ZSI

ZENTRUM FÜR SOZIALE INNOVATION

CENTRE FOR SOCIAL INNOVATION

TRANSFORMATION AND IMPACT

Responsible social sciences for a sustainable future

"ALL INNOVATIONS ARE SOCIALLY RELEVANT"

ZSI is an applied social scientific institute that contributes to mitigating social challenges by providing scientific evidence for decision-making and by developing concepts for the implementation of interventions in various policy areas and societal fields.

As an innovation research institute, ZSI has dealt with social innovation as of its foundation in 1990.

ZSI IN A NUTSHELL

ACHIEVEMENTS

- ZSI's experts have successfully implemented more than 1,000 high-impact projects across the globe
- Our clients include ministries, municipalities, the European Commission (EC), Council of the European Union (EU), the European Parliament (EP), the Organisation for Economic Co-operation and Development (OECD), the International Labour Organization (ILO), other public bodies, non-governmental organisations (NGOs) and research organisations from various fields and countries
- As of Framework Programme (FP) 5, the institute has been the most successful Austrian social science organisation involved in the European FPs for Research and Innovation (R&I)
- In both FP7 and Horizon 2020 (H2020), we have had more than 40 successful projects funded, of which we co-ordinated a quarter each – this is the best input/output relation in terms of research and development (R&D) personnel in Austria
- We are involved in several large strategic European Framework Contracts
- We implement several contracts in the field of foreign assistance programmes
- We are used to successfully realising diverse types of projects (research, evaluation, training, co-ordination and networking services, consulting, science-society projects, strategy facilitation)
- We effectually organise large international conferences and have provided our services for several events implemented under recurring Austrian Presidencies of the EU Council
- ZSI hosts the Austrian Platform for Research and Technology Policy Evaluation, of which all major research ministries and funding organisations are members
- ZSI operates the official »European Research Area (ERA) Portal Austria[1], which contains all relevant information about H2020, Horizon Europe and ERAs
- Together with partners we draft the yearly status report on science and R&I in Austria delivered to the Parliament
- Our experts are involved in several national strategy processes, provide facts for decision-making, facilitate consultative strategy processes, develop concepts, intervention strategies and specific measures for various policy fields (examples of involvement are the Austrian Climate and Energy Strategy, the Austrian Social Sciences and Humanities (SSH) Strategy, the Austrian RTI Bioeconomy Strategy, the Austrian Beyond Europe Strategy, the FP9 Think Tank and the Human Potential Strategy in Research, Technology and Innovation)
- Our experts provide several professional trainings in various formats

ATTITUDE

- We are customer- and output- as well as outcome-oriented
- We are methodologically robust and aim to work ahead of others in scouting innovative trends
- We are flexible but always evidence-based
- We work analytically and value-driven
- The institute is politically, legally and financially independent and self-governed

https://www.era.gv.at

DEAR READERS,

ZSI is celebrating its 30th birthday this year.

During the last three decades ZSI has become an internationally acknowledged research organisation and for almost two decades we have been Austria's most successful social scientific research organisation within the successive European Programmes for R&I (FP5, FP6, FP7, H2020). We are proud to have contributed to sustained positive impacts through our worldwide efforts and to have made the world somewhat more reflective, more innovative, more inclusive and more resilient.

Thematically we are concerned with issues of labour market formation, migration and integration, social innovation and social entrepreneurship, social inclusion and equal opportunities, responsible socio-technical innovations, participatory technology creation and assessment, transformative regional development, sustainable national and European science and R&I policies, support for international R&I co-operation, techno-globalisation and robust and balanced monitoring and evaluation.
We have been participating in the "European Champions League" with some of these topics and in the "Europa League" with others, while addressing yet others at the national and local levels.

As a private non-profit research institute doing without a publicly subsidised infrastructure, we depend heavily on current needs and developments. However, our independence, set of scientific and responsible values, focus on results, methodological and content-related adaptability, technical and social skills as well as the necessary mix of funding and public contract research together ensure that

we can continuously work as an applied research institute, striving likewise for scientific truth and excellence as well as for positive societal impacts.

Against this background, we are committed to continuous development and improvement. Though the complexity, challenges and requirements are increasing, we face them with robust system analysis and responsible system design.

Our ambition to research and to develop and pilot alternatives that are fair to all of society and embedded within our planetary boundaries is expressed in this booklet. However, we can do little without you. We thus look forward to co-operating in order to do things even better in the future!

Yours sincerely
Klaus Schuch & Wolfgang Michalek

SOCIAL INNOVATION

Social innovation has been the cornerstone of ZSI since the institute's establishment 30 years ago. Together with our global network of partners, ZSI has had a hand in the establishment of social innovation as a guiding policy concept in Europe. ZSI subscribes to a pragmatic definition of social innovation as *"a new combination or figuration of practices in areas of social action, … with the goal of better coping with needs and problems than is possible by use of existing practices. An innovation is therefore social to the extent that it varies social action, and is socially accepted and diffused in society. Depending on circumstances of social change, interests, policies and power, social ideas as well as successfully implemented SI may be transformed and ultimately institutionalised as regular social practice or made routine"* (Howaldt et al. 2014)[2].

There is considerable overlap as well as complementarity between social and technological innovations. Social innovations are increasingly being implemented through digital means, and digital and other technological innovations require complementary changes in social practices to succeed. Yet social innovations take varied functions in ever-changing socio-cultural environments: they enable or complement other social changes, compensate or "repair" the results of unfavourable changes and may modernise or transform social fields or entire societies. Social innovations thus range from small-scale local responses to far-reaching systemic transformations.

ZSI has co-organised the largest conferences on social innovation in Europe, including *"Pathways to Social Change"* in 2015 and *"Challenge Social Innovation"* in 2011. It has organised and contributed to several Social Innovation Summer Schools and participated in research into and the implementation of social innovation projects across Europe.

The institute is a founding member of the »European School of Social Innovation[3].

We provide theoretical insight, empirical evidence, a wide range of experience with social innovation across various fields of practice and policy. We have operational capabilities to facilitate the empowerment of citizens and people at large and to evaluate the social usefulness of changing practices and policies.

In the field of **science policy** in particular, areas of expertise, such as citizen science (CS) and responsible R&I (RRI), can be considered social innovations in themselves. These approaches support scientists in their changing public and social roles and responsibilities, while opening up science and the humanities to civil society in order to render expertise and knowledge more useful to social and democratic purposes. In this connection, it is worthwhile to mention that ZSI is Austria's leading excellence organisation in the H2020 *'Science with and for Society'* scheme.

HIGHLIGHT
ZSI is a founding member of the European School for Social Innovation and of the Austrian RRI Platform and a member of the Austrian Alliance for Responsible Science.

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2   Howald, J., Kesselring, A., Kopp, R. and Schwarz, M. (2014). Social Theory. In: Howaldt, J., Butzin, A., Domanski, D., & Kaletka, C. (eds). Theoretical Approaches to Social Innovation - A Critical Literature Review. A deliverable of the project: "Social Innovation: Driving Force of Social Change" (SI-DRIVE). Dortmund: Sozialforschungsstelle.
3   http://www.essi-net.eu

INTERESTED IN LEARNING MORE ABOUT SOCIAL INNOVATION?

- Take Part in the »Social Innovation Academy[4], an on-line course for social entrepreneurs and innovators

- Read the two editions of the »Atlas of Social Innovation[5]

- Consult the »Lisbon Social Innovation Declaration - Social Innovation as a path to a sustainable, resilient and inclusive Europe[6] (2018) and the »Vienna Declaration: The Most Relevant Topics in Social Innovation Research[7] (2011)

OUR SOCIAL INNOVATION REFERENCES INCLUDE AMONG OTHERS:

- » SI-DRIVE: Social Innovation - Driving Force of Social Change[8], an analytical research project about theories, characteristics and practices of social innovation (FP7)

- » The establishment and roll out of the European »Social Innovation Community[9] (Horizon 2020)

- » Central European Rural Social innovation[10] (INTERREG Central Europe)

- » Several projects dealing with social entrepreneurship and social business funded by INTERREG (such as »SENSES[11], »RaISE '[12], »Social(i)Makers[13])

» Integrating social innovation in formal and informal learning is the focus of »DO-IT[14] promoting maker skills for young social innovators (Horizon 2020)

» Prominent examples for socially innovative science policies and science formats are prompted by our projects »NewHoRRIzon[15] and »EU-Citizen.Science[16] (both Horizon 2020)

» Various successful pilot projects on digital social innovation ('collective awareness platforms') and in the sphere of the maker movement and citizen science (e.g. »CAPTOR[17], » MAKE-IT[18], »CAP4Access[19]).

