 25 June and were a useful basis for the choice to select “digitalization” as the key societal challenge to be used as a pilot for the other tasks. Indeed, digitalization repeatedly occurs not only as a very frequent subject for the 2015-2020 publications across the partner universities, but also forms the object of investigation of several research centers and projects and, notably, is often selected as one of the main emerging themes of research.

Finally, the Report has been assembled by putting together the synthetic descriptions of the mapping outcomes and future perspectives of research produced by each partner, preceded by the present introduction and explanation of the methodology and followed by closing remarks on the main outputs.

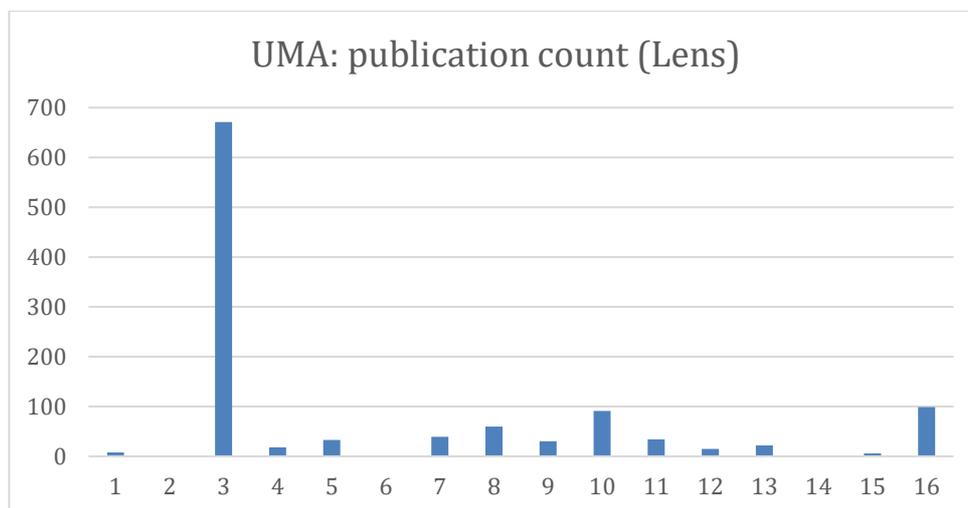
Task 3.1 Research and Innovation Mapping Overview

University of Mannheim (UMA)

Section 1 SDG data analysis

Approach/SDG publication overview

At the University of Mannheim (UMA) we followed a two-step approach to identify those SDG which are prominently linked to the university's research output. Our first step took place in an early stage, i.e., after the first couple of meetings of the task members (March 2021). We deployed a bibliometric analysis by using Scopus search strings with the help of the Lens database². This first analysis led to the following result.

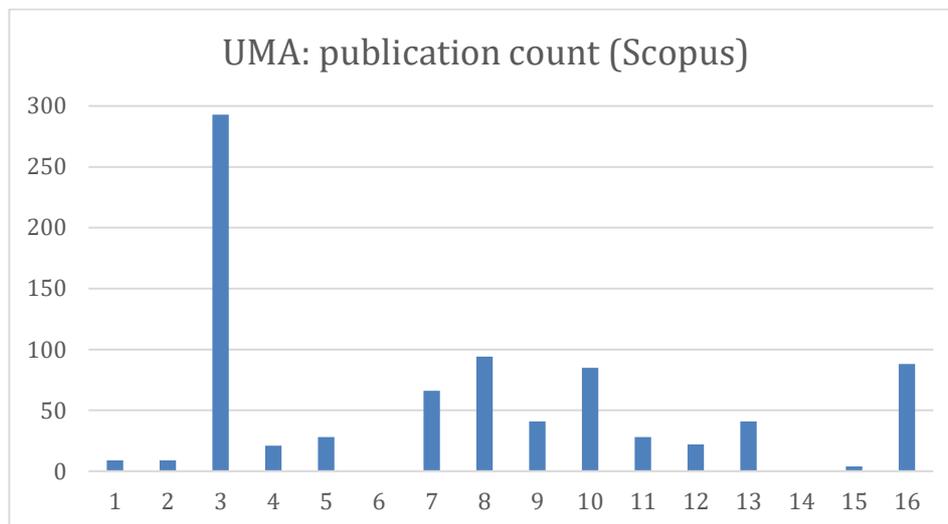


We were quite surprised by the high number of publications related to SDG 3 (Good health and well-being) which we did not expect. One reason to explain this unexpected high number might be misleading affiliations – certainly always a challenge when doing analyses via bibliometric databases. For example, the University Hospital Mannheim (which formally belongs to the University of Heidelberg) as well as other institutions like the Central Institute of Mental Health (CIMH) are located in the city of Mannheim but are not part of the University of Mannheim. Random tests showed that some publications of researchers of these institutions were falsely added to UMA in this bibliometric analysis via Lens. However, there remained a surprising large number of “SDG 3-publications” by or in collaboration with researchers of UMA. And, even more surprising, among those were researchers who we did not primarily link with SDG 3.

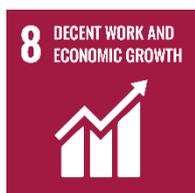
As all task members agreed on using the same database (namely Scopus) for their respective bibliometric analysis, we asked our fellow colleagues at Tilburg University to do a similar analysis via Scopus. The reason we needed to ask for this favour was (and still is) that UMA

² <https://www.lens.org/>.

does not have access to Scopus' database in order to do such a bibliometric analysis on its own.³ This second analysis led to the following result. Together with Tilburg we adjusted the search queries in order to assure that affiliations of institutions which do not belong to UMA were not considered in the analysis.



According to this bibliometric analysis UMA's research output is linked to the following five sustainable development goals (ranking according to the number of publications from left to right):



Section 2 Research institutes or expert centres

UMA hosts a rather large variety of different research centres and institutes. State law allows each school/faculty to implement research centres. However, centres of strategic importance are implemented as so-called "central" research centres by decision of the University's Senate. The following overview will concentrate on central research centres and their relevance with respect to ENGAGE.EU's focus: societal change. Wherever possible, we listed those SDG of primary relevance to the research fields of each centre.

A Central Research Centres

³ We wish to express our gratitude to our colleagues from Tilburg, especially to James Small. We highly appreciate your help and expertise. Thanks!

1. [Mannheim Centre for European Social Research](#) (MZES)

The Mannheim Centre for European Social Research (MZES) was founded in 1989 as an interdisciplinary institute of the University of Mannheim. It is the largest university-based research institute in the German social sciences, steadily building its internationally leading position. More than 80 MZES scholars explore European social and political developments. The MZES is closely associated with the University's School of Social Sciences.

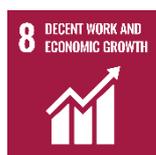
MZES' mission is to conduct social science research on the development of European societies and their political systems from both a comparative and an integration perspective. The Centre has a strong analytical-empirical and comparative tradition, contributing to theoretical developments and to substantial knowledge. It adopts cross-national comparative and multi-level integration approaches and combines perspectives from sociology and political science. With its specific profile the MZES holds a unique and leading international position.

Contact:

MZES Director: Prof. Dr. Irena Kogan (Irena.Kogan@uni-mannheim.de)

Head of Department A: Prof. Henning Hillmann, Ph.D. (hillmann@uni-mannheim.de)

Head of Department B: Prof. Dr. Harald Schoen (harald.schoen@uni-mannheim.de)



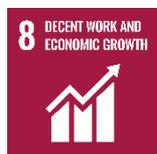
2. [Institute for Small and Medium Sized Enterprise Research](#) (ifm) [website in German only]

The Institute for Small and Medium Sized Enterprise Research is a central research centre of the UMA and conducts research on recent and structural questions with relation to SMEs. Its strength lies in interdisciplinary approach and its commitment to third mission.

There are four research areas at the ifm: (1) Digitization and Competitiveness, (2) Family Business, (3) Labour Market and Self-Employment as well as (4) Entrepreneurship.

In addition to its two focus areas, research and education, the ifm is committed to raise the students' and employees' interest in SME-concerns and entrepreneurship. This includes active and competent consultancy in questions of business start-up which is provided by the Mannheim Center for Entrepreneurship and Innovation (MCEI) as part of the ifm. With MCEI's three core pillars inspiration, entrepreneurial education, and start-up support, it helps create a culture of learning, knowledge exchange, innovation, and excitement for start-up development.

Contact: Prof. Dr. Michael Woywode (woywode@ifm.uni-mannheim.de)



3. [Otto Selz Institute](#) (OSI)

The Otto Selz Institute (OSI) is an interdisciplinary research institute at the University of Mannheim. It combines research, teaching and therapy. The Otto Selz Institute strives to connect theory and practice in the best possible way and implement a holistic approach of research and theory. Therefore, it collaborates very closely with the chair of Clinical Psychology, Biological Psychology and Psychotherapy and the conference of the psychological institutes of Baden-Württemberg (Psychologische Institute Konferenz Baden-Württemberg, PsIKo BaWü). Thanks to this close collaboration the institute can offer treatments, teaching and training at the most advanced levels of science.

Contact:

Prof. Dr. Georg W. Alpers, Director (alpers@uni-mannheim.de)



4. [Institute for Enterprise Systems](#) (InES)

The Institute for Enterprise Systems (InES) works on an interdisciplinary basis across faculties. The main purpose of InES is to actively enhance the valuable exchange between science and practice in the field of enterprise systems.

InES regards enterprise systems as socio-technical systems in which information and communication technologies as well as human beings or, even more appropriate, organisations interact. In this interaction, enterprise software is considered as a focal technological component of enterprise systems. By optimizing existing business processes and models and by setting the conditions for the development of new ones, enterprise systems are geared at increasing value added and thus improving business results.

InES' mission is defined by three major targets:

- To achieve high-quality results in research by using an interdisciplinary research approach,
- To transfer know-how into the practical world with a strong focus on designers as well as users in medium-sized enterprises as well as large corporations,
- To provide a state-of-the-art qualification for early-career researchers.

Contact:

Prof. Dr. Armin Heinzl, Managing Director (heinzl@uni-mannheim.de)

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Prof. Dr. Heiner Stuckenschmidt, Representative Managing Director
heiner@informatik.uni-mannheim.de



5. [Mannheim Institute for Sustainable Energy Studies](#) (MISES)

The Mannheim Institute for Sustainable Energy Studies (MISES) examines the challenges and innovation opportunities that emerge from the transition to a decarbonized energy future. A particular focus of studies conducted by MISES is the cost of alternative decarbonization strategies. The portfolio of projects covers the major carbon intensive sectors of the economy: power generation, transport and industrial processes. The team of MISES seeks an ongoing dialogue on these topics with external researchers, corporations and policymakers.

Contact:

Prof. Stefan Reichelstein, Ph.D., Director (reichelstein@uni-mannheim.de)



6. [Mannheim Center for Data Science](#)

The mission of the Mannheim Center for Data Science is:

- To improve the understanding and the value of data;
- To explore the digital transformation of individuals, society and the economy using structured and unstructured data through the application of data science;
- To identify rules for the responsible handling of data for the benefit of society and ensure compliance with them.

Contact:

Prof. Dr. Heiner Stuckenschmidt, Director (heiner@informatik.uni-mannheim.de)

Prof. Dr. Jutta Mata, Director (mata@uni-mannheim.de)

Prof. Dr. Florian Stahl, Director (florian.stahl@uni-mannheim.de)

[a definition of possibly related SDG depends on the concrete project which uses methods of data science]

7. [Mannheim Institute for Financial Education](#) (MIFE)

Financial education of the population is of great importance for individual as well as for societal well-being, economic stability and social participation. This is evident not least in times of crises, as witnessed by the financial and economic crisis of 2008 or the current economic crisis triggered by COVID 19.

The Mannheim Institute for Financial Education (MIFE) is a joint initiative of the University of Mannheim and the Centre for European Economic Research (ZEW) and is dedicated to the comprehensive research of questions around the topic of 'Financial Education'. It draws on the expertise of researchers from different disciplines at both institutions. The Mannheim Institute for Financial Education (MIFE) has also established a close network with thematically relevant individuals and institutions from academia, politics and practice in Germany and abroad.

The Mannheim Institute for Financial Education (MIFE) works independently, interdisciplinary and methodologically pluralistic. It is committed to the highest scientific standards.

Contact:

Prof. Dr. Carmela Aprea, Director (aprea@bwl.uni-mannheim.de)



B Collaborative Research Centres (CRC); funded by the German Research Foundation (DFG)

8. [CRC 884 – Political Economy of Reforms](#)

Our society faces great economic and social challenges. There is widespread consensus that reforms are necessary to cope with these challenges. Yet, we experience that reform initiatives are frequently delayed, compromised, or fail altogether. The goal of this interdisciplinary CRC 884 is to provide scientific insights into success and failure of reforms, determined by competing interests (Group A), contexts (Group B) and the political process of reform-making (Group C). As the core infrastructure, a data centre will collect new data on these three dimensions.

The CRC 884 brings together about 150 researchers from economics, political science, sociology, statistics, and computer science. Their joint interest is to advance the theoretical and empirical foundations of quantitative research on societal decision-making in general, and in particular, the understanding of reform-making.

Contact:

Prof. Dr. Thomas König, Spokesperson of the CRC 884 (koenig@uni-mannheim.de)



9. [CRC/Transregio 224 – Economic Perspectives on Societal Challenges: Equality of Opportunity, Market Regulation, and Financial Stability](#) (EPoS)

The Collaborative Research Centre/Transregio 224 (TRR 224), short: EPoS, is a joint endeavour of the Universities of Bonn and Mannheim. It addresses three key societal challenges:

- How to promote equality of opportunity,
- How to regulate markets in light of the internationalization and digitalization of economic activity; and
- How to safeguard the stability of the financial system.

The distinguishing feature of the TRR 224 is that it views these challenges as inherently interconnected; its goal is to analyse and provide policy proposals that address them.

Contact:

Prof. Dr. Martin Peitz, Deputy Spokesperson (martin.peitz@googlemail.com)

Prof. Volker Nocke, Ph.D., designated Spokesperson (volker.nocke@gmail.com)



10. [CRC/Transregio 266 – Accounting for Transparency](#)

The TRR 266 Accounting for Transparency consists of more than 80 dedicated researchers who examine how accounting and taxation affect firm and regulatory transparency and how regulation and transparency impact our economy and society. The TRR 266 intends to help develop effective regulation for firm transparency and a transparent tax system.

The three main goals of the TRR 266 are:

- To understand the determinants of transparency, i.e., how transparency is established by regulation and information exchange.
- To understand the effects of transparency, i.e., how transparency affects society.
- To develop tools to assess the transparency of firms.

Contact:

Prof. Dr. Dirk Simons, Local Spokesperson Mannheim (simons@bwl.uni-mannheim.de)



C Graduate School as well as Research Training Centres (RTG); the latter are funded by DFG

11. [Graduate School of Economic and Social Sciences](#) (GESS)

The Graduate School of Economic and Social Sciences (GESS) is unique in Germany and one of the few graduate schools worldwide which foster the exchange of ideas, methods, and approaches to research across the boundaries of the economic and the social sciences. It provides students with an enlarged scientific vision in a critical phase of their academic socialization and at the same time enables them to achieve excellence in their own field of research. Taking part in one of the PhD programs at the GESS prepares students for academic positions at leading universities and institutions around the world.

Contact:

Prof. Antonio Ciccone, Dean of Graduate Studies (antonio.ciccone@uni-mannheim.de)

Dr. Golareh Khalilpour, Managing Director (golareh.khalilpour@gess.uni-mannheim.de)

12. [RTG 1953 – Statistical Modeling of Complex Systems and Processes](#)

The RTG 1953 is a joint endeavour of the institutes of mathematics at the Universities of Heidelberg and Mannheim to join their efforts in research and teaching in the field of mathematical statistics, probability theory and applications.

The focus in research and education lies on

- probability theory, in particular the study of stochastic processes,
- applied probability including computational aspects,
- mathematical statistics,
- uncertainty quantification,
- computational stochastics, in particular stochastic processes,
- econometrics.

