

CONCLUSION REPORT ON CHALLENGE 4.1 'BRIDGING THE GAP'

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SUMMARY

This conclusion report reflects on the initial ideas and aims of Challenge 4.1 'Bridging the Gap' in relation to the achieved outcome. Based on the obtained findings, the report concludes on the goals achieved as part of the fourth strategic RoC-pillar 'Targeting Innovation' and recommends future tasks that might contribute to the ultimate goal of better preventing occupational cancer.

INTRODUCTION

Original aim of the Challenge

This challenge's original idea targeted at bridging the often existing gap between practical work floor needs and innovation and research. The gap between tailored and practical solutions at workplace level (i.e. substitution of carcinogens or, if technically not feasible, low-emission design of products and processes) and what innovation from current research provides needs to be overcome. The underlying idea of Challenge 4.1 was to link researchers and producers (of technical equipment) to sectors and their representatives as well as other relevant stakeholders to discuss collaboration and bridging solutions under the umbrella of Horizon Europe and the European Green Deal.

Challenge design

To achieve the aims of Challenge 4.1, one focus was to establish a close connection and exchange between health and safety as well as risk management experts within the science community (of innovation and material research).

Therefore, the Challenge was designed as follows:

- Identifying contacts and comparable objectives of the RoC with activities planned under Horizon Europe within the funding related to the EU Cancer Mission or other relevant programmes in order to identify synergies (Milestone 1 (M1)) and to generate an overview of the interfaces identified (Deliverable 1, (D1))
- Building a cooperation of RoC with relevant actors and start working together by e.g. contributing to joint events to sensitise for synergies (Milestone 2 (M2)) or even implementing proposals for discussion in the 2023-24 Horizon Europe's Work Programme Committee on e.g. Cluster 4 'Digital, Industry and Space (Deliverable 2 (D2)),
- Transferring relevant research results of science into the RoC, thereby incorporating impulses from science (Milestone 3 (M3)) and *vice versa* suggesting from the RoC impulses for science for research projects under Horizon Europe or relevant programmes of the EU or Member States (Milestone 4, (M4)), ideally to create joint event(s) with the Mission Boards for Cancer, PARC and SuSChem (Deliverable 3 (D3)).

The EU Horizon Europe programme was recognized as one entry point to strengthen the dialogue between science and work floor and to overcome the gap between practical needs and research foci. Moreover, four most promising European programs and strategies having overlapping objectives with the RoC were identified during the design of challenge 4.1 and converted into four major activities.

Challenge execution

The voluntary RoC action plan that started in 2016, was prolonged for a second run in 2020. Challenge 4.1 was one of the challenges that was jointly identified to be integral for the Roadmap but no partner could allocate resources to be the challenge lead. Therefore, the Roadmap Management team (RoC MM) commissioned a preparatory study to support the work. The outcome of this preparatory study complemented to a certain degree the four originally planned activities and substantially contributed to reach first milestones.

REPORT ON OUTCOME

A0: Preparatory Study

With the purpose to provide a solid starting point for the Challenge team and, if necessary, to enable them to adjust the activities, the RoC MM initiated the preparatory study. The study was based on a desktop search to provide a comprehensive overview of relevant present and planned programmes and strategies at European and, if applicable, international level. The identified programmes and strategies were designed as comprehensive one page summaries (called 'OnePagers') to deliver a direct overview about the most significant information, e.g. aims and content, contact person/responsible research-funding institution, or the scheduled timeframe. From over 49 databases, 944 relevant hits were retrieved. Further refinement and testing for relevance, resulted in 13 OnePagers representing either a programme or a strategy. While refining the results and during studying for relevance, it became evident that it was worthwhile to add three further OnePagers on the topics of 'education', 'awareness raising' and 'campaigning'. These additional OnePagers can be used for supporting the basis activities of the RoC.

Although not in scope of the preparatory study, 317 individual literature references were collected during the desktop search. The RoC management assessed these references for their value for all challenge teams as **supporting information** (see appendix A) and could allocate literature for most challenges.