HIGHLIGHT: REFLECT ON YOUR RRI PRACTICES!

ZSI developed and co-ordinated the implementation of a »self-reflection tool[20] to improve RRI practices. Twenty-seven consultation workshops in 30 European countries contributed to refining the definitions used in the tool[21]. The reflection guide covers RRI Policy Dimensions such as Ethics, Gender Equality, Governance, Open Access, Public Engagement and Science Education. An important objective of the tool is to gain an overarching view and to promote discussions amongst stakeholders. By using the tool, participants receive feedback for RRI development planning.

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4	https://skyrocketplatform.eu/en/academy
5	https://www.socialinnovationatlas.net
6	https://www.zsi.at/de/object/publication/5061
7	https://www.siceurope.eu/sites/default/files/field/attachment/Vienna-Declaration_version-01-for-discussion.pdf
8	http://www.si-drive.eu
9	https://www.siceurope.eu
10	https://www.interreg-central.eu/Content.Node/CERUSI.html
11	http://www.interreg-danube.eu/approved-projects/senses
12	https://www.interregeurope.eu/raise
13	https://www.interreg-central.eu/Content.Node/Social(i)Makers.html
14	https://doit-europe.net
15	https://newhorrizon.eu
16	https://eu-citizen.science
17	https://www.captor-project.eu/en
18	http://make-it.io
19	https://www.zsi.at/en/object/project/2988
20	https://www.rri-tools.eu/self-reflection-tool#how-it-works
21	Marschalek, I., Schrammel, M., Unterfrauner, E., & Hofer, M. (2017). Interactive reflection trainings on RRI for multiple stakeholder groups. Journal of Responsible Innovation, 4(2), 295–311.

TRANSFORMATIVE RESEARCH

The scope of transformative third-generation policy goes well beyond that of previous R&I policies. The transformative approach needs social legitimacy and ZSI has been working on this since its foundation. We show how citizens and various stakeholder groups can ethically and meaningfully be involved in creating, steering and implementing R&I. Our belief is that R&I is not merely done by generating new knowledge and innovation.

To tackle societal challenges requires large-scale changes in society, as well as a different understanding and conduct of R&I and R&I policy-making.

We thus experiment and analyse ethical procedures to include various stakeholder groups and citizens in R&I agenda-setting, engagement and involvement in R&I processes and in R&I evaluation. Our practice partners are well-known R&I funding agencies from all over Europe, such as the Austrian Research Promotion Agency (FFG), EUREKA, the Research Council of Norway, VDI/VDE, the Brussels Institute for R&I (INNOVIRIS), NESTA and several others (» PRO-ETHICS[22]).

In Horizon Europe, the EC plans to operationalise so-called missions to meet certain transition challenges. Rapidly after announcing this approach, our experts carried out a foresight process for the mission board dealing with ad-

aption to climate change, including societal transformation, in order to identify mission priorities (»FORESIGHT ON DEMAND – CLIMATE MISSION[23]). Besides looking ahead, moving downstream from R&I to implementation is also becoming more important in transformative processes. An example for this is the reconfiguration of health care sectors in an attempt to create more open, inclusive and self-sustaining territorial R&I ecosystems, to which we contribute with colleagues in Cyprus, Spain and Sweden (»CHERRIES[24]). For transformative approaches, it is also crucial to much more closely approximate the market and users than is the case in second-generation R&I activities and institutions. To this end, we are involved in breaking down ivory towers as we support citizens and professionals in creating open and inclusive approaches to healthcare based on digital fabrication, distributed manufacturing and collaborative making (»CAREABLES[25]).
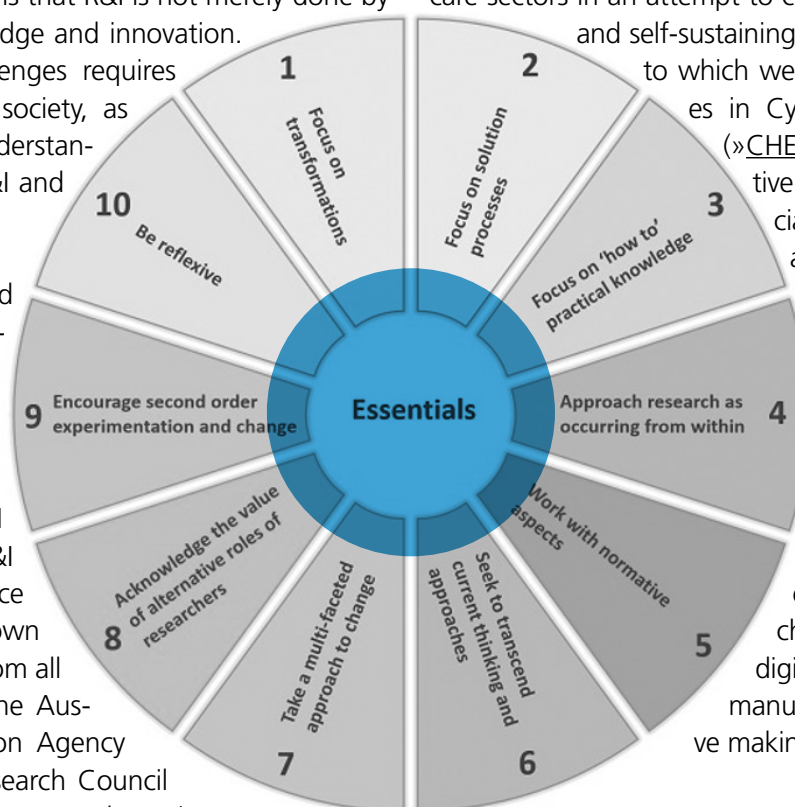
To support transformative R&I processes,
- we broaden solution spaces beyond supply-side R&I at diverse territorial levels (from local to global)
- we experiment with new forms of consultation and participation processes under controlled conditions, also reaching out to the non-usual suspects
- we focus on dynamic systems thinking, reflexivity, learning and policy connectivity.

Essentials:
1. Focus on transformations
2. Focus on solution processes
3. Focus on 'how to' practical knowledge
4. Approach research as occurring from within
5. Work with normative aspects
6. Seek to transcend current thinking and approaches
7. Take a multi-faceted approach to change
8. Acknowledge the value of alternative roles of researchers
9. Encourage second order experimentation and change
10. Be reflexive

22   https://pro-ethics.eu
23   https://www.zsi.at/en/object/project/5578
24   https://www.cherries2020.eu
25   https://www.careables.org

OUR TRANSFORMATIVE R&I REFERENCES INCLUDE AMONG OTHERS

» Management and Communication of Mission-oriented Research Support[26]using the example of the „City of the Future" programme (Austrian Climate and Innovation Ministry)

» Effects on society from energy transition from coal and carbon [27](Horizon 2020)

» Constructing Healthcare Environments through Responsible Research Innovation and Entrepreneurship Strategies[28] (Horizon 2020)

» Participatory Real Life Experiments in Research and Innovation Funding Organisations on Ethics[29] (Horizon 2020)

» Living Lab Research Concept in Rural areas[30] (Horizon 2020)

» The project »Plaisir[31] identified potential triggers, catalysts and obstacles of social innovation in energy-oriented planning efforts of rural and peripheral regions (Austrian Research Promotion Agency)

HIGHLIGHT: THE SSH IN MISSION-ORIENTED R&I

In 2018, ZSI organised a large conference on the »Impact of SSH for a European Research Agenda – Valuation of SSH in mission-oriented research[32] under the patronage of the Austrian EU Council presidency. Guidelines on how to successfully design and implement mission-oriented research programmes by including the SSH have resulted from this conference. They are being used in the design of RTI programmes and calls for proposals.