Contact:

Prof. Dr. Leif Döring, Spokesperson (doering@uni-mannheim.de)

13. [RTG 2277 – Statistical Modeling in Psychology](#) (SMiP)

The participating researchers of the SMiP group have a strong background in advanced quantitative methods and are experts in diverse substantive fields of psychology addressing cognition and social cognition, motivation and affect as well as individual differences.

The SMiP group aims to overcome a persistent and growing challenge in behavioural research, namely, the gap between substantive research in basic and applied fields of psychology and latest developments in statistical modelling and psychometrics. To co-uteract the segregation of psychology into substantive science and statistical methodology, the SMiP group conceives statistical models as frameworks for formalizing psychological theories and research questions. Theoretical predictions can thus be phrased in terms of model parameters, and state-of-the-art statistical techniques can be used both to measure psychological constructs via parameter estimation and to test these predictions using up-to-date methods of model selection and model testing.

In a nutshell, the SMiP group approaches substantive research questions by means of statistical modelling.

Section 3 Main and emerging research themes (interesting future directions)

The University of Mannheim possesses a distinct profile in the economic and social sciences with a clear focus on quantitative methods. By looking at various themes of recent grants and projects the following themes are dominant and/or emerging. All of them are directly or indirectly linked to major societal challenges. However, there is no strategic focus on a particular set of research themes for the University’s researchers.

- I Digitization,**
- II Migration,**
- III Sustainability,**
- IV Artificial Intelligence,**
- V Data Science.**

Links to certain researchers, schools or centres who are dedicated to these “themes” are numerous. That’s why the following “links” to these five stated “themes” should be understood as exemplary based on recent developments, namely by major research grants.

I Digitization

A larger project in this research field is a joint and state-funded endeavour under the leadership of the University of Mannheim: digilog@bw. Its core theme is research on society in the light of digital change(s).

Prof. Dr. Thomas Fetzter, Spokesperson ([fetzer@jura.uni-mannheim.de](mailto:fetzter@jura.uni-mannheim.de))

Another major grant has been awarded to Prof. Karin Hoisl to push the boundaries of her research. The objective of her project is to develop the knowledge base (content and methods) required for excellent, i.e. high impact research in the area of “Organization Design for Digital Transformation”.

Prof. Dr. Karin Hoisl (hoisl@uni-mannheim.de)

II Migration

One prominent research grant in the field of migration is the ERC Consolidator Grant “Partnership formation in the context of recent refugee migration” (PARFORM). In 2015-16 Germany received large numbers of young unmarried male refugees arriving from culturally distant countries and settling in largely non-existent co-ethnic communities. This situation is likely to complicate the process of refugees’ partnership formation. Through a combination of theoretical innovations, methodological rigour, and analytic depth, PARFORM will contribute to scholarly debates on immigrants’ partnership formation in the multidisciplinary fields of the sociology of migration, demography and network studies. Its findings will have policy implications for the social integration of refugees in Germany and Europe as a whole.

Prof. Dr. Irena Kogan (irena.kogan@uni-mannheim.de)

Another exemplary project of UMA in the field of migration is the CILS4EU project, which is dedicated to the comparative analysis of the development of immigrants’ progeny. In its current form, it is the first comprehensive and fully standardized panel study on this topic in Europe. Answering questions related to integration requires large-scale, strictly comparative, theory-guided, multilevel, and longitudinal data – data that was not available in Europe before the CILS4EU project. Following the example of the prominent “Children of Immigrants Longitudinal Study” (CILS) that was conducted in the United States, CILS4EU collects rich panel information on teenagers in four European countries: Germany, the Netherlands, Sweden, and England.

Prof. Dr. Frank Kalter (kalter@uni-mannheim.de)
Prof. Dr. Irena Kogan (irena.kogan@uni-mannheim.de)

III Sustainability

H2Rhein-Neckar is the title of one of the larger projects run by the Mannheim Institute for Sustainable Energy Studies (MISES) in cooperation with other partners. The project’s objective is the transformation of a whole bus fleet of the local public transport to a decarbonized and emission-free bus fleet. MISES’s part is the scientific supervision of this transformation process.

Prof. Dr. Stefan Reichelstein (reichelstein@uni-mannheim.de)

Which opportunities do cooperative models and blockchain technology offer to the platform economy? What are other potential pathways toward a more sustainable platform economy? The project “Platforms2share” brings together organizations and academics from different disciplines, theoretical schools and aims to apply diverse empirical approaches in research on the platform economy as well as to address practitioners interested in developing further the field.

Prof. Dr. Dominika Wruk (wruk@ifm.uni-mannheim.de)

The current EU ‘Clean Energy Package’ aims to place local consumers at the heart of the energy transition. In the context of local energy systems with a weak or non-existing grid connection this implies to give the power of operating a renewable-based energy infrastructure to the local people, energy consumers and producers. Private people and organizations should be involved to establish energy island communities, which are based on self-management and -operation. Simultaneously, those communities will improve social cohesion and technical optimization of all energy vectors existing in the specific energy island. RENergetic is an EU-funded project, which aims to integrate and demonstrate solutions that will foster a substantial increase of 1) energy efficiency and 2) the level of renewable energies and energy autarky in three heterogeneous urban energy islands.

Dr. Sonja Klingert (klingert@uni-mannheim.de)

IV Artificial Intelligence

AI systems help to efficiently allocate scarce public resources and are at the core of many smart city activities. Yet, the same systems may also result in unintended societal consequences, particularly by reinforcing social inequalities. The project CAIUS will identify and analyse such consequences by developing an innovative methodology that combines expertise from computer science and social science. Using agent-based models (ABM), the CAIUS team analyses the effects of AI-based decisions on societal macro variables of social inequality such as income disparity. The goal is to train AI systems to account for their social consequences within specific fairness constraints. CAIUS accompanies two smart city applications planned by partners in the Rhine-Neckar Metropolitan Region: dynamic pricing of parking space and traffic law enforcement via Internet-of-Things sensors. The results contribute to research of human-AI interaction and will be condensed into general guidelines for decision-makers regarding the ethical implementation of AI-based decision-making systems in urban contexts.

Prof. Dr. Heiner Stuckenschmidt (heiner@informatik.uni-mannheim.de)
Dr. Ruben Bach (r.bach@uni-mannheim.de)
Dr. Christoph Kern (c.kern@uni-mannheim.de)

Recently, UMA was successful in a funding scheme dedicated to “responsible AI”, i.e. projects with an emphasis on societal impacts of AI. There are currently two funded projects:

Responsible News Recommender Systems (ReNewRS) and Kartellrechtskonforme KI (KarekoKI).

ReNewRS analyses so-called news recommender systems (e.g., on social media), which are said to have an increasing impact on the news we consume. These recommender systems may lead to so-called filter bubbles with a certain potential to polarize and radicalize those people's opinion who are exposed to them. ReNewRS' objective is to analyse and measure the effect of such filter bubbles and establish guidelines for responsible news recommender systems.

Prof. Dr. Heiko Paulheim (heiko@informatik.uni-mannheim.de)
Dr. Philipp Müller (p.mueller@uni-mannheim.de)

KarekoKI examines AI-based solutions which are used by online platforms (such as, e.g., amazon.com) with the aim to fix prices automatically for certain articles. The project's objective is to examine on how and to what extent those AI-solution's comply (or not) with cartel law.

Prof. Dr. Heiko Paulheim (heiko@informatik.uni-mannheim.de)
Prof. Dr. Thomas Fetzer (fetzer@jura.uni-mannheim.de)

V Data Science

Data Science may not be considered a classic research "theme" but more a cross-cutting issue, which is the basis for a vast majority of empirical research at the University of Mannheim. In the light of a further increasing digitization with a growing number of large and complex data, this "theme" has become an aspect of strategic importance.

The recent foundation of the above-mentioned "Mannheim Center for Data Science" is just one example which reflects this development. Furthermore, UMA strives to appoint a new professorship for Data Science and receives significant funding to extend its existing science data centre "BERD" (Business and Economic Research Data) within the National Research Data Infrastructure (NFDI). The mission of BERD@NFDI is to develop, provide, and maintain a future-oriented, powerful research data infrastructure for the integrated management of unstructured data and related scientific software. It will coordinate and enable sustainable research processes through the ongoing design of suitable services. It will not provide a mere storage location for data and scientific software, but a service portfolio that will be strictly aligned to the actual needs of the scientific user community.

Prof. Florian Stahl, Spokesperson (florian.stahl@uni-mannheim.de)
Dr. Sabine Gehrlein, Co-Spokesperson (sabine.gehrlein@bib.uni-mannheim.de)

Task 3.1 Research and Innovation Mapping Overview

University of Toulouse I Capitole

The following structure indicates the type of information that would contribute greatly to providing insights into the societal challenge research and innovation activities at our partner universities.

This draws upon the analysis that has already been done related to the SDG theme publication data.

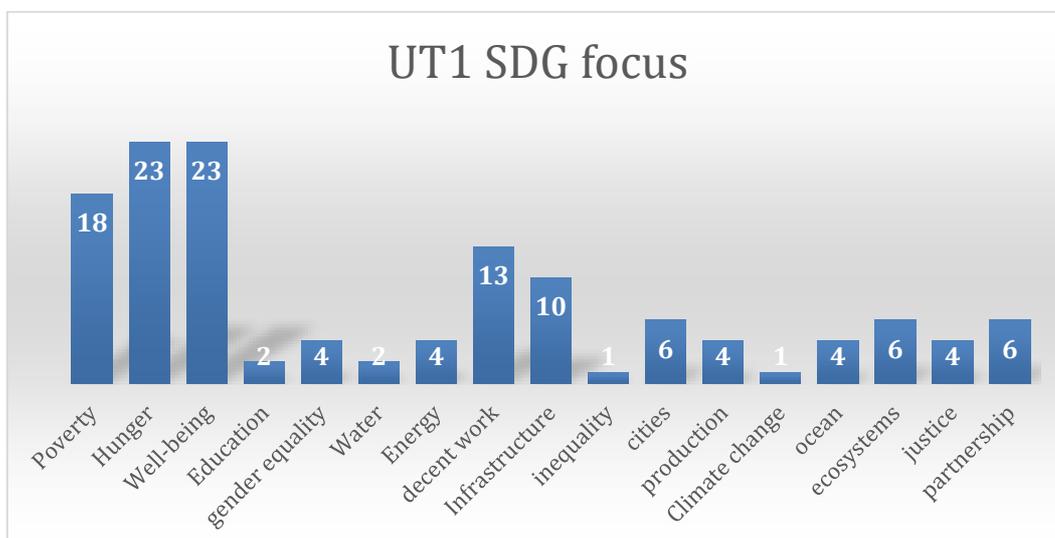
Section 1 SDG data analysis

Approach

The UN 2030 Agenda, with its 17 SDGs (Sustainable Development Goals) and 169 targets, is a shared and universally recognized framework. In the field of higher education, it is also a model for international rankings, networks, debates and communication. According to the SDGs and analyzing the targets for each goal, the University has listed a series of keywords for each Goal (in English and in French). We then query our publication database: <http://publications.ut-capitole.fr/>.

SDG publication overview

According to the analysis of the University Toulouse Capitole (UT1C) research publications through the SDGs related keywords query, during the period between 2015 and 2020 there are 131 publications which can be linked to one of the SDGs. We identify a subset of leading Goals in terms of number of research publications, and these are: Goal 1, Goal 2, Goal 3, Goal 8, and Goal 9.



In other words, if we focus on the five main goals, once ranked, we have:

1. “Zero Hunger” and “Good Health and Well-Being”
3. “No Poverty”
4. “Decent work and Economic Growth”
5. “Industry, Innovation and Infrastructure”

Notice that University of Toulouse Capitole does not index each of its publication with a predefined suggested list of SDG keywords. Main consequence is that the above numbers may not be fully exhaustive. The main research institutes involved in SDG related research are “TSE-R” (Toulouse School of Economics) and “IRDEIC” (Research Institute on European, International and Comparative Law). We below detail all the research institutes hosted by the university Toulouse Capitole.

Section 2 Research institutes or expert centers

UT1C is structured into **4 Schools and faculties** (Law, Economics, Management, Information Technology) and the university hosts **4 Joint Research Units** affiliated to CNRS, **7 Research Units**. In addition, UT1 can rely on 6 additional Federative Research Organizations. Hereafter, we describe the research centers involved in the Engage.eu project.

Faculty of Law

[Institut de recherche en droit européen, international et comparé](#) – the Research Institute on European, International and Comparative Law (IRDEIC) assembles experts in the field of EU law, private international law, European finances law and comparative law (24 faculty and 14 associate members). More precisely, research concentrate on new European governance, new European normativity, new European foreign policy, changes to European local finances, evolution of 21st-century tax systems, new dimensions and function for comparative law; new links between the law and the economy under a European law perspective. It also hosts one Jean Monnet Chair.

[Institut du droit de l'espace, des territoires, de la culture et la communication](#) - The Institute in Space, Territories, Culture and Communications Law (IDETCOM) hosts 42 faculty members representing different expertise: at first law but also sociology and communication. The main research areas focus on “cyberspace and spatial”, “land and public local organization”, “culture and branding” and “communication and media”. The institute has created the very first database on “law and space” *Space Legaltech*. IDETCOM also heads the Sirius business chair (Space Institute for research on Innovative uses of satellites).

[Institut de droit privé](#) – The private law research Institute (IDP) focuses on law of contracts, law concerning people and law of obligations. It hosts more than 40 faculty members and is organized in five main groups: contract and responsibility, Family and people, property law, justice and rules and labour law.

[Centre de droit des affaires](#) – The research centre on business law (CDA) studies all aspects of law for business including bankruptcy, corporate law, intellectual property, tax law and social

law. It hosts 25 faculty members, and the centre focuses at first on the following topics: Intellectual property and Artificial Intelligence, Business, ethics and law, current trends in Business law.

[Institut Maurice Hauriou](#) – The Maurice Hauriou Institute (IMH) studies all aspect of public law. It host 25 faculty members and is organized in five sub groups: public power and freedoms, political institutions, public patrimonial right, health and new technology, public service and change.

[Institut des études juridiques de l’urbanisme, de la construction et de l’environnement \(IEJUC\)](#) – The law institute on town planning, construction and environment studies all aspects of real property law including planning, local governments, real estate and land taxes, regulations, and environment.

[Centre Toulousain d’Histoire du Droit et des Idées Politiques \(CTHDIP\)](#) - Its scientific objective is to develop historical research in the fields of private law, public law, and political ideas. The three main areas are History of Legal Education and Legal Science, History of Justice and Law - Religion - Economics - Finance.

Toulouse School of Economics

[Toulouse School of Economics-Research](#) - The Toulouse School of Economics (TSE) is a world-renowned centre for research and education hosting more than 150 international faculty including Jean Tirole, 2014 Nobel laureate in economics; it is a joint research unit affiliated to CNRS. Over the past forty years, TSE-R has emerged as one of the best economics departments in Europe and is organized in nine research groups: finance, industrial organization, macro-economics, mathematics of decision making and statistics, public economics, and theoretical economics.

Several researchers are funded by ERC: 5 researchers hold a starting grant and 3 hold an advanced grant.

In addition to these research centers’ activities related to SDGs, UT1 runs project-based research institute. These two institutes run by the Toulouse School of Economics also focus on SDG-related research:

[Institute for Advanced Study in Toulouse](#) (IAST). It is a French governmental funded LABEX which fundings are dedicated to research and the supported teams. Its scientific program involves ten disciplines: anthropology, biology, economics, history, law, mathematics, philosophy, political science, psychology and sociology.

Toulouse Graduate School Challenges in Economics and Quantitative Social Sciences: A 10-year project (French governmental funded) started in 2018 that aims, in particular, to increase pluridisciplinarity within the TSE doctoral school and to facilitate collaborations between economists and social science researchers adopting a quantitative approach.

Toulouse School of Management

[Toulouse School of Management – Research](#) – The Toulouse School of Management (TSM) is one of the very few research laboratory accredited by CNRS in Management in France. The

laboratory brings together 46 researchers and academic researchers from Toulouse School of Management and UT1C.

TSM Research is an active contributor to several subjects in management sciences: from finance to human resources management, as well as strategy, marketing, accounting, and management control. TSM-R currently runs several national projects.