A1: Mission Cancer - summary and conclusion¹

Challenge Action: OnePager with the aim to prevent cancer of EU citizens were identified as potential programs to directly connect with the overarching aim of the RoC of 'preventing occupational cancer'. The [Beating Cancer Plan \(BCP\)](#) in the framework of EU4Health aims to tackle the entire disease pathway of cancer. The [EU Mission Cancer](#) under the framework of Horizon Europe is strongly connected with the BCP and focuses on prevention as well as ways of curing and improving the life quality of patients. The RoC management has already started to engage with the EU Mission Cancer programme in order to tie prevention of occupational cancer in the mission of general cancer prevention for the calls in 2023 and 2024. In addition, the preparatory study surfaced other activities, e.g. [Chemical Strategy for Sustainability \(CSS\)](#) in the framework of the Green Deal, or programmes, e.g. [RISK-HUNT3R](#), projecting possible connection points for the aims of the RoC.

RoC Management Action: Within the Stakeholder contact group of the EU Beating Cancer Plan, the lead Directorate General SANTE has established thematic focus topics

¹ the links in the text provide OnePagers prepared as a part of the preparatory study

and has informed about the route of action in course of 2021 and the beginning of 2022. Within the stakeholder contact group, DG SANTE also offered the possibility for stakeholders to directly contribute to the thematic topics by being part of the respective thematic group. The RoC Management, representing the RoC partners, aimed at becoming member of the Prevention group in order to further connect to the Beating Cancer Plan. The focus of Cancer prevention within the Prevention Group is on early diagnosis and on lifestyle choices (e.g. food, sport, smoking, drinking) and it was not possible to connect the prevention goals of occupational cancer with this slightly different focus.

Connecting to the EU Mission Cancer within Horizon Europe was also explored and in early 2022 it would have been possible to apply for being part of the Mission Cancer Board. However, it has been clearly communicated by the lead directorate General RTD, that being a Mission Cancer Board member would exclude the RoC partner in the future to apply for funding opportunities within the program. Accordingly, no application was submitted. Germany, as the managing partner of the RoC, has meanwhile established contacts internally with the colleagues from Ministries for Health and Research and could therefore secure that the thematic connection will be ensured during consultations on the Mission Cancer work programmes by their member state representative. The most promising connection could be the connection of the RoC within the [PARC initiative](#). This initiative is the follow-up project of [HBM4EU](#), which already incorporated also questions regarding occupational chemical exposure within the approach of data collection and should be explored further.

Conclusion and recommendations: In principle, the topic of cancer and cancer prevention is of high relevance in the EU and programmes as well as strategies aim at supporting research with a large funding volume. However, it appeared difficult to connect the aspect of occupational cancer prevention with these strategies. Consequently, it is even more difficult to connect the unique bridging challenge with these programs. The current experience from RoC management shows that aiming at connecting to both initiatives is rather time-consuming and that the outcome is not clearly predictable. These initiatives have been, therefore, put on hold for the time-being.

A2: PARC - summary and conclusion

Challenge action assessment: The 2nd milestone of challenge 4.1 aimed at building cooperation of the RoC with relevant actors under Horizon Europe, e.g. with joint events to sensitise for synergies. Activity 2 was designed to focus on building cooperations with the European Partnership on the Assessment of Risks from Chemicals ([PARC](#)), which was also a general conclusion from A1 (see above). PARC is one of the projects selected for funding with a budget of 400 Mio Euros by the EU Horizon Europe from 2021-2027 and bases on the [HBM4EU](#) project under former Horizon 2020 programme. OnePagers have been compiled for both initiatives and allow to identify possible synergies. The French Institute ANSES (Agence nationale de la sécurité sanitaire de l'alimentation, de l'environnement et du travail) has been assigned as coordinator of PARC and first contact point in 2022. More than 200 partners in the EU have joined PARC, among them ECHA, EFSA and the European Environment Agency.

Conclusion and recommendations: In order to enhance the possibilities to connect tailored and targeted work-floor needs with research the most likely initiative to root the ideas of the RoC is PARC. PARC aims to strengthen the scientific basis for risk assessment by filling data gaps on chemicals and by developing new approaches and methods. It further considers to integrating 'new approach methods' as well as aims at generating new concepts and gathering data on exposure. There are several possibilities to connect RoC with PARC. Data collection could be one interaction point between PARC and RoC. As 'awareness raising' and making data available is also centrally addressed in PARC, this could be one valuable interaction. Insights of the RoC could further contribute to design and test concepts for research and development under PARC, e.g. specific calls, or help to develop specific guidances for risk management. The RoC MM together with the challenge partner Finland is currently (3rd quarter 2022) exploring collaboration possibilities with PARC.