SUGGESTED READING:

» **Schuch, Klaus** (2019). Valuation of SSH Research for a Transformative European Research Agenda - A few Closing Words[33]. fteval Journal for Research and Technology Policy Evaluation, issue 48/July 2019, pp. 183-187.

» **Polt, W., Schuch, K., Weber, M., Dall, E., Unger, M., Salamon, N.** (2019). Debating Impact and Mission-Orientation of R&I Policies.[34] In: fteval Journal for Research and Technology Policy Evaluation. Issue 47. May 2019.

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26   https://www.zsi.at/de/object/project/5508
27   https://www.zsi.at/de/object/project/5558
28   https://www.cherries2020.eu
29   https://pro-ethics.eu
30   https://liverur.eu
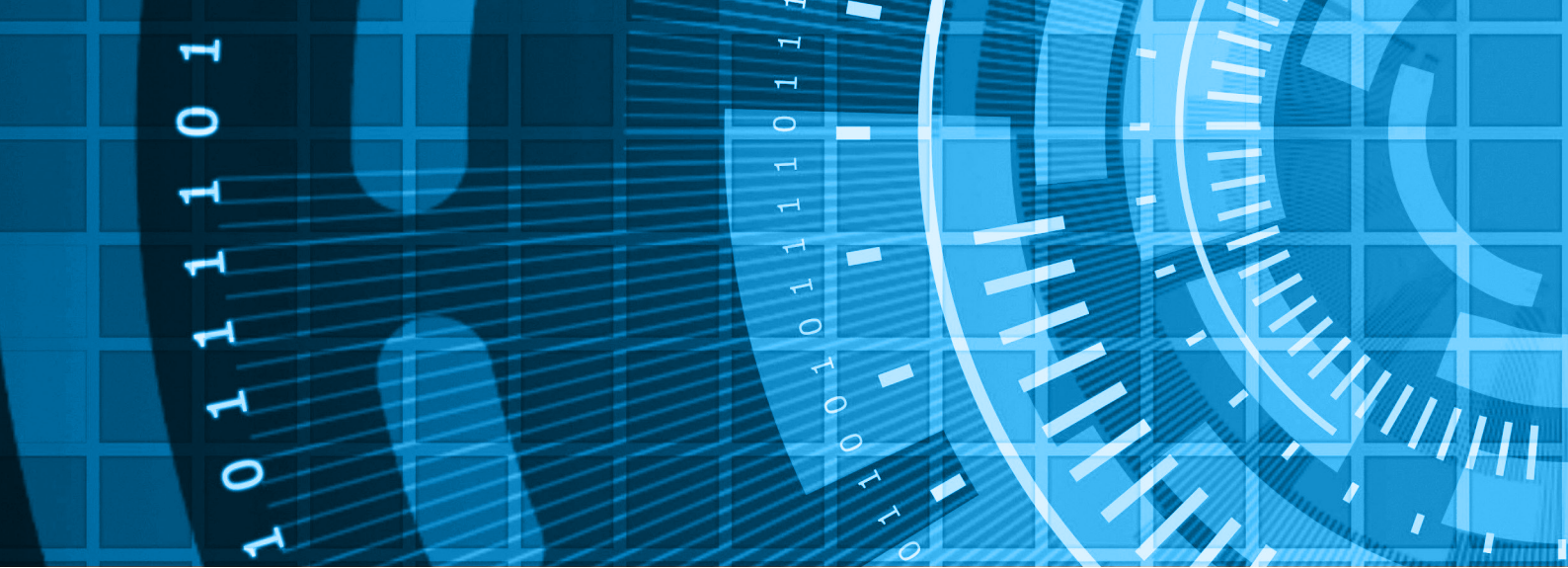31   http://www.plaisir.at
32   https://www.ssh-impact.eu
33   https://www.zsi.at/object/publication/5529/attach/Journal48_10_22163_fteval_2019_387.pdf
34   https://www.fteval.at/content/home/journal/aktuelles/07_06_2019_ausgabe_47/Journal47_WEB1.pdf
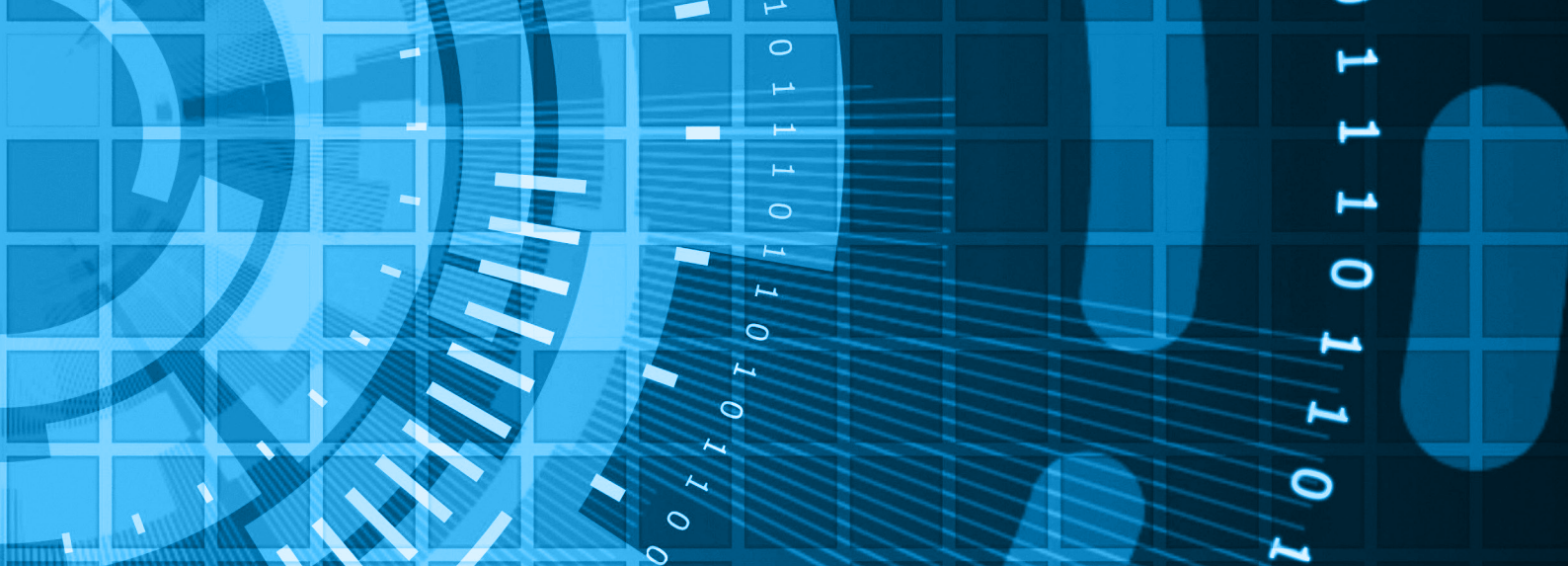
DIGITALISATION

Digital technologies have entered almost all spheres of social life, from workplaces to health, education, culture, science, sports and agriculture. The 2020 COVID-19 crisis has further boosted this omnipresence of digital communication channels, digitally mediated modes of collaboration, learning and expression, and the digital delivery of services and immaterial goods. As technologies are developing, the capacities of connectivity, space-independent computing power ('clouds') and artificial intelligence are on the increase. Digital technologies are entering ever more remote or unlikely contexts and formerly '*analogue*' domains, such as care of children or the elderly. Almost everywhere, they are supporting and enhancing activities, interactions and access to knowledge and exchange. They are also extracting and utilising data from the most everyday practices for purposes that may enhance societies' capacities for self-organisation but are often enough opaque and/or commercially driven.