Faculty of Information Technology

[Institut de Recherche en Informatique de Toulouse](#) – The Toulouse Institute of Research in Computer Science (IRIT) is a joint research unit affiliated to CNRS and federating all the departments of Computer Science and Information Technology of the universities of Toulouse. IRIT hosts in total 600 members, among 50 are researchers and academic staff at the University Toulouse Capitole. IRIT is organized in 7 seven research groups: data management, collective intelligence, artificial intelligence, optimization, image, architecture and, reliability and Software; UT1C researchers are mainly involved in the first four groups. IRIT-UT1C currently runs several projects either European or National.

Section 3 Main and emerging research themes (interesting future directions).

University of Toulouse Capitole also considers additional topics related to the Engage.eu main societal challenges. From 2015 up to 2021, researchers published papers on the following topics either in French or English:

- Digitalization: ~750 papers
- Sustainability and climate change: ~500 papers
- Ethics and Governance: ~200 papers

Focus on digitalization

The university and its associated research centers run numerous projects on this topic. These projects may concern the IRIT institute (going further on AI and digital technology) or the research institutes hosted by the faculty of law and the schools of Economics and Management (research on the impact of the digitalization of the society and the business fields).

On going projects

Project	Researcher	Laboratory	Funding
HATEMETER - "Hate speech tool for monitoring, analysing and tackling Anti-Muslim hatred"	Jérôme Ferret	IDETCOM	European Commission
RUC-APS - "Enhancing and implementing Knowledge based ICT solutions within high Risk and Uncertain Conditions for Agriculture Production Systems"	Pascale Zarate	IRIT	European Commission

EFFECTOR - "An End to end Interoperability Framework For MaritimE Situational Awareness at StrategiC and TacTical OpeRations"	Ronan Tournier	IRIT	European Commission
TraPlaNum - "Les nouvelles formes de travail via les plateformes numériques"	Isabelle Desbarats	CDA	ANR (National Research Agency)
MADRAS - "Multi-Agent modelling of dense crowd dynamics: Predict & Understand"	Benoit Gaudou	IRIT	ANR (National Research Agency)
SwITCh - "Simulating the transition of transport Infrastructures Toward smart and sustainable Cities"	Frédéric Amblard	IRIT	ANR (National Research Agency)
BI4People - "Business intelligence for the people"	Franck Ravat	IRIT	ANR (National Research Agency)
AGAPE - "An Auction LanGuage for GenerAl Auction PlayErs"	Laurent Perrussel	IRIT	ANR (National Research Agency)
SCONE - "Social Choice and Social Networks"	Umberto Grandi	IRIT	ANR (National Research Agency)
PISA - "Protein in silico assessment"	David Simoncini	IRIT	ANR (National Research Agency)
MEGA - Modélisation de l'Évolution des besoins en sécurité publique d'une Grande Agglomération	Frédéric Amblard	IRIT	French Home Office
« L'identité à l'épreuve du numérique »	Jessica Eynard	IDP	French Home Office

On Climate change

Several research centres are concerned by the climate change and the university investigates this topic via several projects. These projects may concern the IRIT research center associated to the faculty of information technology (sustainable cities) or the research institutes hosted by the faculty of law and the schools of Economics and Management (research on the impact of the digitalization of climate change).

On going projects

Project	Researcher	Laboratory	Funding
RUC-APS - "Enhancing and implementing Knowledge based ICT	Pascale Zarate	IRIT	European Commission

solutions within high Risk and Uncertain Conditions for Agriculture Production Systems"			
MADRAS - "Multi-Agent modelling of dense crowd dynamics: Predict & Understand"	Benoit Gaudou	IRIT	ANR (National Agency) Research
SwITCh - "Simulating the transition of transport Infrastructures Toward smart and sustainable Cities"	Frédéric Amblard	IRIT	ANR (National Agency) Research
COVIDOR - "Les investisseurs se préoccupent-ils plus ou moins du changement climatique dans un monde post-pandémique ?"	Isabelle Martinez	TSM-R	ANR (National Agency) Research

Task 3.1 Research and Innovation Mapping Overview

Luiss Univeristy (LUISS)

The following structure indicates the type of information that would contribute greatly to providing insights into the societal challenge research and innovation activities at our partner universities.

This draws upon the analysis that has already been done related to the SDG theme publication data.

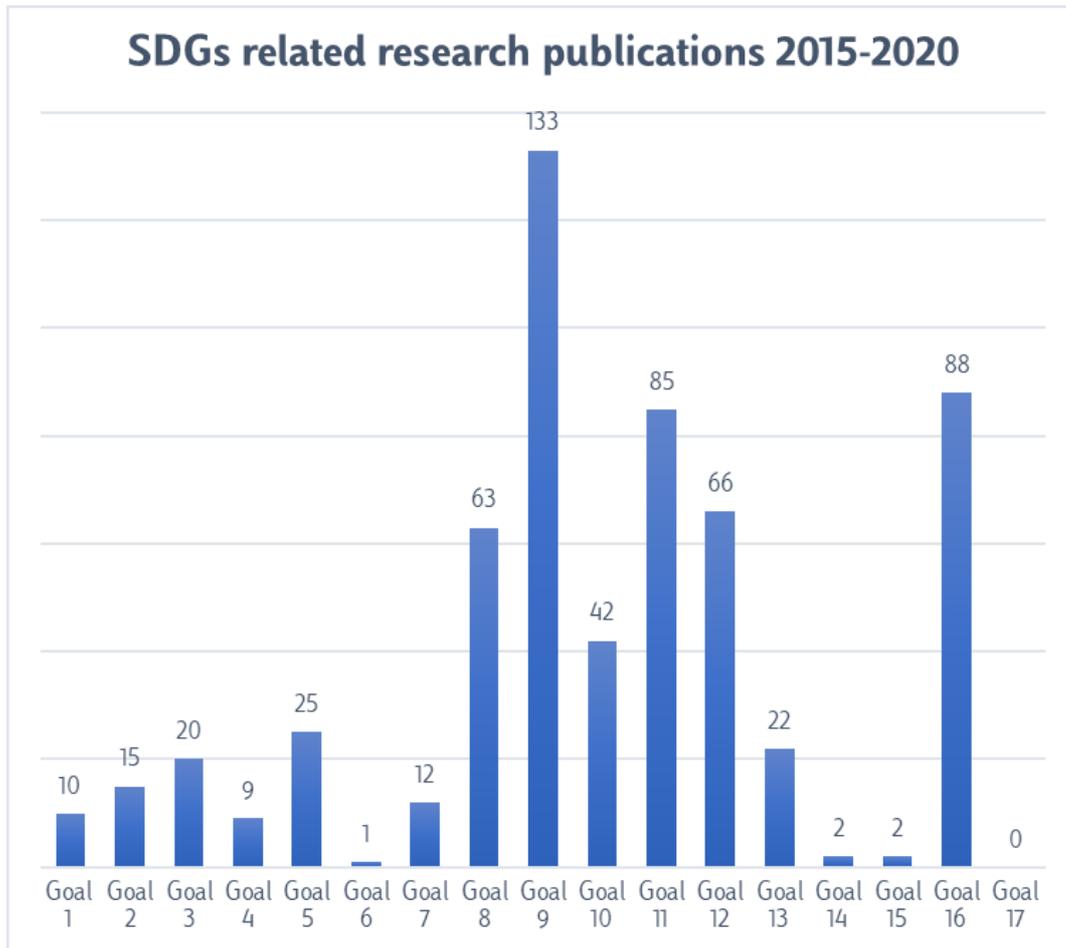
Section 1 SDG data analysis

Approach

The UN 2030 Agenda, with its 17 SDGs (Sustainable Development Goals) and 169 targets, is a shared and universally recognized framework. In the field of higher education, it is also a model for international rankings, networks, debates and communication. Luiss is constantly mapping all sustainability activities according to the SDGs' framework, so that any initiative related to these issues links to a specific goal. According to the SDGs and analyzing the targets for each goal, the University has listed a series of keywords for each Goal (in English and in Italian). For the English version of the query Luiss used the [United Nations official website](#), and for the Italian version of the query the University moved from the official translation provided by [ASviS \(The Italian Alliance for Sustainable Development\)](#). Also, the University compared the SDGs related keywords with the set of keywords identified by [The Impact Ranking](#) (one of the most prestigious ranking for sustainable Universities worldwide), which refers to the SDGs framework and its targets as well, enriching the Luiss overall amount of SDGs related keywords. Through this SDGs related query, research publications have been tracked or brought back to the SDGs from the University research database.

SDG publication overview

According to the analysis of the Luiss research publications through the SDGs related keywords query, during the period between 2015 and 2020 there are 595 publications which can be linked to one of the SDGs. 82 only in 2020. Thanks to the data report, Luiss identified a set of leading Goals in terms of number of research publications, and these are: Goal 8, Goal 9, Goal 10, Goal 11, Goal 12, Goal 16.



For each of the most relevant Goals listed above, some keywords had a greater correspondence during the investigation:

Goal 8: employment; entrepreneurship; job right

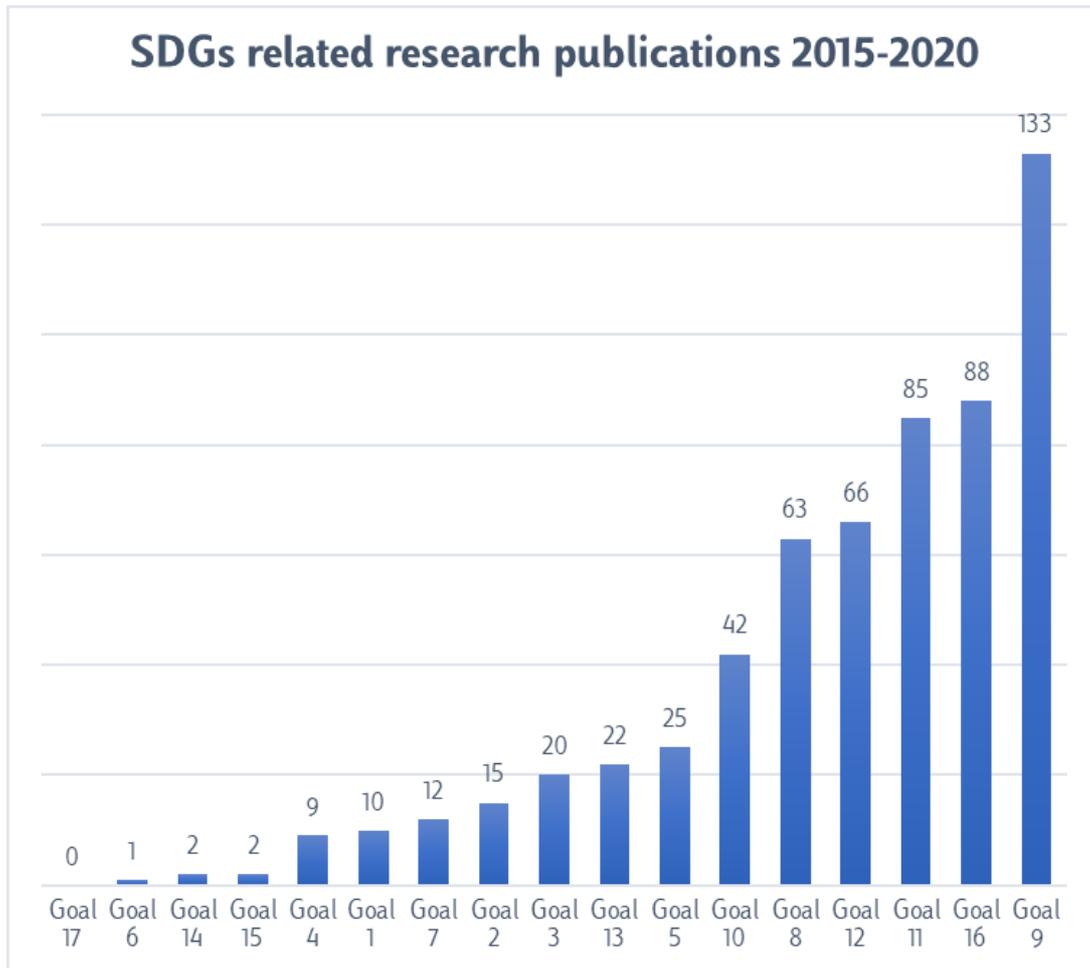
Goal 9: innovation; value chain

Goal 10: migration; social inclusion

Goal 11: inclusive/sustainable cities; inclusive/sustainable urbanization; citizen participation; cultural heritage

Goal 12: sustainable consumption; sustainable production; sustainability reporting

Goal 16: justice; peace; corruption; democracy



By using the SDGs framework, the University has created a common language around which Luiss has organized all the activities related to teaching, research, projects with a clear strategic perspective; the University has also improved the number of initiatives carried out linked to the Agenda 2030 framework embracing the same holistic and consistent vision.

Section 2 Research institutes or expert centers

Luiss is structured into **4 departments** (Political Science, Economics and Finance, Business and Management, Law) to which **14 research centers** (“think tank” structures created on the basis of specific quality and economic indicators) are linked. In addition, Luiss can rely on several observatories and laboratories. Below a comprehensive overview of Luiss’ research structures:

Department of Political Science

Research Centers

- [Center for Parliamentary Studies \(CESP\)](#) - The Center's research areas are as follows: Italian and European Union parliamentary law; regulatory techniques and legislative trends; history of Parliament; financial and parliamentary procedures; interparliamentary cooperation and support for parliaments in democratic transitions; sociology and parliamentary statistics. The Director of the center is Prof. Nicola Lupo.
- [Italian Center for Electoral Studies \(CISE\)](#) - CISE carries out research on a wide range of issues related to political representation in democracies. In particular, the center's research areas are: public opinion; voting behaviour and electoral flows; party competition strategies; statics, dynamics and evolution of party systems; political representation and external constraints on responsiveness; electoral laws and reforms. The Director of the center is Prof. Lorenzo de Sio.
- [Center on International and European Organizations \(CROIE\)](#) - CROIE analyzes the role played by international and European organizations within the contemporary international scene, both with reference to the contribution given to the management and resolution of crises, and with regard to development and evolution of international law that they induce. The Center's research areas are: international and European regulation of migration; international economic law, with a special focus on EU trade and investment policy; the development of a common European defence. The Director of the center is Prof. Elena Sciso.
- ["Vittorio Bachelet" Research Center on Public Administration](#) - The center's research areas are: the system of autonomies (regional and local); the European perspective of public administrations; the tools for the protection of citizens; issues related to some fundamental sectors of public services, primarily education, health and the environment (e.g. school system, teaching civic education, issues of health law, administration of sustainable development); digital law; the reforms that have the greatest impact on the physiognomy and formation of public management and on the relationships between citizens and administrative institutions (e.g. social citizenship, horizontal subsidiarity, administrative justice). The Director of the center is Prof. Bernardo Giorgio Mattarella.
- [Center for Conflict and Participation Studies \(CCPS\)](#) - The CCPS adopts a multidisciplinary perspective but is placed primarily in the area of critical sociology and studies on social conflict, political participation, the media and democracy. The Centre's main research areas are: political participation and active citizenship; media studies; digital ecosystems; digital platforms and technologies for participation; I.A. and digital capitalism; open government and e-democracy; populisms; social movements; conflict

studies; gender politics; democratic innovation and sustainability of democracy. The Director of the center is Prof. Michele Sorice.

- [Data Lab](#) - The Center aims to:
 - monitor the evolution of the economic and social system towards an economy based on knowledge and information through analyses on education, human capital, research and development, statistics learning, news, media;
 - promote multidisciplinary and experimental research combining the standard analysis of social and political narrative with new cognitive tools such as big data, artificial intelligence and blockchain;
 - analyse disinformation phenomena through techniques and methodologies of data-driven journalism, data scraping, data visualization, data collection, sentiment analysis, algorithms on graphs for clustering and centrality;
 - perform fact-checking activities thanks to the network of the ALETHEIA Center of Excellence.

The Directors of the center are Prof. Livia de Giovanni and Prof. Gianni Riotta.