Hence, digitalisation can only be addressed meaningfully as an inherently social process, in line with ZSI's motto '*all innovations are socially relevant*'. It is driven and contested by the strategies, interests and routines of highly unequal actors, ranging from mighty platform providers to venture capitalists, grassroots initiatives and average citizens and consumers. On the one hand, the potential uses of digitalisation for societal self-empowerment, democratisation, social progress, the sustainable use of resources and global access to knowledge and culture are vast. On the other, concerns abound over more adverse impacts, such as commercial monopolies, data and privacy misuse, manipulation through biased algorithms and the rise of extremist opinions and fake news through social media, exacerbated inequalities and surveillance. ZSI addresses both aspects of digitalisation in its research, the potentials of socially innovative and beneficial uses and the societal risks. Centrally, we explore the possibilities of social actors and societies at large to shape developments in favourable ways, also in collaboration with partners developing and implementing technological solutions and under the heading of 'digital social innovation'. We additionally make use of data science and AI-based methodologies.

ZSI has conducted a series of projects exploring the innovation ecologies of '*Maker and Open Source Technologies*' and their uses in small and medium-sized enterprises (SMEs), education and health. Our successful projects in the European '*Collective Awareness Platform*' format have applied digital tools to support citizens in addressing air pollution or mapping accessibility in the built environment. Projects on Industry 4.0 and the digital service economy look at impacts on jobs and work, engaging both academic experts and social partners in assessing societal impacts and identifying the prerequisites of favourable technological change.

OUR DIGITALISATION REFERENCES INCLUDE AMONG OTHERS

- Open Source and Maker communities: »OPEN!NEXT[35], »Careables[36], »Make-it[37] (all funded under Horizon 2020)

- Collective Awareness Platforms: »CAPTOR[38] (Horizon 2020), »Cap4access[39] (FP7)

- Industry 4.0 and digitalised services: »Digitalisierung – Industrie 4.0 – Arbeit 4.0 – Gender 4.0[40] (Austrian Ministry for Work, Social Affairs and Consumer Protection)

- »Shaping Industrial Relations in a Digitalising Services Industry[41] (EU Programme for Employment and Social Innovation)

- Digital data and science: »UrbanData2Decide[42] (JPI Urban Europe)

SUGGESTED READING:

» Mayer, Katja (2020). Digital Humanities in Österreich[43]. Vienna: ZSI

» Austrian Research and Technology Report 2019 and[44] »Austrian Research and Technology Report 2020[45]

» Holtgrewe, U., Šalamon, N., & Haider, W. (2018). Service markets, service labour markets and company strategies in Europe. The research report[46]. ZSI/UNI Europa.

» Holtgrewe, U., Kroop, S., & Schwarz-Wölzl, M. (2017). Digital social innovation. In C. Kaletka & D. Domanski (Eds.), Exploring the Research Landscape of Social Innovation – A deliverable of the project Social Innovation Community (SIC). (pp. 44–64). Sozialforschungsstelle.[47]

» Voigt, C., Dobner, S., Ferri, M., Hahmann, S., & Gareis, K. (2016). Community engagement strategies for crowdsourcing accessibility information: Paper, Wheelmap-Tags and Mapillary-Walks. In 15th International Conference on Computers Helping People with Special Needs, Linz, Austria. Springer.[48]

» Holtgrewe, U. (2014). New new technologies: The future and the present of work in information and communication technology. New Technology, Work and Employment, 29(1), 9–24.[49]

35   https://opennext.eu
36   https://www.careables.org
37   http://make-it.io
38   https://www.captor-project.eu/de
39   https://www.zsi.at/de/object/project/2988
40   https://www.zsi.at/de/object/project/4683
41   https://www.zsi.at/de/object/project/5099
42   http://www.urbandata2decide.eu
43   https://repository.fteval.at/514
44   https://www.zsi.at/object/publication/5340/attach/Austrian_Research_and_Technology_Report_2019.pdf
45   https://www.zsi.at/de/object/publication/5588
46   https://www.zsi.at/object/publication/5152/attach/2018-06-04-research-report.pdf
47   https://www.siceurope.eu/sites/default/files/field/attachment/exploring_the_research_landscape_of_social_innovation.pdf
48   https://www.researchgate.net/publication/303918987_Community_engagement_strategies_for_crowdsourcing_accessibility_information_Paper_
        Wheelmap-Tags_and_Mapillary-Walks
49   https://doi.org/10.1111/ntwe.12025

INCLUSION AND EQUAL OPPORTUNITIES

IMPROVING EDUCATION AND EMPLOYABILITY

Many ZSI projects aim to improve disadvantaged groups' access to education, training, the labour market, social services, technologies and democratic participation. This is key to fighting social exclusion. The target groups and stakeholders of our projects are as diverse as the problems themselves. The methods applied vary according to local needs: we conduct research, provide training, advise policy-makers in developing programmes and projects, assist in networking, implement projects together with practitioners, and evaluate policy actions. Doing this, we partner with research and applied science centres, NGOs and public institutions across Europe and beyond. Often, the projects have a distinct element of citizen and end-user participation and empowerment.

One exemplary action was the Erasmus+-funded »Equity, Participation, Decision-Making (»EP-DeM)[50] Labs project (2016-2017), in which young people joined policy-makers and social service providers in the cities of Bologna, Cagliari, Dublin and London to discuss youth and labour market policy needs in the light of equity, participation and social inclusion. The project triggered systemic change in municipal social services to facilitate young people's access to and inclusion in employment and education and to ensure their voices are heard in the process.

Other projects implement social policy experiments, for example, improving social services for people affected by rare diseases (»INNOVCare[51]) and for homeless people in train stations (»Hope in Stations[52]). »Recognition, Competency, and Information[53] linked actors working in the field of education and housing to enhance the inclusion of immigrant Roma in Austria. In 2020, »Lernen im Ausnahmezustand - Risiken und Chancen[54] (Learning in a State of Emergency – Risks and Opportunities) is assessing the impact of school closures caused by the COVID-19 lockdown on disadvantaged groups of students, while exploring the potential of remote education to improve learning and teaching.

AGEING, HEALTH AND CARE

Europe is facing demographic challenges and uneven developments between ongoing urbanisation and shrinking and 'ageing' regions. As a consequence, fast changes in social life and in the provision of health and social services are to be expected. ZSI is engaged in minimising negative effects for disadvantaged persons and regions and developing those groups' and regions' capabilities. This generally requires successful and effective co-operation on the part of public, private, civil society and also research organisations. We advise public authorities and intermediate bodies on how to develop resilient policy interventions that aim at both sustainable economic growth and social cohesion. We address issues of health, care, ageing and demographic change through the transdisciplinary lens of our knowledge of regional development, social and labour market policies, our competencies in evaluating and facilitating co-creation processes and our understanding of the potential of social innovations in science and technology, such as RRI, citizen science and makerspaces.

The »SMART-map[55] project developed roadmaps to societal mobilisation for the advancement of responsible industrial technologies in the areas of precision medicine, 3D printing in the biomedical field and synthetic biology. Projects on »Active Ageing[56] and »age-friendly environments[57] as well as on »regional needs for childcare and elderly care services[58] work with actors ‚on the ground' and link policies horizontally as well as vertically. Local and regional actions across various policy fields go hand in hand with policy changes at the national and international levels.

INTEGRATION AND INCLUSION OF MIGRANTS

Migration is a central feature of the human experience. This is true for migrants themselves as much as for their communities of origin, their destinations and possibly for those to whom they return. Much of this experience is not

50   https://www.zsi.at/en/object/project/4055
51   https://innovcare.eu/
52   https://www.zsi.at/en/object/project/970
53   http://www.anerkennung-kompetenz-information.at/
54   https://www.zsi.at/de/object/project/5517
55   http://projectsmartmap.eu/
56   https://www.zsi.at/en/object/project/1570
57   https://www.alpine-space.eu/projects/taafe/en/home
58   https://www.zsi.at/en/object/project/4995

related to people's mobility as such. It is shaped by migrants' and receiving societies' mutual expectations and by the treatment of migrants by the societies and the people they encounter. It appears quite possible for societies to become both more interrelated and more exclusive. The focus of work at ZSI has been on enhancing the competence of municipalities and other levels of governance, as well as NGOs, social partner organisations and educational organisations to absorb migration productively and in accordance with human rights. We have been partners in research projects, in pilot projects pioneering new approaches to social and educational service delivery and in implementing good practices. Our work has involved analyses of large datasets – including the Labour Force Survey (LFS), the EU Statistics on Income and Living Conditions (EU-SILC), the Programme for the International Assessment of Adult Competencies (PIAAC) and municipal registers, large- and small-scale surveys, in-depth studies of non-random samples and advice to multiple stakeholders on how to organise and interpret available information, for instance, in discrimination testing.