- [International Center on Democracy and Democratization \(ICEDD\)](#) - ICEDD studies the processes of democratization and the quality of democracy in different areas of the world, with a multidisciplinary approach (although based mainly on political science and contemporary history) that is both quantitative and qualitative, comparative and focused on specific cases. The center's research areas are: history of politics, history of public policies, history of the media; processes of establishing and consolidating democracy; transformations and crises of democracies; democracy and authoritarianism; quality of democracy; destinies and mutations of European liberalism; political leadership in transition processes; political risk analysis; local government; international security; justice and judicial systems. The Director of the center is Prof. Giovanni Orsina.

Observatories

- [Observatory on International Security \(OSI\)](#) - The Observatory on International Security promotes research, organizes public events and carries out consultancy activities about international security, with particular reference to the countries that have the greatest strategic interest for Italy. Its main research areas include radicalization processes and the study of the migratory phenomenon. The Director of the observatory is Prof. Alessandro Orsini.
- [Observatory on Public Policies](#) - The Observatory intends to study, from an interdisciplinary perspective, the various public policies, with regard - among other things - to the way in which these are adopted and implemented, their degree of success, their transformations, the intervention solutions chosen from time to time, the social expectations that these policies address. The Director of the observatory is Prof. Antonio La Spina.

- [Luiss Observatory of Relations with East Asia \(LOREA\)](#) - LOREA's main focus is on political, social, economic and cultural developments in East Asian societies, bilateral relations of East Asian states with one another, trilateral and regional arrangements in East Asia, East Asia in the context of the changing geo-political landscape globally, as well as relations between East Asia and Europe, and with Italy in particular. The Director of the observatory is Prof. Thomas Christiansen.

Laboratories

- [@LawLab - Laboratory on Digital Law](#) - @LawLab carries out research, consultancy and design activities aimed at public and private entities in the telecommunications, media and Internet sectors. It carries out research, study and analysis of the legal aspects related to digital transformation. The laboratory provides advice to public and private entities to adapt services and structures to the new digital reality. The Directors of the laboratory are Prof. Pietro Falletta and Prof. Maurizio Mensi.
- [ALETHEIA center of excellence](#) - The center has been established in 2019 to promote research and the exchange of knowledge on issues related to information, professional correctness, the fight against disinformation and polarization forced in the media - both online and offline - through the use of tools such as big data, artificial intelligence and blockchain. The Director of the laboratory is Prof. Gianni Riotta.
- [LabGov - Laboratory for the Governance of the City as a Commons](#) - LabGov aims to co-design public policies and / or prototype civic entrepreneurship projects that generate forms of sustainable community development and that know how to combine social, technological and digital innovation, transforming it into an engine of social equality and socio-economic development. Each year LabGov generates a new civic regeneration operation of urban commons and / or incubates, accelerates civic enterprises and community cooperatives, develops public policies aimed at creating new jobs, reducing social and economic inequalities, establishing collective and social institutions. The Director of the laboratory is Prof. Christian Iaione.
- [LocGov LAB - Local Government Lab](#) - LocGov LAB is intended to apply the Public Rating methodology for the analysis and comparison of Municipalities and Regions. Through this scientific model, LocGov LAB evaluates the performance, transparency and integrity of Public Administrations in order to improve the efficiency of local institutions (Municipalities, Regions, etc.) and to enhance public institutions by actively involving their stakeholders (citizens, companies, associations, etc.). The Director of the laboratory is Paola Caporossi, Director of Fondazione Etica (partner in the creation of the LocGov LAB).

Department of Economics and Finance

Research Centers

- [Arcelli Center for Monetary and Financial Studies \(CASMEF\)](#) - The center aims to promote and support high quality research on economic, monetary, financial and banking issues; encourage debate on current economic and financial issues by organizing conferences and seminars, publishing articles and disseminating reports and press releases; offer high-profile scientific advice both nationally and internationally, providing theoretical and / or quantitative support for the strategic choices of public or private decision makers. The Director of the center is Prof. Giorgio di Giorgio.
- [Center for Experimental Studies of Internet, Entertainment, and Gambling \(CESIEG\)](#) - CESIEG performs a theoretical analysis of statistical and mathematical methods and of their application to relevant issues of economic and social policy. The center's main research areas are experimental economics, economic behaviour, quantitative methods for economic and financial analysis. The Director of the center is Prof. Daniela di Cagno.
- [Luiss Lab of European Economics \(LLEE\)](#) - The center develops and promotes research and training activities on European and international economics. The Center's main research areas are: knowledge economy, intangible capital and economic growth; quality of institutions, economic behaviour, labour market and growth (with particular regard to Europe, in the light of economic, demographic, and technological transformations); economy and international trade. The Director of the center is Prof. Stefano Manzocchi.

Laboratories

- [Center for Experimental Economics \(CESARE\)](#) - CESARE is an experimental research center for the study of economic behaviour, as well as a laboratory for conducting research based on experiments of interest to researchers in the social sciences, including experimental economics, finance, political science, sociology, anthropology and marketing. The Director of the laboratory is Prof. Daniela di Cagno.

Department of Business and Management

Research Centers

- [Research Center in Leadership, Innovation and Organisation \(CLIO\)](#) - CLIO's research activities include several fields, such as the role of leadership in supporting change and innovation; intra and inter-organizational dynamics in terms of learning, adaptability, new organizational forms and management of routines; digital architectures and platforms, digitization of organizational processes, related learning dynamics; emerging models of sharing knowledge and work in and between sectors. The Director of the center is Prof. Luca Giustiniano.
- ["Fabio Gobbo" Industrial and Financial Research Center \(GRIF\)](#) - The Center's research areas are as follows: innovation and industrial dynamics; entrepreneurship; market

regulation and infrastructure policies in the energy, transport, telecommunications and local public services sectors; competition, antitrust policies, privatizations and liberalizations; energy and environmental policies, green technologies and renewable sources; local development, economic planning, industrial districts and regional economy; sector analysis; feasibility studies and cost-benefit analyses. The Director of the center is Prof. Valentina Meliciani.

- [X.\(Behavioral\) Insight Technology Enhanced \(X.ITE\)](#) - X.ITE implements research activities in several areas, such as consumer artificial intelligence, interaction between consumer and smart-objects, consumer behaviour and emotions, consumer policy, sustainable technology and behaviour. The Director of the center is Prof. Michele Costabile.

Laboratories

- [Law & Economics LAB \(L&E LAB\)](#) - The laboratory promotes the research and teaching of law and economics, stimulating the debate on the prospective application of such interdisciplinary approach to a wide number of topics, ranging from competition policy to intellectual property protection, from the economic analysis of civil law to the regulation of high-tech markets. The Director of the laboratory is Prof. Roberto Pardolesi.

Department of Law

Research Centers

- [Law and Rules for European Administration and Markets \(DREAM\)](#) - DREAM carries out research on several areas, such as intellectual property, competition and communications, Italian challenges for cyber security, blockchain and regulation, listed companies, innovative start-ups, packaging waste management. The Director of the center is Prof. Gian Domenico Mosco.

Observatories

- [Observatory of Intellectual Property, Competition and Communication \(OPICC\)](#) - OPICC analyses the main regulatory events, judicial interventions and expressions of category self-discipline in the areas of patents for inventions and models, trademarks, commercial advertising, biotechnologies and plant innovations. The Director of the center is Prof. Gustavo Ghidini.

Among the centers' activities related to SDGs, it is necessary to mention the following committed research activities performed over the last 3 years:

Center	Activity	Output	Reference SDG(s)
CASMEF	Analysis of the “Future-e” project on circular economy and sustainable development: creation of value for investors, calculation of the impact, political economy incentives and successful experiences at international level	Research report	SDGs n° 6-8-11-12-13-14-15
CASMEF	Study and research activities in the field of sustainable infrastructures	Elaboration of the “CASMEF-Deloitte” annual report, and presentation during a public event	SDG n° 9
CCPS	Democratic participation: practice and methodologies	Preparation of specific education material, including digital support and self-evaluation exercises	SDG n° 16
CLIO	Narrate the digital transformation through the storytelling	Editorial project with informative purposes and targeting the professional/scientific community	SDG n° 9
GRIF	Elaboration of “The future for midday in Italy between decarbonization and circular economy under the European New Green Deal provided by the new program 2021-2027 of the European Commission” and “Analysis of the Italian and European steel sector between the global crisis and innovation”	Elaboration of two reports	SDGs n° 6-8-11-12-13-14-15
LLEE	Research project on the nexus between the ongoing digitalisation process in advanced economies and the participation in	Contribution to the research project	SDG n° 9

	international value chains, with a particular focus on Italy		
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Section 3 Main and emerging research themes (interesting future directions)

According to Luiss' 2020-2022 strategic plan, three among the main research priorities to the university are sustainable growth (e.g. LabGov), digital (e.g. CCPS, CLIO, @LawLab), and entrepreneurship (e.g. LabGov, GRIF). Luiss has been recently awarded several projects - both at national and European level - regarding those specific topics, such as:

- **Mediafutures** (Luiss' Scientific Responsible: Prof. Livia de Giovanni): EU project aiming to support the European community in breaking down the so-called "data silos" to facilitate their sharing, reuse and negotiation, in order to promote new business opportunities for European companies. In particular, Mediafutures proposes the creation of a second-generation virtual data innovation hub, which will include funding opportunities, mentoring and support for creative projects to reshape the media chain, through responsible and innovative use of data.
- **OpenHeritage** (Luiss' Scientific Responsible: Prof. Christian Iaione): EU project intending to develop an inclusive governance model aimed at the adaptive reuse of cultural heritage assets. The project is based on the concepts of inclusiveness and territorial integration. The first refers to the participation, alongside institutions and associations, of the reference communities in the reuse and maintenance of assets; the second includes a planning process involving the transformation of larger territorial areas. In order to identify and test an inclusive governance model, the research considers both adaptive re-use projects (Observatory Cases) and ongoing projects overseen by consortium partners (Cooperative Heritage Labs). In both cases, urban, peri-urban, and natural environments referable to different types of heritage will be analysed.
- **PRODIGEES** (Luiss' Scientific Responsible: Prof. Raffaele Marchetti): EU project promoting international collaboration and sharing of knowledge on (global) governance and the conditions to shape digitalisation towards the Sustainable Development Goals in the 2030 Agenda. With the aim to exploit complementary competences and combine various disciplines and perspectives, PRODIGEES focuses on the exchange of ideas between academic institutions that deal with sustainability and digitalisation questions in the European Union (Austria, Estonia, Italy, Germany) on the one hand, and emerging powers from the Global South (Brazil, India, Indonesia, Mexico and South Africa) on the other. In this way, the project allows for sharing and comparing experiences from countries that are of greatest importance for the achievement of the SDGs, and for successful global governance in the digital age.

- **EINST4INE** (Luiss' Scientific Responsible: Prof. Henry William Chesbrough): EU project proposing a focus on Industry 4.0, the digital transformation and innovation ecosystems. In particular, EINST4INE aims to provide cutting-edge training to 15 doctoral students and to provide them with wide-ranging skills and capabilities to successfully face the challenges of contemporary and future industrial systems. Drawing on world-class research and practices on open innovation, industry 4.0 and innovation ecosystems, this interdisciplinary and cross-sectoral program will develop a human-only knowledge base of digital transformation, coordination and decision-making, enabling technologies and new value creation logics as well as the organization of innovation ecosystems.
- **Implementazione di progetti di digitalizzazione responsabile nelle supply chain** (Luiss' Scientific Responsible: Prof. Pietro de Giovanni): national project promoting the development of the concept of responsible digitization in the management of the Supply Chain (SC). In particular, the project focuses on identifying an effective digital transformation process that the SCs can undertake to achieve Corporate Social Responsibility (CSR) objectives. The project consists of three work packages, each of which is related to a different technology available for the SC for the implementation of responsible digitization, specifically Industry 4.0, Blockchain and Artificial Intelligence systems.

Task 3.1 Research Mapping Overview Tilburg University

Section 1 SDG data analysis

Approach

The analysis of the contribution to research on areas related to societal challenge at Tilburg University was investigated using two main approaches: a bibliometrics study based on the Scopus scientific publication database and a qualitative analysis of the activities and research themes at the leading research institutes, networks at Tilburg University.

The bibliometric analysis used the predefined and well-established Scopus SDG queries. Publication counts for each SDG were calculated for both a 10 year and 5-year window. The 5-year window has been adopted as the standard since older publications may not accurately reflect the current research themes, activities, and areas of expertise at TiU.

A second approach involved an analysis of the research institutes, centres of expertise, networks at Tilburg University. At TiU there are some 35 formally recognized research institutes. This analysis allowed their activities to be compared with the classifications defined by the SDG goals. For each of the relevant institutes, research groups and their contributions to societal challenge research were coded using the SDG categories and key words.

These sources of insights into the past and current key themes draws upon a review of strategic directions currently under discussion at TiU. These provide insights into both what is considered to be current areas of strength and future direction for development and emerging themes.

The Scopus SDG documentation and data can be found in the Task 3.1 folder under TiU.

SDG publication overview⁴

The Scopus SDG analysis (5 year) identified around 110 relevant publication from scholars affiliated with a school or research institutes located at Tilburg University. Figure 1. Provides an overview of the findings.

⁴ This document contains a summary of the SDG Scopus (draft) data which is available in the Task 3.1 folder under TiU.

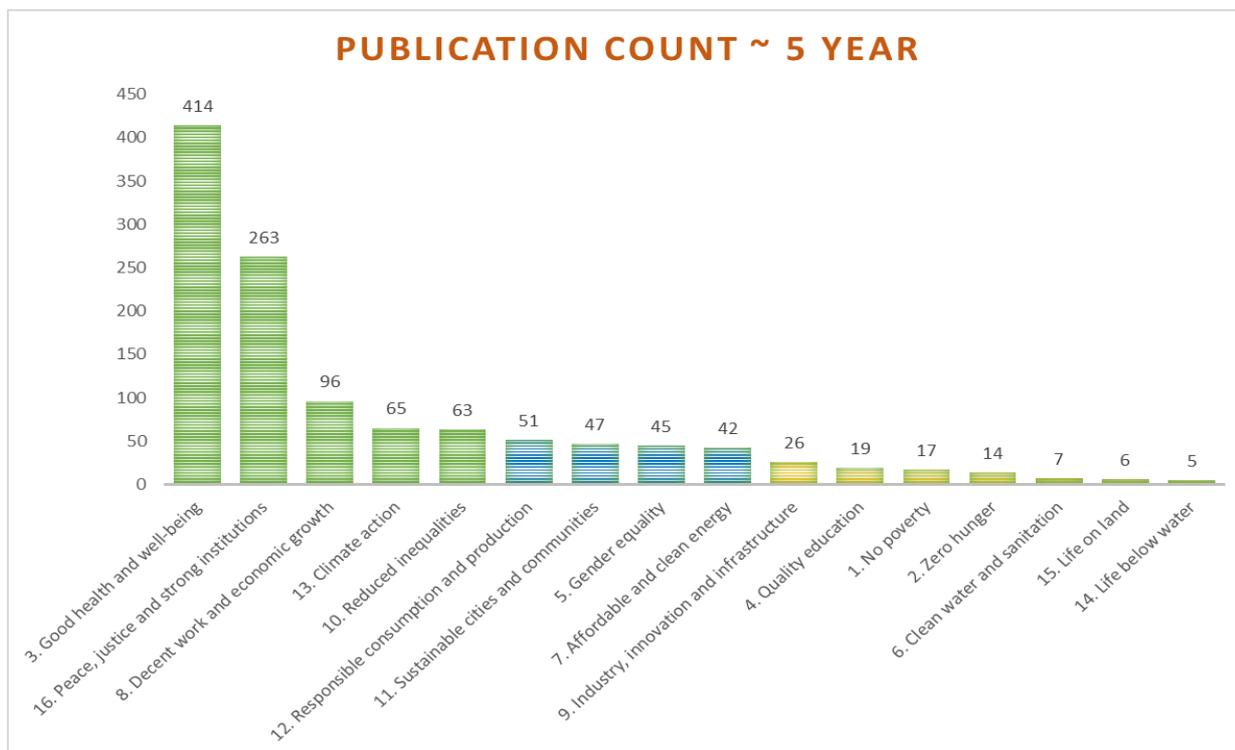


Figure 1. SDG publication overview

The bibliometrics analysis indicates that the most significant contributions are towards SDG 3: good health and wellbeing and SDG 16: peace, justice, and string institutions. As shown in Table1, in the tops are also SDG 8: Decent work and economic growth, SDG 13: Climate action and SDG 10: Reduced inequalities, see Table 1.

Position	SDG
1	3. Good health and well-being
2	16. Peace, justice, and strong institutions
3	8. Decent work and economic growth
4	13. Climate action
5	10. Reduced inequalities

Table 1. Top 5 SDG publication overview



The second analysis based on the thematic focus of existing research institutes and networks provides the overview as show in Table 2. This generally supports the findings from the publication count analysis withSDG 3 and SDG 16 being in the top two positions, and SDG 8 and 10 withing the top five.

Position	SDG	Theme occurrence
1	16. Peace, justice, and strong institutions	6
2	3. Good health and well-being	5
3	10. Reduced inequalities	3
4	2. Zero hunger	2
5	8. Decent work and economic growth	2
6	13. Climate action	2
7	12. Responsible consumption and production	1
8	15. Life on land	1

Table 2. SDG themes occurrence across existing research networks



Section 2 Research institutes or expert centres⁵

Tilburg University Impact Program
[Impact Program | Tilburg University](#)



The Impact Program of Tilburg University connects researchers from various fields to partners outside academia to bring society forward. In cooperation we develop new insights and solutions for the complex challenges of the 21st century.

Categories

- **Creating value from data**

Tilburg University improves data science techniques and works on transparency, reliability, and fairness in the use of data. To this end, we combine various areas of expertise. Knowledge of algorithms, data mining, and machine learning is linked to expertise in the fields of law, ethics, economics, logistics, labor market, and human resources.

- drs. Martin van der Broek

- **Empowering the Resilient Society**

Major

Themes:

- ❖ **Climate and Energy Transition**
 - Behavioral aspects of the energy transition
 - Efficient energy in the built environment
 - Governance of the energy transition
 - Regulation of new energy technology
 - Market forces
 - Societal impacts of climate change
- ❖ **Crime and Subversion**
 - Understanding subversive crime
 - Effect of subversive crime
 - Tackling subversive crime and field labs
 - Financial aspects of subversive crime
 - Data science and scenarios
- ❖ **Migration**
 - Migration governance and trajectories
 - Integration

⁵ This document contains a summary of key information from the main report - ENGAGE expert center mapping_Ti, which is available in the Task 3.1 folder under TiU. See the report for more information on key words and points of contact.

- Citizenship
- prof. dr. Ton Wilthagen

- **Enhancing Health and Wellbeing**

Major Themes:

- ❖ **A good start for everyone**
- ❖ **Customized care**

- prof. dr. Margriet Sitskoorn

Zero Hunger Lab

[Zero Hunger Lab | Tilburg University](#)



Tilburg University's Zero Hunger Lab wants to contribute to the attainment of these five agreements based on data science. Only by working together intelligently can we put an end to hunger in the world. We do this by advising aid organizations, companies, and government institutions through mathematics and smart algorithms: we call it Bytes for Bites. Our mission is to make people independent from food aid and to ensure sustainable food security. We do this not only in Africa, Asia, or the Middle East but also in the Netherlands, where 150,000 people depend on the 170 Food Banks for their daily meal.

Achieving food security

We believe that, with a joint approach to food security problems, we will make more impact in the fight against hunger. Our food systems have to be fundamentally adapted over the next decade – of course in order to better help people in need when they are hit by war or natural disaster, but also to be able to provide more than 10 billion people with three healthy meals a day by 2050 within the planetary boundaries. The lab is part of Tilburg University's **IMPACT** program.

Academic staff:

- prof.dr.ir. Hein Fleuren (Founder)
- prof.dr.ir. Dick den Hertog

Key words: food security, hunger, poverty, big data, data mining,

The Herbert Simon Research Institute is a Tilburg School of Social and Behavioral Sciences research Institute for health, well-being and adaptiveness.

[Herbert Simon Research Institute | Tilburg University](#)



Research focus

Societies, organizations, and individuals are subjected to profound changes. Such changes

come in many forms and at different levels. Such changes may either be episodic (e.g., economic depression, inter-group conflict, divorce, unemployment, sickness) or structural and long lasting (globalization, migration, deinstitutionalization, neo-liberalization, aging, flexibilization, digitalization, and accompanying changes in values, norms, and culture), and affect the 'life chances' of these social actors who, as a consequence, need to deal with these changing realities they face. Adaptive reactions are diverse and challenges manifold. Our research line firstly aims to understand the adaptive and maladaptive reactions and underlying mechanisms of social actors to these changes. Secondly, using this acquired understanding, it aims to study whether or not interventions (policies, organizational interventions, (inclusive) Human Resource Management practices, treatments, reintegration efforts, and the like) and subsystems within organizations aimed at improving actors' adaptiveness and resilience are effective and do what they are supposed to do.

Major themes

- ❖ ***Adaptive societies, organizations and workers, Healthy Lifespan***
How do societies, organizations and individuals react and change regarding challenges?
 - dr. Karina van de Voorde, Associate Professor
- ❖ ***Ageing Network – Tilburg University***
Our research focuses on healthy as well as pathological ageing from a holistic, longitudinal perspective considering the individuals' characteristics, and their social and physical environment including work as well as care contexts. We are specifically interested in risk and protective factors that account for between-person differences and within-person changes in cognition, well-being, and life-satisfaction in old age.
 - prof. dr. Yvonne Brehmer
- ❖ ***Personalized Prevention and Care TESC Tilburg Experience Sampling Center***
Our research focuses on (a) selective prevention, including lifestyle interventions, (b) personalized healthcare, including shared decision making and (c) diagnostics, using computational statistics and predictor models.
 - dr. Floortje Mols, Associate Professor
- ❖ ***Dementia Community Tilburg University***
 - dr. Ruth Mark, Assistant Professor

INTERVICT
[INTERVICT | Tilburg University](#)



INTERVICT promotes and executes interdisciplinary research that can contribute to a comprehensive, evidence-based body of knowledge on the empowerment and support of victims of crime and abuse of power. INTERVICT aims to develop and implement a large-scale interdisciplinary research program in order to make significant contributions to the body of international victimological knowledge. The interdisciplinary approach of the research program ensures that proper research is performed into all aspects of victimization, which will ultimately contribute to preventing or reducing instances of

criminal victimization across the world and to limiting the effects of such victimization on victims and their families including economic costs, pain and suffering.

- o prof. dr. Conny Rijken

NETSPAR
www.netspar.nl



Netspar, the Network for Studies on Pensions, Aging and Retirement, is an independent knowledge network. Since 2005, we have been promoting a better understanding of the social and economic impact of pensions, aging, and retirement in the Netherlands through the development and dissemination of knowledge. Netspar fosters independent scientific research and then shares it through publications, events, webinars, and education.

- o prof. dr. Theo Nijman

TAISIG - Tilburg University AI Special Interest Group
[TAISIG organises AI activities at Tilburg University | Tilburg University](#)



Society is changing at lightning speed. The big driver behind this transition is Artificial Intelligence (AI). How do you create, improve, or intensify technical and social processes and services using data and AI techniques? At Tilburg University, a wide variety of scientists are involved in AI. In order to map and provide insight into what we do and what we are good at, TAISIG (Tilburg University AI Special Interest Group) was established

- o prof. dr. ir. Boudewijn Haverkort, Tilburg School of Humanities and Digital Sciences TSHDS

Ethical, Legal and Societal Aspects of AI (ELSA)

How do you ensure that technological development contributes to an inclusive, democratic world? You do that by taking a holistic approach

- o prof. dr. Ronald Leenes

TILEC - Tilburg Law and Economics Center
[Tilburg Law and Economics Center \(TILEC\) | Tilburg University](#)



The Tilburg Law and Economics Center (TILEC), a joint research center of the Tilburg Law School and the Tilburg School of Economics and Management, is a Center of Excellence at Tilburg University (TiU). Interdisciplinarity between law and economics is a key distinctive feature of TILEC, widely recognized and valued inside and outside Tilburg University. TILEC gathers economists and legal scholars to perform academically path-breaking and societally

relevant research on the governance of economic activity. TILEC provides support for, and stimulates, the research activities of its members, thereby enhancing the intellectual climate at TiU.

Major themes

- ❖ Institutions
 - ❖ Competition
 - ❖ Innovation
- prof. dr. Panos Delimatsis

TILT - Tilburg Institute for Law, Technology, and Society [Tilburg Institute for Law, Technology, and Society \(TILT\) | Tilburg University](#)



The Tilburg Institute for Law, Technology, and Society (TILT) is a top player in the field of the regulation of technology and its normative implications. We conduct research into the legal and social implications of various emerging technologies such as ICT, bio- and nanotechnology, neurotechnology and robotics. A key feature of the institute's research program is the interaction between legal, technological, and social perspectives. TILT's mission is to explore and understand the interplay between technology, regulation and fundamental values/human rights; to study emerging technologies, their impact on the individual and society; and to assess the need for regulation of technologies.

- prof. dr. Ronald Leenes

TiREG - Tilburg Center for Regional Law and Governance [TiREG - Tilburg Center for Regional Law and Governance | Tilburg University](#)



Whereas the nature of complex challenges and societal issues, such as climate change, population aging, congested transportation networks, and social inequality, are increasingly transboundary, effective and legitimate solutions to such problems, in the Netherlands and elsewhere, appear to be more and more found at the local and, in particular, at the regional level.

TiREG is a joint venture of legal and public administration scholars and is supported by the Province of Noord-Brabant. Besides law and public administration, the Center brings together researchers from a variety of disciplines and institutes (also beyond Tilburg University) to conduct research and develop education in the field of regional law and governance. TiREG focuses on exploring, explaining and evaluating the novel interactions between government, businesses, citizens and knowledge institutions that develop in response to these complex challenges and societal issues.

- prof. dr. Martijn Groenleer, Scientific Director TiREG

Tranzo
[Tranzo | Tilburg University](#)



Tranzo is the scientific center for care and wellbeing of the Tilburg School of Social and Behavioral Sciences of Tilburg University. Tranzo wants to build a bridge between science and practice in the area of care and wellbeing. The objective is to promote an evidence-based approach by working in co-creation with practitioners to develop and exchange knowledge.

Academic collaborative centers and major themes

- ❖ Mental Health Care
 - ❖ Addiction
 - ❖ Living with an Intellectual Disability
 - ❖ Quality of healthcare providers and systems
 - ❖ Public Health
 - ❖ Academic Collaborative Center Work and Health
 - ❖ Social Work
 - ❖ Care for older Adults
 - ❖ Youth
 - ❖ Health Economics
 - ❖ Technological and Social Innovation for Mental Health
- Prof. dr. H. (Dike) van de Mheen, Chairman of Tranzo

Tilburg Sustainability Center (TSC)
[Tilburg Sustainability Center | Tilburg University](#)



TSC wants to help deal with the challenges of a globalizing world economy, where climate change and resource scarcity require innovative and interdisciplinary approaches and where both policymakers and corporations find it increasingly important to achieve growth in a responsible and sustainable manner.

Major themes

- ❖ Climate Action & Resource Efficiency
- ❖ Corporate Social Responsibility
- ❖ Social Innovation, Sustainability & Governance

Climate Action, Resource Efficiency and Related Societal Challenges

The inter-disciplinary research of this group combines socioeconomic and legal aspects of climate change mitigation and adaptation, including research on the legal and socio-economic framework for the deployment of geo-engineering technologies.

- Prof. dr. Kees Bastmeijer
- Prof. dr. Reyer Gerlagh

Corporate Social Responsibility (CSR)

The research within this group focuses mainly on the analysis of the micro and macro impacts of the multifaceted CSR practices related to global and local economic, social and environmental issues. The group also explores the conceptual and empirical identification of the many causal relationships between CSR activities and impacts. Furthermore, the CSR group studies the investment approach of Sustainable and Responsible Investing (SRI), integrating long-term environmental, social, and governance criteria into mainstream investment.

- Prof. dr. Johan Graafland

Governance and Social Innovation

Collaborating with the Telos institute - the regional sustainable development research center has ample experience in the role of extra-economic information (e.g., social, ecological and governance performance) in regional investment and development programs.

- Prof. dr. Daan van Soest

Section 3 Main and emerging research themes (interesting future directions)

A recent roundtable / working group at Tilburg University, were asked to identify overarching research topics, relevant to societal challenges, current and future. The outcomes of the study were presented at the recent Speech 2027 event at TiU⁶. This working group identified three major themes with “rich opportunities for future research” (p. 1). Though not a formal reflection of TiU’s research priorities or strategic themes, the memorandum does provide useful insights⁷. The three broad themes identified (and sub themes) are:

❖ sustainability transition

- Transition to renewable energy, recycling, and reuse of materials in products
- Future-proofing the work(place) / labour market / healthcare for expected aging and new (IT-) technologies

❖ Inequality

- Global governance and post-globalization
- Behaviour and governance of heterogeneous groups, organizations, and societies
- Inequity and poverty

❖ well-being and health(care)

- Personal health and well-being
- Health and well-being at work

⁶ [Speech 2027 | Tilburg University](#)

⁷ *Opportunities for profiling overarching research*, 2021, TiU, Chair: Prof. dr. B. Bronnenberg, [Research themes | Tilburg University](#)

- Healthcare, prevention, and personalization

The report also provides details of recent research projects (some of which have received NVO or/and external funding). It also provides details of participants. Below is a summary of the key projects identified in the report (*Opportunities for profiling overarching research, 2021*), for details of the (many) participants see Appendix A of the report.

❖ **sustainability transition**

- Transition to renewable energy, recycling, and reuse of materials in products
 - NEON and COMPOSE project (NEON is a multidisciplinary project funded by NWO)
 - SMILE project -Social Innovation Labs Energy transition, 2018-2020
 - MEGAMIND stands for MEasuring, GATHERing, and MINing Data
 - LONGA VIA investigates which factors obstruct the implementation of data-driven innovations in infrastructure sectors (NVO)
- Future-proofing the work(place) / labour market / healthcare for expected aging and new (IT-) technologies
 - Academic Workplace Inclusive Sustainable Labour Market & Social Security
 - Technological innovations for sustainable healthcare

❖ **Inequality**

- Global governance and post-globalization
 - Researcher at TILEC (TiSEM-TLS)
 - Researcher at the European Banking Center at TiSEM
- Behaviour and governance of heterogeneous groups, organizations, and societies
 - Study of interethnic/intercultural relations/communication (multiple schools)
 - Study of strategic interaction between heterogeneous individuals/other actors (multiple schools)
- Inequity and poverty
 - Study of causes, consequences, and remedies (multiple schools)

❖ **well-being and health(care)**

Research projects include:

- Data2Person project - Data-driven shared decision making on cancer treatment
- We Care application - Towards an e-health solution for return to work after injury
- Labour Markets Innovations and the Law

Task 3.1 Research Mapping Overview

NHH Norwegian School of Economics

Section 1 SDG data analysis

Approach

NHH has used Elsevier's pre-generated search queries for the SDGs as available through the Scopus-interface⁸ for the gathering of data. The pre-generated queries consist of multi-stage reviews for SDG 1 through 16. SDG 17 (Partnerships for the Goals) is difficult to quantify in sufficient detail to create suitable search queries and is not included in NHH's analysis.

The basis for the analysis was as follows: First, the total number of NHH publications in Scopus were identified for the period 2015-2020. In total, 1016 publications were identified. Further, using the pre-generated queries for the SDGs, and distributed between the SDGs (1-16), a total of 259 NHH publications were identified i.e., 25 % of the NHH publications in Scopus, from the period, matches the pre-generated search criteria from Elsevier. The results below are based on these publications.

SDG publication overview

Table 1 show NHH publications and their distribution between the SDG goals (1-16) ranked in the order of publication intensity (low to high on publication count).