Recent European projects have contributed to supporting migrant entrepreneurship (»YMCB – Young Migrants Capacity Building[59] and »Migrant entrepreneurship supported by mentors[60]). We investigated the »integration and labour market success[61] of some 1,200 refugees in one of the first surveys of refugees following the 2015 immigration peak in Austria in collaboration with the International Centre for Migration Policy Development (ICMPD), the Austrian Labour Market Services (AMS), the Diakonie and the Austrian Cities Association (ÖSB). Other projects explored the »contribution of third-country labour migration to mitigating labour shortages in Austria[62] for the European Migration Network (EMN) and contributed to the »City of Vienna's monitoring of integration and diversity[63] .

SUGGESTED READING:

» Voigt C., Seebacher L.M. and Vana I. (2020). Overcoming inequalities in informal science learning. In: The International Conference of the Learning Science[64], Nashville, US. (online conference) ISBN: 978-1-7324672-7-9

» Kieslinger, B., Tschank, J., Schaefer, T. and Fabian, C.M. (2018). Working in increasing isolation? How an international MOOC for career professionals supports peer learning across distance.[65] International Journal of Advanced Corporate Learning (iJAC), Vol 11, Issue 1

» Hosner, R., Vana, I., and G. K. Jush (2017). Integrationsmaßnahmen und Arbeitsmarkterfolg von Flüchtlingen und subsidiär Schutzberechtigten in Österreich.[66] Forschungsbericht Des FIMAS-Projekts'. Wien: ICMPD/ZSI.

» Gächter, A., Manahl, C. and Koppenberg, S. (2015). Determining Labour Shortages and the Need for Labour Migration from Third Countries in Austria.[67] Edited by Internationale Organisation für Migration (IOM), Nationaler Kontaktpunkt Österreich im Europäischen Migrationsnetzwerk. Wien.

» Schwarz-Wölzl, M. and DePutter, M. (2015). Labour Mobility in the ICT Sector: What's Age Got to Do with It?[68] Vienna: ZSI - Centre for Social Innovation.

59   https://www.zsi.at/de/object/project/5239
60   https://mentproject.eu
61   https://www.zsi.at/en/object/project/4109
62   https://www.zsi.at/object/project/3589/attach/0_EMN_LabourShortages2015_AT_EMN_NCP_en.pdf
63   https://www.zsi.at/en/object/publication/4764
64   https://www.researchgate.net/publication/341579768_Overcoming_inequalities_in_informal_science_learnin
65   http://online-journals.org/index.php/i-jac/article/view/9117
66   https://www.zsi.at/object/project/4109/attach/0_FIMAS_Bericht_final.pdf
67   https://www.zsi.at/object/publication/3769/attach/EMN_LabourShortages2015_AT_EMN_NCP_en.pdf
68   https://www.zsi.at/object/publication/3539/attach/1_CaMEO_D2_6_FINAL.pdf

POLICY ANALYSIS AND EVALUATION

Did you get what you wanted?
Does the money pay the expected value?
Did the employed instruments generate the expected impact?
How can operations be improved and processes be managed?
Which lessons should be learnt?

Organisations are increasingly asked to document and justify their efforts. To avoid partiality and to guarantee objective assessments, professional external assistance is required. Content-specific complexities, real-life framework conditions, laws and regulations, political conditions, differing mind-sets and intercultural perceptions need to be considered during evaluations. Transparency is essential.

ZSI helps clients to understand whether their interventions (e.g., instruments, programmes, institutional arrangements, regulations, projects, etc.) are well-designed, achieve the intended effects and provide value for money. Learning and the improvement of processes are core elements. Impact assessments, accountability checks and mediation services complement our evaluation portfolio. Our experts are also involved in complex policy analysis. Within the EU H2020 Policy Support Facility (PSF), we consult ministries and agencies on how to create, implement and improve policies in the field of R&I. Our experts have advised governmental authorities in Austria, Cyprus, Estonia, France, Ireland, Kazakhstan, Malta, Moldova, Serbia, Slovenia, Sweden, Ukraine and others.

Our evaluations are based on a rigorous, institutionally embedded methodological corpus. Our team's multidisciplinary background enables us to think outside the box. We use inferential statistical techniques, such as regression, factor, cluster and principal component analysis, etc. We apply analytical interpretation approaches, such as typologies, interaction analysis, discourse analysis, and grounded theory, as well as qualitative empirical methods, including various interview techniques, case study approaches and focus group formats. We also make use of a wide range of participatory methods, as well as artefact analysis and other formats of visual sociology.

Further methods include patent and bibliometric analysis, Social Network Analysis (SNA), foresight and forward-looking methodologies, control group approaches and indicator development.

Cutting-edge, web-based interactive visualisations deliver results in a user-centred way.

OUR POLICY ANALYSIS AND EVALUATION REFERENCES INCLUDE AMONG OTHERS

» Horizon 2020 Policy Support Facility[69] (European Commission, DG R&I)

» European Innovation Scoreboard[70] (UNU-MERIT)

» Tools and actions for impact assessment and policy makers' information for the two Flagships 'Graphene' and 'Human Brain'[71](Horizon 2020)

» Evaluation of the implementation of Horizon 2020, ERA, EUREKA, COSME and EEN in Austria,[72] (Austrian Federal Ministry of Science, Research and Economy)

» Evaluation of citizen visions on science, technology and innovation[73] (Danish Board of Technology)

» Evaluation of the Baltic Sea support programmes[74] (German Federal Ministry of Education and Science)

» Analysis of co-publications between India and Norway[75] (Research Council of Norway)

» Development of indicators for documenting public health services[76] (City of Vienna)

» Many project evaluations in the field of education, development cooperation, migration/integration and labour markets

» Quality assurance in many projects

HIGHLIGHT: THE SSH IN MISSION-ORIENTED R&I

Organisation of the »**Austrian Presidency of the EU Council Conference on** »Impact of R&I Policies at the Crossroads of Design, Implementation and Evaluation in 2018[77].

ZSI also hosts the »Austrian Platform for Research and Technology Policy Evaluation (FTEVAL)[78], which includes ministries, agencies, evaluators and research institutes and *whose mission is to achieve the quality, transparency and adequate coverage of evaluations for a better strategic planning of RTI policy in Austria.*

METHODOLOGICAL ADVANCES:

» Dinges, M., Wang, A. and Schuch, K. (2020). Using the Delphi Method in Evaluations – Incorporating a Future Oriented Perspective in Evaluations.[79] fteval Journal for Research and Technology Policy Evaluations (50); pp. 44-50, ISSN 1726-6629; DOI: 10.22163/fteval.2020.469

» Castro, R., Dan, D. Tschank, J., Sparring, V., Vana, I. and B. Glinsner (2019). Bridging the Gaps between Health, Social and Local Services to Improve Care for People Living with Rare and Complex Conditions: Key Findings of the EU-Funded INNOVCare Project and Its Case Management Pilot.[80] International Journal of Integrated Care 19 (4): 566.

» Voigt, C., Unterfrauner, E., Aslan, T., & Hofer, M. (2019). Design Thinking with Children: The Role of Empathy, Creativity and Self-Efficacy.[81] In FabLearn 2019. New York, US: ACM Press. DOI: 10.1145/3311890.3311912

» Tschank, J. (2017). A Randomised Control Trial of Efficacy of a Case Management Approach on the Early School Leaving Rate of 14-17 Year Olds in Spain and Italy: Aftermath Lessons Learnt.[82] Wien: ZSI - Centre for Social Innovation.

» Tschank, J. and Manahl, C. (2016). (Re)Engagement of Disadvantaged Learners with Education through Validating Informally or Non-Formally Acquired Competences.[83] An Evaluation Report of Pilots in Austria, Ireland and the United Kingdom. Vienna: ZSI - Centre for Social Innovation.

HIGHLIGHT: HOW MUCH CS ARE YOU?

As new funding schemes to support citizen science (CS) emerged, so did the need to evaluate their impact. ZSI developed a framework with a set of »evaluation criteria[84] focusing on both the process and outcome level of CS projects. The devised open-evaluation framework supports project managers and funding bodies in planning and assessing CS activities, with a view on scientific advancement, citizen engagement and social impact[85].

69   https://rio.jrc.ec.europa.eu
70   https://www.zsi.at/en/object/project/2902
71   https://www.zsi.at/en/object/project/3514
72   https://www.zsi.at/en/object/project/4648
73   https://www.zsi.at/en/object/project/915
74   https://www.zsi.at/en/object/project/4285
75   https://www.zsi.at/en/object/project/2249
76   https://www.zsi.at/en/object/project/4760
77   http://www.impactevaluation.eu/about
78   https://www.fteval.at/content/home/news

79   repository.fteval.at/524/1/Journal_50_10.22163-fteval.2020.469.pdf
80   https://doi.org/10.5334/ijic.s3566
81   https://www.researchgate.net/publication/331653915_Design_Thinking_with_Children_The_Role_of_Empathy_Creativity_and_Self-Efficacy
82   https://www.zsi.at/object/publication/4641/attach/Jump_School_D23_Aftermath_lessons_learnt_report.pdf
83   https://www.zsi.at/object/publication/4096/attach/in_education_IO2_Evaluation_Report_11_4_2016_fin.pdf
84   https://survey.zsi.at/index.php/669458?lang=en
85   Kieslinger, B., Schäfer, T., Heigl, F., Dörler, D., Richter, A., & Bonn, A. (2017). The challenge of evaluation: An open framework for evaluating citizen science activities.

SUSTAINABLE DEVELOPMENT GOALS (SDGS) – FROM ADVOCACY TO RESULTS

SDGs are very popular, but it is a challenge to translate them into practice. As shown by the 'SDG wedding cake' model below, economies and societies are embedded in the biosphere, which forms the basis of sustainable development. Socio-technical systems must carefully respond to these levels. Inter- and transdisciplinary research is essential. SDGs also need to be integrated in educational priorities and public engagement, while citizen participation becomes widely accepted and exploited.

The three organisational units at ZSI address all 17 SDGs aiming to provide solutions and impact. A particularly strong focus is on quality education (SDG4), gender equality (SDG5), affordable and clean energy (SDG7), decent work and economic growth (SDG8), industry and innovation (SDG9), reduced inequality (SDG10), sustainable cities and communities (SDG11), climate action (SDG13) and partnerships to achieve this goal (SDG17).

The SDGs are also incorporated in international development co-operation. For more than 20 years, ZSI has been providing expertise in this field for the Austrian Ministries of the Interior (BMI) and of European and International Affairs (BMEIA), in addition to the Austrian Development Agency (ADA). Our services include

· strategy consultancy
· identification of feasible intervention niches for development co-operation and technical assistance projects
· procurement support
· studies
· capacity development
· institutional development
· network implementation
· monitoring and evaluation.

We have also been actively implementing development co-operation projects. For more than 10 years, for example, we have been working in Kosovo to improve the system of higher education and research. We are engaged in policy advice, development of support instruments and training. We also launched competitive calls for proposals to set-up regional research networks on behalf of the Austrian Development Agency and the Austrian Science Ministry.
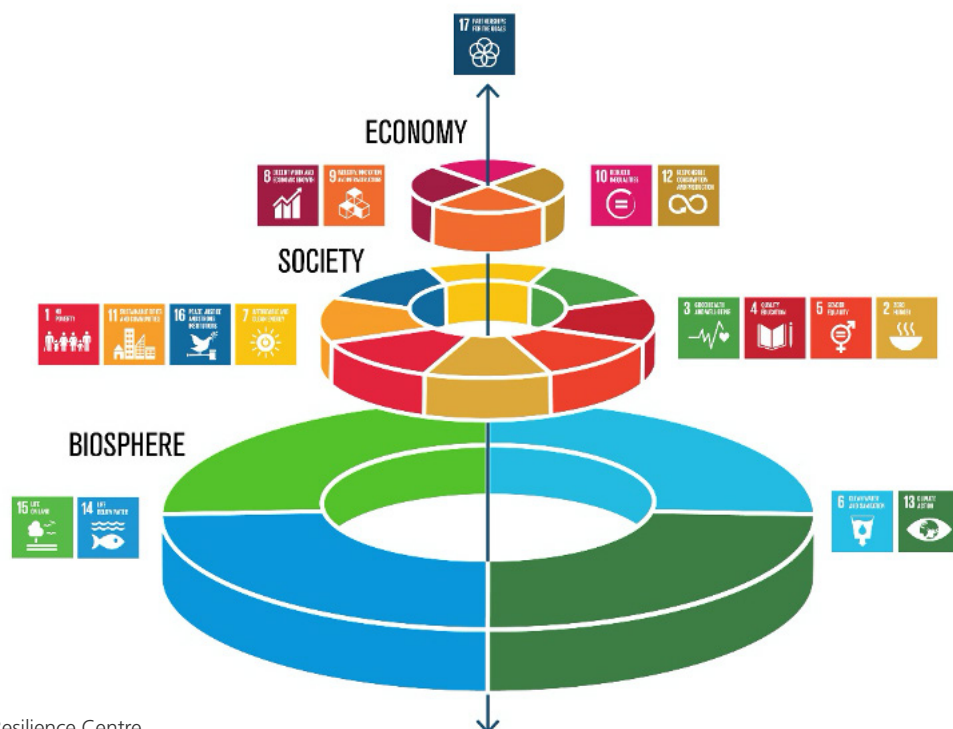
Source: Stockholm Resilience Centre

ZSI'S REFERENCES IN THE FIELD OF SDGS AND DEVELOPMENT CO-OPERATION INCLUDE AMONG OTHERS

» Strengthening Research Development and Innovation in Higher Education in Azerbaija[86] (Europe Aid)

» Support for Serbia to participate in EU programmes[87] (EuropeAid)

» Evaluation of the Programme "Business Partnerships" of the Austrian Development Agency[88] (ADA)

» Higher Education, Research and Applied Sciences in Kosovo[89] (ADA – Austrian Development Agency)

» Quality, Accountability, Integrity and Transparency in Higher Education[90] (ADA)

» ASEAN Policy Framework on private-public sector partnerships for technology development and innovation[91] (GIZ)

» Study on SDGs in FP9 (Horizon Europe)[92] (Austrian Science Ministry)

ZSI is member of »SDG Watch Austria[93].

HIGHLIGHT: FORESIGHT TO ACT!

ZSI is experienced in conducting strategic foresight and forward-looking studies. Participation, interaction and engagement processes usually form an essential part of these strategic intelligence tools. Possible and desirable developments with a time horizon of 10 to 20 years are analysed, discussed and shaped. Joint visions, specific objectives and priorities, as well as operational roadmaps often result from foresight activities. Among the most recent foresight projects is »Foresight on Demand[94] carried out on behalf of the Climate Mission in Horizon Europe and commissioned by the EC.