Table 1: NHH's publications (count) related to the SDG goals (low to high)

SDGs	Publ. Count
SDG 6. Clean water and sanitation	1
SDG 2. Zero hunger	2
SDG 4. Quality education	2
SDG 15. Life on land	3
SDG 1. No poverty	4
SDG 11. Sustainable cities and communities	5
SDG 9. Industry, innovation, and infrastructure	12
SDG 12. Responsible consumption and production	15
SDG 10. Reduced inequalities	17
SDG 14. Life below water	17
SDG 13. Climate action	20
SDG 16. Peace, justice, and strong institutions	23

⁸ A full description of Elsevier's pre-defined SDG-methodology can be found on <https://data.mendeley.com/datasets/87txkw7khs/1>

SDG 5. Gender equality	27
SDG 3. Good health and well-being	28
SDG 7. Affordable and clean energy	39
SDG 8. Decent work and economic growth	44

Based on this ranking the top five SDG areas at NHH are:

1. SDG 8: Decent work and economic growth
2. SDG 7: Affordable and clean energy
3. SDG 3: Good health and well-being
4. SDG 5: Gender equality
5. SDG 16: Peace, justice, and strong institutions

Section 2 Research organization: Departments, research centers and research groups

The research at NHH is organized through the departments, research centers and research groups.

Departments

The departments are the core units through which NHH's research activities are organized. The departments and their main research areas are the following:

Finance (FIN): Research covers all major areas of finance, with research groups in corporate finance, FinTech, and asset pricing.

Business and Management Science (FOR): Key features are decision-making, governance and efficiency in organizations from a managerial perspective, as well as from the perspectives of institutions and investors.

Professional and Intercultural Communication (FSK): Research covers the field of language for special purposes and intercultural communication, in particular professional language within the fields of economics and business administration (English, French, German, Japanese, Norwegian and Spanish).

Accounting, Auditing and Law (RRR): The main research areas are financial accounting and auditing; management accounting and control; and economics, ethics, and law.

Economics (SAM): Major areas of research are related to major global challenges such as climate change, economic instability and growth, economic development and national and global welfare and inequality.

Strategy and Management (SOL): Major areas of research are management, leadership, service innovation, marketing, and communication.

Research centers

In 2014, NHH introduced a strategic research initiative scheme. This initiative launched twelve thematic research centers. NHH's Research Centre's are established as cross-departmental initiatives. They extend the research priorities and strategies of the Departments by tackling e.g., cross-disciplinary challenges and creating a shared cross-school vision in key thematic

areas. The new focus defines four key objectives: 1) to increase research quality, capacity, and profile by providing a platform for funding applications, recruitments, and international research partnerships; 2) to address multi-disciplinary research challenges; 3) to strengthen research collaborations; 4) to enhance the visibility of NHH's research activities.

Below, a brief description of the research centers at NHH are presented including an indication of areas of expertise and which of the SDGs they have research related to (appendix 3). See appendix 1 for web links and contact information for the research centers.

[Centre for Experimental Research on Fairness, Inequality and Rationality \(FAIR\)](#)

The Centre for Experimental Research on Fairness, Inequality and Rationality aims to conduct groundbreaking experimental research on how to address inequality in society. FAIR is comprised of two research groups; the Centre for Empirical Labor Economics (CELE) and The Choice Lab. CELE aims to foster research on the multiple aspects of empirical labor economics. The research agenda includes several themed areas of focus: the labor market, education and health economics, in particular early investments, and intergenerational mobility. The Choice Lab uses economic experiments to study individual decision making, in particular how people are motivated by moral, risk and institutional considerations. Areas of focus are global income inequality, tax policy, health care and management issues relevant to corporations and non-governmental organizations. FAIR is awarded status as a Norwegian Centre of Excellence (SFF) by The Research Council of Norway.

- FAIR has research related to the following SDGs: 1, 4, 5, 8, 10.
- Areas of distinctive expertise: Empirical labor economics, experimental / behavioral economics, moral choices

[Centre for Asset Management \(CAM\)](#)

The Centre for Asset Management promotes high-quality research on challenges facing in the asset management industry and spans a broad set of topics within asset management, covering both theoretical and empirical work. The center fosters research on, but not limited to, factor models, market quality, FinTech and sustainable investment.

- CAM has research related to the following SDGs: 8, 9, 11, 13.
- Areas of distinctive expertise: Factor models, market quality and liquidity, FinTech, sustainable investment

[Centre for Brand Research \(BRANDINNOVA\)](#)

Brandinnova focus on current branding-related issues. The purpose is to generate cutting-edge insights on how to make brands attractive in the modern economy and contribute proactively to the development of advanced branding competence and skills in Norwegian companies. To this end, Brandinnova cooperates closely with NHH Executive and with Norwegian and international companies.

- BRANDINNOVA has research related to the following SDGs: 8, 9, 11, 12, 14, 15.

- Areas of distinctive expertise: Branding in innovations management, distribution, customer behavior & sustainability.

[Centre for Business Economics \(CBE\)](#)

The Centre for Business Economics (CBE) is a research group who combines elements from economics, strategy, marketing, and management science, focusing on the functioning of firms, markets, and organizations. The research in CBE is relevant for firms' decisions and strategy as well as policy.

- CBE has research related to the following SDGs: 8, 9, 11, 12.
- Areas of distinctive expertise: Firm, markets, and organization functioning

[Centre for Corporate Finance \(CCF\)](#)

CCF is an arena for faculty interested in corporate finance to meet and discuss research, host visiting researchers and arrange workshops with invited top scholars. The objective is to provide an inspiring academic environment, which helps faculty to excel in their research.

- CCF has research related to the following SDGs: 5, 8, 9.
- Areas of distinctive expertise: Investment decisions, investors' interactions, capital, and corporate governance.

[Centre for Digital Business and Audit \(DigAudit\)](#)

Centre for Digital Business and Audit is a center consisting of two projects – Digital Business (funded by Equinor) and DigAudit (funded by The Research Council of Norway). The center generates research knowledge about digitalization within the business and audit areas.

- DigAudit has research related to the following SDGs: 8, 9, 11, 12.
- Areas of distinctive expertise: Digitalization within business and audit

[Centre for Energy, Natural Resources, and the Environment \(ENE\)](#)

ENE is a cross-disciplinary Centre covering and combining research in several core topics such as energy markets, management of renewable and non-renewable resources and the environment and climate change.

- ENE has research related to the following SDGs: 7, 8, 9, 11, 12, 13.
- Areas of distinctive expertise: Energy markets, management of renewable and non-renewable resources, environmental and climate change

[Centre for Macro, Risk and Sustainability \(MACRO\)](#)

The Centre conduct macroeconomic studies of the linkages between the resource sectors and the overall economy, financial petroleum funds, and optimal fiscal policy strategies. MACRO work with resource economics, including microeconomic studies of the incentive structure within the resource businesses and the effect of regulations.

- MACRO has research related to the following SDGs: 8, 9, 13.

- Areas of distinctive expertise: Resource economics

[Centre for Shipping and Logistics](#) (CSL)

Both shipping and logistics are traditional research fields at NHH. Centre for Shipping and Logistics continues and develops this work through both theoretical and empirical maritime transport and logistics research in broad interaction with Norwegian industry.

- CSL has research related to the following SDGs: 8, 9, 11, 12, 13.
- Areas of distinctive expertise: Shipping economics, transport efficiency, logistics

[Centre for Sustainable Business](#) (CSB)

The Centre for Sustainable Business does research on the behaviors, business models and technologies that promote sustainable business. The center has three main research areas: Sustainable and Circular Business Models, Sustainable Consumption and Behavior, and Sustainability Management.

- CSB has research related to the following SDGs: 8, 9, 11, 12.
- Areas of distinctive expertise: Sustainable and circular business models, sustainable consumption and behavior, sustainability management

[DIG – Digital Innovation for Growth](#) (DIG)

DIG conducts rigorous interdisciplinary research on and with leading Norwegian business partners to help Norwegian companies enable new customers, innovations, develop their business models, and adapt organizations to a digital world.

- DIG has research related to the following SDGs: 8, 9, 12.
- Areas of distinctive expertise: Adoption of technologies and innovation, radical change and innovation, digital ecosystems, value creation

[The Norwegian Centre for Taxation](#) (NoCeT)

NoCeT provides high-quality research and education in all aspects of taxation and public finance. The center is co-funded by the Research Council of Norway and the Norwegian Tax Authority. The center has three main research areas: Capital taxation and the open economy, law and economics and Behavioral economics and compliance.

- NoCeT has research related to the following SDGs: 8, 10, 12, 16.
- Areas of distinctive expertise: Capital taxation and open economy, law and economics, behavioral economics, and compliance

Research groups

Departments also organize their research in research groups. These may be formal groups, or informal groups defined by research areas. Table 2 shows an overview of research groups and areas presented in the web pages of each department.

Table 2: Research groups and areas

<p>FIN</p> <ul style="list-style-type: none"> Asset Management Corporate Governance Fin Tech 	<p>RRR</p> <ul style="list-style-type: none"> Economics, Ethics and Law Financial Accounting and Auditing Management Accounting and Control
<p>FOR</p> <ul style="list-style-type: none"> Business Taxation Data Science and Analytics Energy Markets, Resource Management and Sustainability Incentives, Contracts and Firm Behavior Investments, Insurance and Household Finance Shipping, Logistics and Operation Management 	<p>SAM</p> <ul style="list-style-type: none"> Applied Microeconomics Behavioral Economics Economic Geography Economic History Industrial Organization International Economics and Shipping Labor Economics Macroeconomics and Natural Resources
<p>FSK</p> <ul style="list-style-type: none"> Discourse Analysis Intercultural Communication Terminology, Corpora and Language Resources Specialized Translation 	<p>SOL</p> <ul style="list-style-type: none"> Innovation and Entrepreneurship Leadership Marketing Organization and Management Strategy

Section 3 Main and emerging research themes (interesting future directions)

The thematic research centers constitute NHH’s strategic research initiative. This initiative will be evaluated in 2023. Most of the major research grants at NHH are a result of the research activity within the research centers (see appendix 2 for an overview of ongoing key research projects).

Appendices

Appendix 1 Web links and contact information for the research centers at NHH

Research Centre (web link)	Head of Research Centre
Centre for Experimental Research on Fairness, Inequality and Rationality (FAIR)	Director, Prof. Bertil Tungodden, Co-director Prof. Alexander W. Cappelen and Prof. Kjell G. Salvanes
Centre for Asset Management (CAM)	Prof. Nils Friewald
Centre for Brand Research (BRANDINNOVA)	Prof. Magne Supphellen
Centre for Business Economics (CBE)	Prof. Kurt Brekke, Deputy head, Assoc. Prof. Malin Arve
Centre for Corporate Finance (CCF)	Prof. Karin S. Thorburn
Centre for Digital Business and Audit (DigAudit)	Prof. Jon Iden, Prof. Katarina Kaarbøe, Prof. Aasmund Eilifsen
Centre for Energy, Natural Resources, and the Environment (ENE)	Prof. Leif K. Sandal, Deputy head, Prof. Gunnar Eskeland
Centre for Macro, Risk and Sustainability (MACRO)	Prof. Gernot Doppelhofer, Prof. Trond Døskeland
Centre for Shipping and Logistics (CSL)	Prof. Stein W. Wallace, Deputy head Prof. Roar Ådland
Centre for Sustainable Business (CSB)	Assoc. Prof. Lars Jacob Tynes Pedersen
DIG – Digital Innovation for Growth (DIG)	Prof. Tor W. Andreassen

The Norwegian Centre for Taxation (NoCeT)	Prof. Guttorm Schjelderup, Deputy head Prof. Jarle Møen
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Appendix 2: Key research projects EU / The Research Council of Norway (RCN) at NHH (current)

Key research projects EU / RCN (current)			
EU Projects	NHH Role	Duration	
Fairness and the Moral Mind	Coordinator	2018	2024
Criminality, Victimization and Social Interactions	Coordinator	2018	2023
Understanding the global effect of corporate tax reforms	Coordinator	2020	2022
Human Capital and inequality during adolescence and working life	Partner	2018	2021
Growing up Unequal? The Origins, Dynamics and Lifecycle Consequences of Childhood Inequalities	Coordinator	2018	2021
Research Council of Norway Projects			
Centre for Experimental Research on Fairness, Inequality, and Rationality	Coordinator	2018	2027
NTRANS – Norwegian Center for Energy Transition Strategies	Partner	2019	2027
Climate Futures	Partner	2020	2028
Fair inequality and personal responsibility: The nature of inequality acceptance	Coordinator	2016	2021
Childhood gap, Parenting Styles and Life Time Inequality	Coordinator	2018	2023
Reducing Inequality Through Complementarities in Investments in Education and Health	Coordinator	2018	2022
Redesigning the Dividend Withholding Tax & Closing the Loopholes	Coordinator	2020	2024
Norwegian Center for Taxation	Coordinator	2017	2024
Freight Logistics in Smart Cities	Coordinator	2020	2024
Work skills for life: A work readiness program to prepare the transition from secondary school	Coordinator	2020	2024
Business model innovation and Ecosystems for Seamless Transactions in Retail	Coordinator	2021	2024
When macro meets micro: Global challenges and heterogeneous responses in Norway	Coordinator	2021	2027
Challenges to shaping an inclusive work life in rapidly changing labor markets: Firms, human capital, and family policy	Coordinator	2021	2027
Women in Economics Network	Coordinator	2019	2022
Meeting the Challenge to Change the Culture at NHH	Coordinator	2021	2022
Sustainable by Design: Experimentation for Sustainable Business	Coordinator	2019	2022

COVID-19 and Human Capital: Cataclysm and Catalyzer	Coordinator	2020	2022
Optimal risk based short term decision making for aquaculture	Coordinator	2020	2023
Incentives, access to capital, and innovation	Coordinator	2018	2021
Digital Audit	Coordinator	2018	2022
CEO Incentives, Wealth and Risk Aversion	Coordinator	2018	2021
Benefit Corporations	Coordinator	2021	2024

Appendix 3: Research centers at NHH with research related to the SDGs

SDGs	Research Centers with research related to the SDGs (reported by the research centers)
SDG 1. No poverty	FAIR
SDG 2. Zero hunger	-
SDG 3. Good health and well-being	-
SDG 4. Quality education	FAIR
SDG 5. Gender equality	FAIR, CCF
SDG 6. Clean water and sanitation	-
SDG 7. Affordable and clean energy	ENE
SDG 8. Decent work and economic growth	FAIR, CAM, BRANDINNOVA, CBE, CCF, DIGAUDIT, ENE, MACRO, CSL, CSB, DIG, NOCET
SDG 9. Industry, innovation, and infrastructure	CAM, BRANDINNOVA, CBE, CCF, DIGAUDIT, ENE, MACRO, CSL, CSB, DIG
SDG 10. Reduced inequalities	FAIR, NOCET
SDG 11. Sustainable cities and communities	CAM, BRANDINNOVA, CBE, CCF, DIGAUDIT, ENE, CSL, CSB
SDG 12. Responsible consumption and production	BRANDINNOVA, CBE, DIGAUDIT, ENE, CSL, CSB, DIG, NOCET
SDG 13. Climate action	CAM, ENE, MACRO, CSL
SDG 14. Life below water	BRANDINNOVA
SDG 15. Life on land	BRANDINNOVA
SDG 16. Peace, justice and strong institutions	NOCET

Task 3.1 Research Mapping Overview

University of National and World Economy (UNWE)

Section 1 SDG data analysis

Approach

The publication record of authors affiliated to UNWE has been extracted from Scopus bibliographic database covering the period 2015-2020. For this purpose the Scopus SDG-related search facility “UN Sustainable Development Goals 2020” has been used and for each selected SGD all publication records identified by the search engine have been extracted.

SDG publication overview

First of all it is necessary to clarify that there is no policy at UNWE to reflect the SDGs framework in conducting research work. It is based in large extent to personal scientific interests of different scholars and their associates. Currently UNWE supports the full autonomy of the academic staff in choosing the topic of their research work. The only recommendation in this respect is based on the principle that any lecturer should do research on topics related to, as much as possible, the thematic field of their teaching activity (i.e. courses delivered to BA, MA or PhD programmes).