86   https://www.zsi.at/de/object/project/5302
87   https://www.zsi.at/de/object/project/5322
88   https://www.zsi.at/de/object/project/3285
89   https://www.zsi.at/de/object/project/4396
90   https://qaint.org/en/about-qaint
91   https://www.zsi.at/de/object/project/3394
92   https://www.zsi.at/de/object/project/4791
93   https://www.sdgwatch.at/en/
94   https://www.zsi.at/en/object/project/5578

SUSTAINABLE SOCIETAL DEVELOPMENT

Sustainability cannot simply be reduced to a single dimension and it is well-known that economic, environmental and social progress have to go hand in hand in order to become sustainable. ZSI is often at the core of researching sustainable innovations, aiming to jointly analyse economic, environmental and social factors and the ways in which to balance them such that improvements in one area do not cause rebound effects in another. For such purposes multi-stakeholder communication is very important as the in-depth knowledge of stakeholders often reveals unforeseen connections. Our experts are experienced in tracing crosslinks, identifying preferences and shaping priorities in an effort to co-design roadmaps for future developments, which are appreciated by most stakeholders involved.

Open innovation forms of collaboration between SMEs and grassroot communities are exemplary and aim to develop products and services that are inclusive, i.e. that incorporate the needs of diverse people, embracing those with limited spending capacity, in ways that are economically fair. We support the idea that citizens who contribute knowledge and ideas should also receive a share of the economic and reputational gains. This focus applies particularly to projects with teachers, maker communities and environmental groups. Other examples are innovations in the area of sustainable energy production[95], sustainable methods of production[96], sustainable food production[97] or the reuse of design[98]. Altogether, these areas address the management of limited resources, be they raw materials, life stock or intellectual properties.

The announced European Green Deal merely marks the most recent milestone in the transformation process of European societies towards sustainability, inclusiveness and justice. ZSI contributes to developing sustainable societies by building shared visions together with relevant stakeholders from different corners of society. We also design and implement tailored instruments in an open, inclusive and transparent manner. Bridging the urban-rural divide, ZSI works towards the ecological and economic resilience of communities by facilitating and establishing stakeholder ecosystems in various contexts and by providing them with the means to embark on their transition pathways. Deploying from a transdisciplinary standpoint, ZSI acts on the intersection of policy, science and innovative practice and can therefore provide a unique and holistic perspective on socio-economic development.

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95   For instance, the Responsible Research and Innovation Policy Experimentations for Energy Transition (RIPEET) project (H2020), which will commence by the end of 2020, or the Energy Research to Innovation project co-ordinated by ZSI under FP7: http://ener2i.archiv.zsi.at/
96   http://make-it.io/
97   https://www.pro-future.eu/
98   https://opennext.eu/

To make this happen, we set up experimental spaces in which stakeholders come together to establish novel connections and shared innovative activities. By building up such frameworks fresh means to boost innovative business models and to spark just and inclusive sustainable transformation processes for regional transition futures are created. Such interventions may adopt various forms, such as Living Labs, creating open-innovation and multi-stakeholder environments (»LIVERUR-Living Lab research concept in rural areas[99]). The formats also include creativity and innovation hubs, innovation sprints and hackathons with an objective to facilitate transformation towards sustainability (»Central European Rural Social Innovation[100]). In this respect, ZSI also helps to anchor EU and global policy objectives in regional development. These interventions are often extended and implemented across divergent sectors and dimensions, including food, health, social services, energy, public services, bioeconomy, etc.

Bioeconomy is a potentially significant corner stone for resource-efficient and sustainable economic and societal development. It comprises the parts of the economy that use renewable biological resources from land and sea – such as crops, forests, fish, animals and micro-organisms – to produce food, materials and energy. At ZSI, we support the development towards a responsible bioeconomy by critically assessing bioeconomic effects on conflicting uses, as well as by identifying positive and negative impacts on the society, economy and environment. By means of social innovation research, we also contribute to

the bioeconomy challenge and aim to raise awareness by promoting the concept through dedicated science communication activities, while being conducive to market uptake and increasing social acceptance and appraisal.

ZSI'S REFERENCES IN THE FIELD OF SUSTAINABLE SOCIETAL DEVELOPMENT INCLUDE AMONG OTHERS

» Liverur - Living Labs as innovative business models in rural areas[101] (Horizon 2020)

» CERUSI - a Rural Social Innovation Lab Caravan to build skills and capacities for social innovation and social entrepreneurship[102] (Central Europe Programme/Interreg)

» Pro-Future: implementation of innovative, sustainable and cost-effective technologies to produce microalgal-based protein ingredients at pilot plant and industrial scale, and to incorporate them into safe, healthy and organoleptically acceptable food and feed products[103] (Horizon 2020)

» BLOOM - Boosting European citizens knowledge and awareness of bioeconomy[104] (Horizon 2020)

» Transition2BIO – supporting transition to more sustainable production, consumption and lifestyle[105] (Horizon 2020)

99   https://liverur.eu/
100   https://www.interreg-central.eu/Content.Node/CERUSI.html
101   https://liverur.eu/
102   https://www.interreg-central.eu/Content.Node/CERUSI.html
103   https://www.pro-future.eu/
104   https://bloom-bioeconomy.eu/
105   https://cordis.europa.eu/project/id/101000539/de
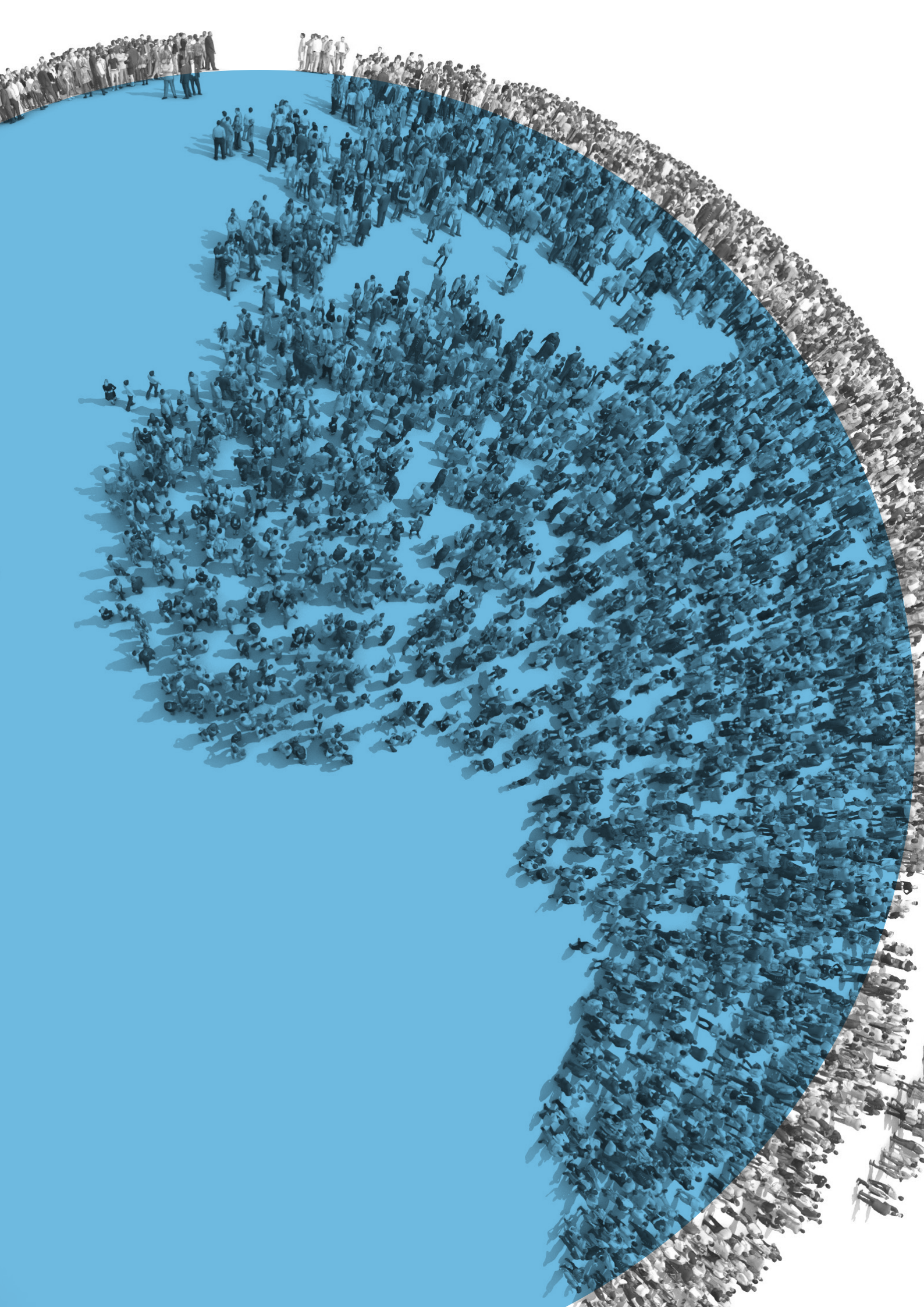
INTERNATIONALISATION OF R&I

For more than two decades, ZSI has been committed to facilitating international R&I. In line with strategic priorities at national and European levels, ZSI supports analysis, strategic policy decision-making, implementation and the evaluation of R&I internationalisation policies. Our experts provide specific advice on how to design responsible, open and transparent R&I policies. We also offer training and programmes to build up the necessary capacities on an international scale (e.g., as regards countries associated with the European FP for R&I). Committed to the paradigm of transformative innovation, ZSI considers the internationalisation of R&I policies as a key contribution to achieving the United Nations (UN) SDGs.