The total number of publications with UNWE-affiliated authors (or at least one co-author) for the period 2015-2020 is **302**. Out of them, **108 titles (35,8%)** have been identified as SDG-related publications by the search engine applying the respective keywords. Table 1 presents the distribution of this selection by SDGs 2020. Based on this summary, Table 2 contains **5 SDG related topics** that could be outlined as key areas where relative concentration of publications is observed for UNWE-affiliated authors:

- 1) SDG-8: Decent work and economic growth
- 2) SDG-3: Good health and well-being
- 3) SDG-12: Responsible consumption and production
- 4) SDG-2: Zero hunger
- 5) SDG-11: Sustainable cities and communities

Publications clustered by top 5 SDGs cover two thirds of the total number of SGD-related publications (68,6%). The first two areas (8- Decent work and economic growth; 3- Good health and well-being) encompass 59% of these 74 titles which makes them the major SDGs that thematically focus the research interest of particular UNWE authors. Relatively lower number of titles are associated with SDG-12 but still other non-indexed publications are dealing with topics quite important for the socio-economic development of Bulgaria as former post-communist transition country, e.g. sustainable development, corporate social responsibility, consumer behaviour, sustainable supply chain, circular economy, sustainable tourism, etc.

Nonetheless, some areas with potential for further research at UNWE are not clearly identified by Scopus-indexed publications, yet a non-negligible number of UNWE authors work on related topics. Such SDGs are for example, but not exclusively, SDG-10 (e.g. migration, migrant remittances, migration policy; economic reform policies; income inequality, social exclusion; foreign direct investment, etc.) and SDG-16 (e.g. effective institutions; human trafficking;

democratization; political instability; public reforms, etc.). However, most of these publications are not indexed by Scopus/WoS but by other bibliographic databases (e.g. EBSCO, RePEc, CEEOL /Central and Eastern Europe Online Library/ or other) that showed to be more “cooperative” to the efforts of HEIs from CEE to enhance the visibility of their research outputs (especially if not written in English language).

Section 2 Research institutes or expert centres

UNWE consists of 8 Faculties encompassing 34 Chairs (Departments). UNWE has no regular staff on research positions – before anything else, any member of the full-time academic staff needs to teach annually a minimum of 200 lecture hours at a particular Chair. Research work is oriented to topics related to the department’s major area of teaching and has a key role to maintain the required level of scientific competences of UNWE lecturers: senior and junior faculty as well as doctoral students.

Research Institutes and Centres⁹ are virtual units for research collaboration that are administratively attached to particular departments, however, their operation follows rather a model of “research groups”. Additionally, UNWE Departments and associated units are supported administratively by university-level units e.g. Centre for Research and Educational Projects (university project office), University Centre for Career Development, University Mobility Centre, etc.

The major UNWE research institutes, centres, and research communities are hereafter shortly presented.

UNWE Monetary Research Centre¹⁰

The MRC incorporates associates not only from UNWE but also other institutions from Bulgaria and abroad. It has been established by the initiative of Prof. Nikolay Nenovsky¹¹, a leading Bulgarian researcher in monetary theory, economic history, and post-communist economy. MRC diffuses knowledge in economic history, monetary systems, policy and institutions and is focused on assessing alternative monetary institutions as well as the economic effects of monetary policies in Europe. Particular attention is paid to up-to-date issues of Bulgarian application to Eurozone and expected economic effects of euroization for small open economy like Bulgaria.

UNWE Institute of Economics and Politics¹²

IEP was created in 2016 as a successor of the Institute of Economic Policy at UNWE. Its main goal is the consolidation of UNWE expertise in economic policies put by national or supranational institutions, with a special focus on fiscal (taxation, debt, and budgetary) policies. Moreover, it strives to utilize its research results in the education processes in a way that contributes to the reputation of UNWE as leading higher education unit of national and regional

⁹ <https://www.unwe.bg/en/structure/render/478>

¹⁰ <https://mrcenter.info/>

¹¹ <http://nikolaynenovsky.com/>; <https://www.scopus.com/authid/detail.uri?authorId=55901444100>

¹² <https://www.unwe.bg/iep/en/>

rank. IEP Director is currently Associate Prof. Petar Chobanov (also, acting MP at the 46th National Assembly of Bulgaria).

UNWE Institute of Intellectual Property and Technology Transfer¹³

IIPPT was established in 2016 as a descendant of the former University Centre for Intellectual Property. Its name was altered in 2020 from “Institute of Creative Industries and Business”. IIPPT is a specific unit of UNWE for research and professional training of experts in the fields of intellectual property, cultural industries, and cultural heritage. In partnership with government institutions (e.g. Bulgarian Patent Office) it participates in the development of national legislation and strategic documents regarding intellectual property. IIPPT works in close cooperation with the World Intellectual Property Organization /WIPO/, the European Patent Office, the Regional Centre for Safeguarding of Intangible Cultural Heritage in Southeast Europe (under the auspices of UNESCO) etc. Currently, its Director is Prof. Vladya Borissova, also acting Chairwoman of the Patent Office of Bulgaria¹⁴.

UNWE Institute of Entrepreneurship¹⁵

IE is a successor of the former UNWE Institute of Entrepreneurship Development (est.1997), the latter considered as a pioneer in research in SME management and entrepreneurship development in Bulgaria. The academic staff of IE includes young assistant and associate professors as well as lecturers with experience in teaching, research and consultancy in the field of entrepreneurship and small business. In its educational and training work IE academic staff relies on various results achieved by national and international projects implemented by the institute in the last 20 years. The main research interests of its staff are in: creating and managing a small business, including family business; entrepreneurial management and growth of SMEs; development of entrepreneurial culture; clusters, subcontractors and entrepreneurial business networks; psychology of entrepreneurship, social entrepreneurship, and entrepreneurship in international environment. IE Director is Associate Prof. Kostadin Kolarov.

Research work at UNWE is performed in large extent by different **research groups** – informal setting of lecturers affiliated to UNWE that focus their research on topics of common interest. Hereafter, short depiction of selected research groups is presented.

RG “Disaster Risk Reduction”

Research topics of interest to this RG cover a wide range of types of disasters for which risk analysis is conducted using modern ICT. Academic staff associated to this RG is recruited mainly from two UNWE departments: “ICT” and “National and Regional Security”. Representatives of this RG regularly participate in the events organized by the International Federation for Information Processing (IFIP), particularly IFIP Working Group 5.15 “Information Technology

¹³ <https://iippt.unwe.bg/en>

¹⁴ <https://www.bpo.bg/en/about/struktura-i-upravlennie>

¹⁵ <https://www.unwe.bg/en/structure/render/601>

in Disaster Risk Reduction” – particularly, international forums for researchers and practitioners to present their latest findings, oriented to facilitation of decision-making processes from the point of view of disaster risk reduction. Leading researchers in this RG are: Prof. Dimitar Velev (Department of ICT), Associate Prof. Plamena Zlateva and Associate Prof. Georgi Penchev (Dept.of National and Regional Security).

RG “Migration”

UNWE researchers in the field of migration focus their work on two major topics of special importance for Bulgarian society and economy: emigration (including intra-EU labour mobility), and return / circular migration of Bulgarians. Representatives of this RG conduct interdisciplinary research using empirical data collected by both sample questionnaire surveys and in-depth interviews. Migration of Bulgarian population is one of the most significant societal challenges for the country in both periods of post-communist transition and EU membership (due to the substantial loss of population and labour force). Phenomena related to both high and low skill labour segments are of particular interest, including transnationalism and circular modes of migration trajectories. Focus is also put on issues of policy making of Bulgarian government concerning both domestic policies as well as common EU issues of external migration inflows and integration. Leading researchers in this RG are the following associate professors: Andrey Nonchev (Dept.of Sociology), Maria Bakalova (Dept.of International Relations), and Venelin Boshnakov (Dept.of Statistics and Econometrics).

RG “Defence & Security”

This RG is also participating in the activities of the Centre for Strategic Studies in Defence and Security and the Centre for Nuclear Security Support. Its research interests are oriented to a variety of issues related to two major areas: Economics of Defence, and Security Management. Related topics of research are also defence industry, business / corporate security, energy security (particularly, security in nuclear industry), etc. Leading researchers in this RG are: Prof. Dimitar Dimitrov (Rector of UNWE), Associate Prof. Svetoslav Spassov (Permanent Representative of the Republic of Bulgaria to the UN Organization for Security and Cooperation in Europe), Associate Prof. Tsvetan Tsvetkov, Associate Prof. Noncho Dimitrov (Dept.of National and Regional Security), etc.

RG “Business Logistics & Supply Chain”

UNWE academic staff focusing on business logistics issues involves mainly representatives of the Department of Logistics and Supply Chains. Research interests here include fundamentals of business logistics, economics and management of supply chains, digital transformation of logistics services, challenges of EU membership of Bulgaria and development of logistics services and hubs, etc. Leading researchers in this RG are: Prof. Miroslava Rakovska, Associate Prof. Maria Vodenicharova, Associate Prof. Nikolay Dragomirov, Assistant Prof. Petya Fileva, etc.

RG “Sustainable Development”

This RG is also participating in the activities of the UNWE Centre for Sustainable Development. Its research puts focus on a variety of sustainable development issues that are of particular importance for Bulgarian economy and society, e.g. green work places (jobs of the future), social inequalities and convergence, ecologically responsible economic development and competitiveness. Recent issues in the focus are also circular economy, collective waste management, low-carbon industry restructuring, deforestation, etc. Leading researchers in this RG are: Prof. Rumen Gechev (also, acting MP at the 46th National Assembly of Bulgaria), Assistant Prof. Steryo Nozharov, and Assistant Prof. Ivan Bozhikin (Dept.of Economics).

RG “Project Management”

UNWE academic staff focusing on project management issues involves mainly /but not exclusively/ representatives of the Department of Management. Research interests here include fundamentals of project management, project portfolio management, agile project management, globalization and virtual project teams, open innovation and project culture, EU funded programs and their role for socio-economic reforms and development of project-oriented businesses, etc. Leading researchers in this RG are: Prof. Matilda Alexandrova, Associate Prof. Liliana Stankova, and Assistant Prof. Maria Mladenova (Dept.of Management)

RG “Green Economy & Eco-innovations”

Representatives of UNWE Department of Economics of Natural Resources have research interests in topics related to green economy and environmental-friendly businesses. Issues of interest here are, in particular, ecological innovations in production, environmental management systems, quality management, etc. Leading researchers in this RG are: Prof. Daniela Ivanova, Prof. Elka Vassileva, Associate Prof. Nina Tipova, Associate Prof. Stilian Stefanov, etc.

RG “Business Culture & Corporate Social Responsibility”

Members of UNWE academic staff from various departments focus their research interests on issues related to the development of managerial culture and skills in business industries, particularly corporate social responsibility. Topics here include also leadership models, business networking, innovations & business innovation policy, etc. Leading researchers in this RG are: Prof. Diana Kopeva (ex-member of Managerial Board of the National Science Fund of Bulgaria), Prof. Miroslava Pencheva, Prof. Tsvetana Stoyanova, Prof. Nikolay Shterev, Associate Prof. Zornitsa Yordanova, Associate Prof. Dimitar Blagoev, Associate Prof. Kiril Dimitrov, etc.

Section 3 Main and emerging research themes (interesting future directions)

Several research themes seem to be of special interest at UNWE according to the strategic perspectives of development of Bulgarian Higher Education and Research area, outlined in the respective national strategic documents for the 3rd decade of XXIst century. Bulgarian Universities and the National Science Complex (institutes of the Bulgarian Academy of

Sciences) are strongly advised to focus on hot topics concerning the restructuring and renewal of Bulgarian industry. The major aspects in this respect is: clean energy policy (current high dependency on fossil fuels); decreasing air / soil / waters pollution; promoting secure / organic foods; transforming the ineffective low-skill / low technology industries and boosting the knowledge economy; guarantee of the rule of law and national security amidst waves of migration crisis.

Hereafter some major directions /but not exclusive/ for future research at UNWE are outlined.

- **Big Data and Digitalization** – UNWE develops a network within Inter-University Centre of Competence in Big Data and Digital Economy. Institution-building work is currently performed in the framework of an EU funded project “Digitalization of Economy in a Big Data Environment” 2018-2023 (Operational Programme “Science and Education for Smart Growth”). Project leader is the Rector (Prof. D. Dimitrov) and the Competence Centre is coordinated by a team led by Prof. Valentin Kisimov, Prof. Kamelia Stefanova, Associate Prof. Lyuben Boyanov and others from UNWE Department of ICT.

- **Sustainable and Circular Economy** – work on this topic has already started but is at initial level currently. The issues of its scope are crucial for the redesign and restructuring of the Bulgarian Manufacturing industries, most of which still operate much below the contemporary requirements for sustainability (e.g. energy over-consumption, industrial emissions and environmental spill-overs, improper waste management, lacking or inadequate recycling practices, etc.). Perspectives for applied research targeted in policies and strategic reforms in this direction are clear and promising.

- **Industry 4.0** – the topic appears as new and under-studied at UNWE, however, research interests have been expressed in this direction. The goal is to implement an interdisciplinary approach to some major issues concerning Industry 4.0 and its societal impacts – e.g. challenges of digital transformations / digitalization of the enterprise and digital competitiveness, relevant human resource development, etc. Particular issue in this respect is the ongoing debate in Bulgaria that has not yet been resolved – how to transform the existing Bulgarian high-tech (digital) industries from their current status of /predominantly/ outsourcers and vendors into a renewed “knowledge based economy”: a sector of services generating higher value added. There are still “stigma” arguments that a post-communist transition economy is doomed to substantially lag behind even from the EU average (although, positive examples exist like Slovenia, Estonia, Czechia).

- **Eurozone membership of Bulgaria** – economic policy topic that focuses the attention of financial and macro-economists interested in Eurozone membership issues. The topic is a refreshment of an older debate on the monetary policy reform in Bulgaria after the 1996-97 hyperinflation crisis and the introduction of the Currency Board Arrangement. Since then, Bulgarian national currency is fixed to the Euro (via the Deutsche Mark for 1997-1998) and the Bulgarian National Bank cannot use a range of monetary policy tools for traditional intervention on the currency and debt markets. Pros and cons of “not having an independent monetary policy” (as a sovereign state) have been comprehensively debated for over 20 years now, and the argument has now been transferred into the current framework of Exchange Rate Mechanism (ERM II since 2020) and perspectives for full Euroization in Bulgaria.

- **Pandemic management and post-Covid recovery** – recently emerged topic, however, of substantial social and academic interest with a variety of implications. Extremely promising for interdisciplinary research with the involvement of social science representatives. Particularly, interests are expressed in business challenges like: digital/online platforms for doing business, including retail trade and dispatching of traded goods; digital marketing; digital banking and insurance, etc. Societal challenges are identified like: social isolation and its psychological effects on the labour force; social networking via social media and online tools; online educational and training modes and effective tools; etc. Arguments emerge that, even if Covid-19 pandemic waves were terminated, the world has been changed in such a drastic way that business operations and social interactions **cannot** get back “to be the same” as up to 2019.

Appendix

Table 1. Publications of UNWE-affiliated authors by SDGs

No	SGD	Count
1	No poverty	0
2	Zero hunger	9
3	Good health and well-being	18
4	Quality education	0
5	Gender equality	0
6	Clean water and sanitation	0
7	Affordable and clean energy	8
8	Decent work and economic growth	26
9	Industry, innovation and infrastructure	7
10	Reduced inequalities	5
11	Sustainable cities and communities	9
12	Responsible consumption and production	12
13	Climate action	4
14	Life below water	0
15	Life on land	5
16	Peace, justice and strong institutions	5
	Total	108

Table 2. Top 5 SDGs focusing the majority of publications of UNWE-affiliated authors

No	Major SGD	Count
8	Decent work and economic growth	26
3	Good health and well-being	18
12	Responsible consumption and production	12
2	Zero hunger	9
11	Sustainable cities and communities	9
	Total	74

Task 3.1 Research Mapping Overview WU Vienna

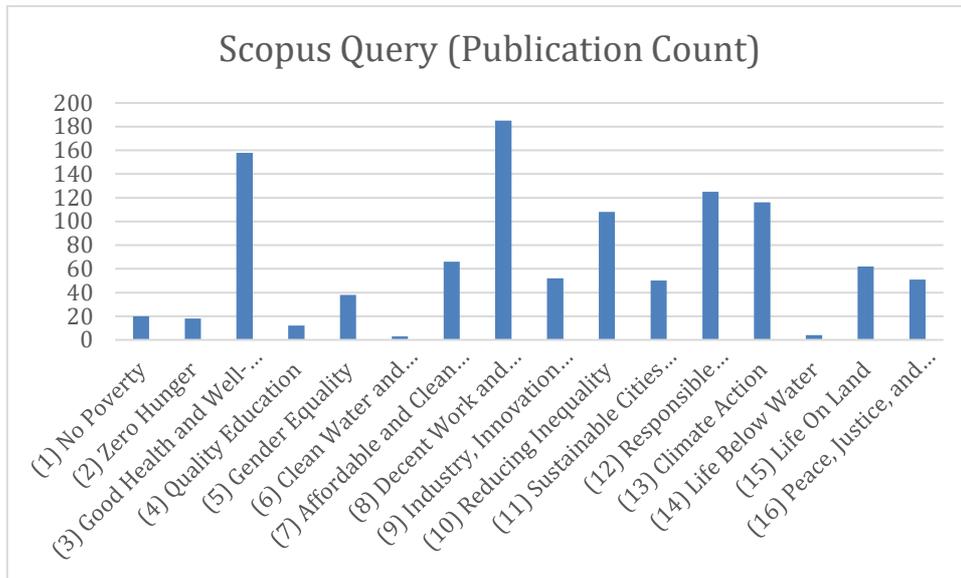
Section 1 SDG data analysis

Approach

At WU Vienna (WU), we followed a three-step procedure mapping and analysing SDGs covered in past and ongoing research. In the first step, we deployed a bibliometric analysis using Scopus search strings (Jayabalasingham et al., 2019) for the time period from 2010 until 2020. In a second step, we conducted a survey among WU scholars where we asked them to self-classify SDGs they address in their own research. The survey intended to safeguard against disciplinary and language bias since several departments at WU conduct research in German and languages other than English. In addition, we found scholars' subjective perspectives on their SDG focus to not necessarily align with the Scopus search strings. In a third step, we analysed qualitative materials available that provided insights into WU research, specifically WU's research impact report (WU Vienna, 2019) that portrays the range and diversity of research activities from the perspective of the SDGs. In addition, we examined ongoing, large-scale third-party funded research projects with volumes of more than €300,000. We focused on projects that had started between 2016 and 2020 and had gone through peer evaluation through the Austrian Science Fund (FWF), the European Union, and the Austrian Research Promotion Agency (FFG).

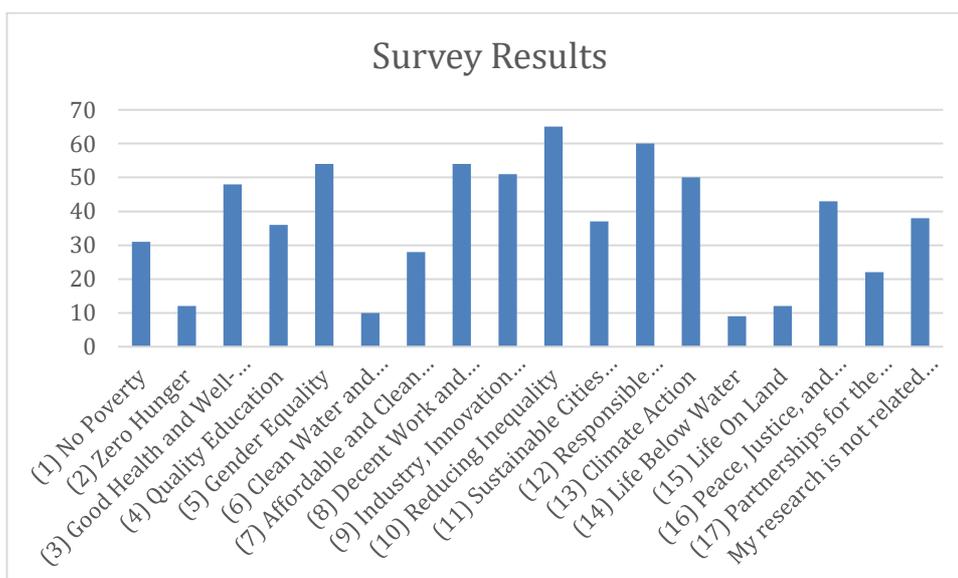
SDG publication overview

From the Scopus query, 1,068 research items emerged. These included journal articles, book chapters, and conference proceedings. In terms of SDGs, the most common ones were SDG 8 – Decent Work and Economic Growth (185 items), SDG 3 – Good Health and Well-Being (158 items), SDG 12 – Responsible Consumption and Production (125 items), SDG 13 – Climate Action (116 items), and SDG 10 – Reduced Inequalities (108 items). Among the least common SDGs were SDG 2 – Zero Hunger (18 items), SDG 4 – Quality Education (12 items), SDG 14 – Life Below Water (4 items), and SDG 6 – Clean Water and Sanitation (3 items). When only considering journal articles in highly regarded and world-class journals according to the 2018 academic journal guide (ratings 3 – 4*) (CABS, 2018), these SDG patterns correspond largely.



WU-wide survey

The WU-wide survey yielded 207 complete responses. The analysis showed that the most commonly reported SDGs were 10 – Reducing Inequalities (31%), 12 – Responsible Consumption and Production (29%), 5 – Gender Equality (26%), and 8 – Decent Work and Economic Growth (26%). Across law departments, that were not covered by the Scopus query we found that SDG 16 – Peace, Justice and Strong Institutions (13 self-categorizations) was by far the most common self-categorization.



Qualitative Analysis

WU's research impact report concluded a strong focus on SDGs 8, and 12, in alignment with the Scopus findings. In addition, the report suggests considerable attention to SDG 9 – Industry, Innovation and Infrastructure and SDG 16. Corresponding to the Scopus analyses, the impact report identified SDGs 6 and 14 as comparably less considered. The same applies to SDGs 7 – Affordable and Clean Energy and 15 – Life on Land. Analysing ongoing large-scale projects revealed considerable consideration of SDGs 12 and 9, and relatively less focus on SDGs 13 and 10.

Summary

Overall, examination of the Scopus outcomes, survey responses, and WU' research impact report as well as large-scale research projects indicates a wide range of SDGs covered. The most commonly addressed SDGs according to our mapping seem to be 8, 9, 10, 12 and 16 since they exhibited in more than one of the three steps taken. They underline WU's natural emphasis on economics and business, equally though indicate focus areas that pertain to social and environmental aspects of sustainable development.



References:

- CABS. (2018). Chartered Association of Business Schools—Academic Journal Guide 2018. *Chartered Association of Business Schools*. <https://charteredabs.org/academic-journal-guide-2018/>
- Jayabalasingham, B., Boverhof, R., Agnew, K., & Klein, L. (2019). *Identifying research supporting the United Nations Sustainable Development Goals. 1*. <https://doi.org/10.17632/87txkw7khs.1>
- WU Vienna. (2019). *Research Impact*. <https://www.wu.ac.at/en/research/research-impact>

Section 2 Research institutes or expert centres

WU's spectrum of research expertise spans a wide variety of disciplines and is continually expanding. It is concentrated within departments, research institutes, and – with a more research-disseminating focus – competence centres. Structurally, WU's main research areas are reflected in its 11 departments, as defined by WU's Organizational Structure Plan. However, at WU interdisciplinary research areas are also organized the form of research

institutes, located outside of the department structure. In addition, WU's research institutes contribute greatly to strengthening the university's international profile in research. Usually, a large proportion of work within WU's research institutes is funded by third parties. WU's competence centres are designed to coordinate research in specific, interdisciplinary areas that are particularly important with regard to third mission activities and knowledge transfer.

The following list includes some of the most relevant research institutes and competence centres in terms of work related to one or more of the SDGs indicated in the last section.

- Research Institute for International Taxation
- Research Institute for Spatial and Real Estate Economics
- Research Institute for Regulatory Economics
- Research Institute for Supply Chain Management
- Research Institute for Urban Management and Governance
- Research Institute for Economics of Inequality
- Competence Center for Nonprofit Organizations and Social Entrepreneurship
- Competence Center for Sustainability Transformation and Responsibility

WU's almost 1,600 researchers, faculty, and academic staff members represent a diverse range of academic disciplines, from business administration and economics to law, social and formal sciences as well as linguistics and language studies. They generate research in a variety of different fields and address topics that overlap with the five SDGs defined in section 1. The following table provides some examples of departments and research units as well as researchers who are (among many others) active in these areas.

SDGs	Research Units (examples)	Researchers (examples)	Research topics (examples)
8 Decent work and economic growth	<ul style="list-style-type: none"> - Department of Economics - Institute for Ecological Economics - Institute for Austrian and European Labor Law and Social Security Law 	<ul style="list-style-type: none"> - Jesus Crespo Cuaresma - Armon Rezai - Auer-Mayer, Susanne 	<ul style="list-style-type: none"> - Prospective ageing and economic growth - Integrated approach to climate change, income distribution, employment, and economic growth - Labour law and disability issues
9 Industry Innovation and Infrastructure	<ul style="list-style-type: none"> - Institute for Entrepreneurship and Innovation - Institute for Managing Sustainability - Institute for Multi-Level Governance and Development 	<ul style="list-style-type: none"> - Nikolaus Franke - Robert-Andre Martinuzzi - Stefanie Peer 	<ul style="list-style-type: none"> - User Innovation - Measuring the impact of CSR - Transport economics
10 Reduced Inequalities	<ul style="list-style-type: none"> - Research Institute for Economics of Inequality - Institute for Ecological Economics - Institute for Sociology and Social Research - Department of Economics 	<ul style="list-style-type: none"> - Heitzmann, Karin - Armon Rezai - Hofbauer, Johanna - Alyssa Schneebaum 	<ul style="list-style-type: none"> - Over-indebtedness in Europe - The Gender Wealth Gap Across European Countries - Climate policy and inequality

12 Responsible Consumption and Production	<ul style="list-style-type: none"> - Competence Center for Sustainability Transformation and Responsibility - Department of Marketing - Institute for Ecological Economics 	<ul style="list-style-type: none"> - Elfriede Penz - Günter Stahl - Stefan Giljum - Christina Holweg 	<ul style="list-style-type: none"> - Retail store operations and food waste - Spatially explicit material footprints - Sharing economy - Promoting corporate social responsibility
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SDGs	Research Units (examples)	Researchers (examples)	Research topics (examples)
16 Peace, Justice and strong institutions	<ul style="list-style-type: none"> - Research Institute for Urban Management and Governance - Department for Public Law and Tax Law - Department of Private Law 	<ul style="list-style-type: none"> - Renate Meyer - Karoline Spies - Martin Spitzer 	<ul style="list-style-type: none"> - Liability for Climate Change: Cases, Challenges & Concepts - Tax Transparency - Tax Literacy und Tax Compliance - Organizational Resilience in a City Context

Finally, we list some of WU's third-party funded research projects, also related to the five key SDGs. Also this list is not intended to be exhaustive.

- FWF Austrian Science Fund: Gender and Economy in Transition
- FWF Austrian Science Fund: Collaborative Consumption
- FWF Austrian Science Fund: When NPOs become like companies
- Horizon2020: Minerals Policy Guidance for Europe
- Horizon2020: COMPASS Evidence and opportunities for responsible innovation in SMEs
- Horizon2020: FINEPRINT (Spatially explicit material footprints: fine-scale assessment of Europe's global environmental and social impacts)
- Horizon2020: Cascades: CAScading Climate risks: towards ADaptive and resilient European Societies
- Horizon2020: PERCEIVE Perception and Evaluation of Regional and Cohesion policies by Europeans and Identification with the Values of Europe

Section 3 Main and emerging research themes (interesting future directions)

The table in section 2 already listed some of the research topics related to the five key SDGs. One of the key emerging themes of the future will be digitalisation. WU is addressing this challenge by adopting a new focus on the digital economy in its research and teaching activities and expanding the discourse on sustainability into a discourse on responsibility. Developing and implementing a WU in-house digitalization strategy is one of the key items on the agenda.

In order to establish this new focus at the university, WU established the following professorships with a focus on digitization.

- Digital Ecosystems (Verena Dorner)
- Distributed Ledgers and Token Economy (Davor Svetinovic)
- Marketing in a Digital Economy (Christina Schamp)
- Strategic Business Analytics
- Microeconomics and Digitalization (Gerlinde Fellner-Röhling)
- Austrian and European Labor Law and Social Security Law with focus on digitalization (Susanne Auer-Mayer)
- Macroeconomics and Digitalization (Klaus Prettnner)
- Competition Law and Digitalization (Viktoria H.S.E. Robertson)

Outcome of the mapping and conclusion

As anticipated in the introduction, the mapping exercise has been a truly collaborative endeavor amongst the task 3.1. team members of the seven partner institutions. Starting from a brainstorming exercise, it has been carried out as a learning process also entailing an effective cooperation amongst the Universities.

The mapping has revealed that there are indeed some SDGs that have formed the main targets of the scientific investigation and research within the Consortium. Based on the keywords selected for each SDG, Goal no. 8 “Decent Work and economic growth” features amongst the top five most covered SDGs in all the seven ENGAGE.EU partners. Goal no. 3 “Good health and well-being” follows, as six partner Universities (UMA, Toulouse I Capitole, NHH, TiU, WU, UNWE) have ranked it amongst the top five most covered SDGs in the research activities and Goal no. 16 “Peace, justice and strong institutions” is third in this ranking appearing as one of the top five most investigated SDGs in five Universities (UMA, LUISS, NHH, TiU, WU).¹⁶ Also Goals no. 2 “Zero Hunger”, 10 “Reduced inequalities”, and 12 “Responsible consumption and production” have received significant coverage within the ENGAGE.EU partners’ research activities, being amongst the top five most considered SDGs in three partner institutions (respectively, no. 2 - at Toulouse I Capitole, NHH, UNWE; no. 10 - at UMA, TiU and WU; no. 12 - at LUISS, WU and UNWE).¹⁷

Research Mapping by SDGs¹⁸

University/SDGs ¹⁹					
UMA	3	5	8	<i>10</i>	16
Toulouse I Capitole	1	2	3	8	9
LUISS	5	8	9	<i>12</i>	16
NHH	2	3	7	8	16
Tilburg Univ.	3	8	<i>10</i>	13	16
WU	8	9	<i>10</i>	<i>12</i>	16
UNWE	2	3	8	11	<i>12</i>

1. No poverty
2. Zero hunger *(in three partners)*
- 3. Good health and well-being (in six partners)**
4. Quality education
5. Gender equality
6. Clean water and sanitation
7. Affordable and clean energy

¹⁶ The references to these three Goals (nos. 8, 3 and 16) are reported in bold in the table below.

¹⁷ They are reported in italics in the table below.

¹⁸ For a more fine-grained analysis, please refer to the synthetic documents on partner institutions collected in the main body of this Report. Indeed, the order in which the goals are reported in the table (which follows the UN list) does not necessarily respect the order within each University ranking of the most widely covered SDGs.

¹⁹ Five SDGs most covered by the Faculty’s research publications at the seven ENGAGE.EU partners.

8. Decent work and economic growth (in all seven partners)

9. Industry, innovation and infrastructure

10. *Reduced inequalities (in three partners)*

11. Sustainable cities and communities

12. *Responsible consumption and production (in three partners)*

13. Climate action

14. Life below water

15. Life on land

16. Peace, justice and strong institutions (in five partners)

The overview shows that there are certain Goals and related societal challenges that have triggered the greatest attention so far as the research focus of the partners' Faculties. This is already a first evidence on which the partnership and the Consortium can build to foster the cooperation for what concerns research activities and innovation.

When looking at the keywords and the sub-topics (as well as the 169 targets) through which the SDGs can be unpacked one can easily notice that, for example, under SDG no. 8 issues surrounding the theme of digitalization feature prominently. Under SDG no. 3 environmental sustainability is frequently the target of academic attention. By the same token, under SDG no. 16 research outputs on migration and on rule of law problems are often present.

The analysis has been complemented by a more forward-looking approach to the emergent research themes in the Consortium (see section 3 in the synthetic document for each partner). From such analysis it has emerged that, besides themes that are more University-specific, there are two main research priorities in most, if not all, ENGAGE.EU partners, notably digitalization (including digital transformation and innovation, digital business, industry 4.0, the use of big data and of artificial intelligence, technology transfer, social networks) and environmental sustainability (including climate change, circular economy, ecological transition, sustainable growth, and well-being).