Hereby, ZSI is active in all regions of the world, contributing to the "Open to the World" approach set out by the EC in 2016 and aiming at the formation of a global research area in which the EU would be a leading player. This approach is reflected in the manifold R&I networks that ZSI has built up over the years and that enable us to access key institutions in R&I ecosystems around the world. We use a set of well-developed methodologies and tools to advance the analysis and improvement of R&I systems. These include anticipatory, real-time and backward-looking methodologies, such as foresight, Delphi, text mining, scientometrics and classical methods of empirical social and economic research.

ZSI experts conduct analyses of R&I systems around the world and develop concrete transformation pathways by peer-reviewing current policy frameworks, developing background analyses and fostering the exchange of best-practice cases and mutual learning (e.g., »H2020 PSF[106] of the EC and »International Service Facility (ISF) of the EC[107]).

In an attempt to design state-of-the-art R&I policies, ZSI implements several co-creative approaches, bringing together key stakeholders from Europe and abroad (e.g., »EU-Latin America and Caribbean (EULAC) Focus[108], »RI-LINKS2UA[109] - Strengthening R&I Links towards Ukraine, as well as numerous projects in the EU neighbourhood countries, Eastern-partnership countries and Africa).

ZSI also promotes the anchoring of necessary capacities for partner countries to internationalise by offering trainings and twinning activities that spark knowledge transfer and empower non-EU countries to participate in the EU research and capacity development programmes (e.g., »Europeaid: Turkey in H2020[110]). Being active in a range of national, European and international funding schemes allows us to tap into a rich, cross-fertilising knowledge pool and to deliver well-informed and robust assessments.

ZSI PROJECT REFERENCES IN INTERNATIONALISATION OF R&I INCLUDE AMONG OTHERS:

» International Service Support Facility[111] (European Commission)

» Technical Assistance for Turkey in Horizon 2020[112] (EuropeAid)

» Study on SDGs in FP9 (Horizon Europe)[113] (Austrian Science Ministry)

» Mutual Learning Exercise on International R&I Cooperation[114] (European Commission)

» EULAC-Focus – Giving focus to the cultural, scientific and social dimensions of EU-CELAC relations[115] (HORIZON 2020)

» RI-LINKS2UA[116] – Strengthening Research and Innovation Links towards Ukraine (HORIZON 2020)

» Science for/in Diplomacy for global Challenges (S4D4C)[117] (HORIZON 2020)

» Black Sea Horizon – Supporting the bi-regional STI dialogue[118] (HORIZON 2020)

» Western Balkan Countries International Cooperation Network – WBC-INCO.NET (FP7)[119]

» South East European Research Area Net – SEE.ERA.NET[120] (FP6)

106   https://rio.jrc.ec.europa.eu
107   https://www.zsi.at/de/object/project/4521
108   http://eulac-focus.net
109   http://ri-links2ua.eu

110   https://www.zsi.at/de/object/project/5324
111   https://www.zsi.at/de/object/project/4521
112   https://www.zsi.at/de/object/project/5324
113   https://www.zsi.at/de/object/project/4791
114   https://rio.jrc.ec.europa.eu/policy-support-facility/mle-national-strategies-and-roadmaps-international-cooperation-research-and
115   http://eulac-focus.net
116   http://ri-links2ua.eu
117   https://www.s4d4c.eu
118   https://blacksea-horizon.eu
119   http://www.wbc-inco.net
120   https://www.zsi.at/en/object/project/979

SCIENCE DIPLOMACY

ZSI has been engaged in various paths of science diplomacy, which we describe, in its broadest sense, as the entireties of activities that span the spheres of science (but also, in a wider sense, technology and innovation), on the one hand, and diplomacy, international relations and foreign policy on the other. Science advice to multilateral co-operation and setting up transnational funding programmes is one example, and supporting international research infrastructures as a bridge for foreign relations is another. Based on many years of experience in fostering international co-operation, ZSI is also active in the analysis of science diplomacy as such. As communication between the scientific and diplomatic communities is not straightforward, the ZSI-co-ordinated »Science for/in Diplomacy for global Challenges (S4D4C)[121] project focuses on the topic, while developing nine case studies, building a community and providing a series of training opportunities.

ZSI has accumulated a particular range of experiences in the context of the EU Enlargement and Neighbourhood policies, i.e. with the Western Balkan and the Eastern Partnership countries. Several policies and networks have been developed and reinforced with advice and support provided by ZSI experts. While engaging, for example, in the establishment and implementation of ERA networks (ERA-NETs), we address global challenges and sustainable development through joint programming, design of policies, call management and monitoring without referring to ourselves as 'science diplomats'.

At ZSI, we presently identify more than 1,000 institutions all over the world that have been our co-operation partners, and we have established regional networks and know-how in relation to Africa, North and Latin America, the Western Balkan countries, Eastern Partnership countries, India, Russia, Central Asia, East and Southeast Asia. In many of the projects that we co-ordinate, the main objective is to bring together a multitude of stakeholders, policy agendas and understandings by using our analytical know-how (e.g., with patent or co-publication analysis, surveys and qualitative methods) as well as tools for structured engagement, such as on- and offline peer learning methods and workshops. The perspective of science diplomacy highlights the need to bring divergent relevant stakeholders together and to provide adequate, joint and fair framings to address complex or "wicked" problems.

HIGHLIGHT: WESTERN BALKAN STEERING PLATFORM ON R&I

ZSI was a central stakeholder in giving birth to the »Western Balkan Steering Platform on R&I[122]. We supported the implementation of and ongoing exchange within this platform with a series of projects funded either by the EC or the Republic of Austria. Since 2006, the platform has remained operational and the major tool for integrating the Western Balkan countries into the ERA.

HIGHLIGHT: MADRID DECLARATION ON SCIENCE DIPLOMACY

As a visible impact of ZSI endeavours in establishing 'Science Diplomacy' as a professional field, the so-called »Madrid Declaration on Science Diplomacy[123] was taken up by both science as well as foreign ministers. Apart from the objective to address global challenges, it promotes productive and sustainable international relations, as well as evidence-informed foreign policy. Further advantages are better conditions for scientific activities due to the contribution of foreign policy agendas and generally improved interfaces between science and public policies.

121   https://www.s4d4c.eu
122   https://ec.europa.eu/research/iscp/index.cfm?pg=west_balk
123   https://www.s4d4c.eu/s4d4c-1st-global-meeting/the-madrid-declaration-on-science-diplomacy

er for Systems Science and Engineering (CSSE) at Johns Hopkins Universi

Arctic
Ocean

NORTH
AMERICA

North
Pacific
Ocean

North
Atlantic
Ocean

EUROPE

ASIA

AFRICA

South
Pacific
Ocean

SOUTH
AMERICA

South
Atlantic
Ocean

Indian
Ocean

Southern
Ocean

ANTARCTICA

Cases   Active Cases   Incidence Rate   Case-Fatality Ratio   Testing Rate

9