A3: Technology platform SusChem - summary and conclusion

Challenge action assessment: The technology platform [SusChem](#) was selected as possible interaction partner for the RoC. SusChem's mission is to initiate and inspire European chemical and biochemical innovation to respond effectively to global challenges by providing sustainable solutions. Their Strategic Innovation and Research Agenda focusses on advanced materials and processes as well as enabling digital technologies. SusChem brings together research, development and innovation actors from academia and industry across Europe. SusChem has three different core initiatives: the national technology platforms, the public private partnerships and the working groups of stakeholders. Beyond this, they define horizontal topics, which provide opportunities for cooperation with the RoC and could potentially make relevant contributions to M1-M4 targets.

Conclusion and Recommendations: SusChem could be one forum to discuss and efficiently transpose the RoC insights on requirements for worker protection from carcinogens into research & development and finally into practice. So far, no interaction has been established with the SusChem.

A4: Program for cluster – Digital, Industry and Space - summary and conclusion

Challenge action assessment: Major focus of cluster 4 'Digital, Industry and Space' in the strategic plan for Horizon Europe are the European Green Deal and EU contributions to the UN SDG (Sustainable Development Goals) 12 'Ensure sustainable consumption and production patterns'. The original idea was to transfer results of the RoC to new projects of the objectives 'safe and sustainable materials' and 'circular industry' under Horizon Europe. A transfer of results can only be provided, if collaboration with EU-Commission (DG RTD) and member state institutions and persons involved in the (shadow) programme committee have been established.

Conclusions and Recommendations: Identification of relevant communication channels and contact persons would be necessary at first to communicate and transfer the results of the RoC in a second step. RoC MM could offer insight and support to establish connections to DG RTD in order to draw attention to the RoC and inform about its results. Should Challenge 4.1 be re-visited, specific proposals could be elaborated depending on the successful interaction with PARC or SusChem.

ADDITIONAL FINDINGS AND POTENTIAL NEXT STEPS

Preparatory study identified additional literature/sources for other Challenges

The preparatory study did not only help to **support the first milestone of Challenge 4.1** by identifying several programmes under Horizon Europe for the European Green Deal and their respective contact points alongside other important information. Furthermore, as indicated above, a significant amount of literature was screened and assessed during the finalization of the preparatory report.

Beneficial literature and sources for individual challenges were extracted and have been made available to the respective challenge teams. In Appendix A, these are also attached to this report. While it was possible to identify numerous references related to these challenge, not a single reference could be linked to the Challenge 2.3,3.1 and 3.3. These challenges concern predominantly the employer interest group and their association. According to our understanding, two possible explanations can be found:

- The way the preparatory study was designed (a desktop search with limited search input parameter) excluded findings for company and company association support systems. However, a reasonable amount of supporting literature and source was identified aiming at the employee level specifically and this target group was not the initial aim of the desktop study either.
- There is a clear gap of research interest on the topic of connecting company level with research and innovation levels in direct contact or this is at least not a topic that results in literature or citable outcome. There might be exceptions, as in the field of nanotechnology and nanosafety there is a considerable involvement of industry present. Interestingly enough, for 'nanos' and their potential risks there has been a considerable recognition also by the public.

Findings confirm existing gap between research activities and involvement of work floor needs

In more specific terms, the exercise of gathering programmes and initiatives, connected to the aims of the RoC, strongly indicates that European research landscape **does not address projects involving stakeholders from industry** that use carcinogens and thereby support the original work hypothesis of Ch 4.1. This finding signals that there is very likely a lack of information from the practice when it comes to judge research and development progress. Involvement of these stakeholders in RD&I projects could provide a necessary reality check for a fast progression to a safe and sustainable future. Regarding the challenging transition of industry for a safe and sustainable future under the Green Deal, this identified gap needs to be tackled by the EU horizon and future programs. This finding could be brought to the attention of the occupational safety and health experts involved within the PARC board or to DG RTD for the Horizon Europe program for cluster – Digital, Industry and Space.

Next steps:

In general terms, it can be recommended to use the identified contacts to help raise awareness to the aims of the RoC, test for synergies and solidify these aims in EU programs with the highest probability to be successful. Most promising to this end can be PARC, for which the contact is yet to be made. For the EU Mission Cancer, the RoC management is already performing connections on member state level. The other OnePagers would need to be reflected for their usefulness in the same manner.

From the findings, Roc MM concluded that the **RoC must improve its communication with stakeholders of industry** now in order to transport results currently generated by the initiative not only to the usual suspects. One of the additional OnePagers was '[campaigning](#)'. It could be directly used to establish new concepts of reaching the so far neglected target group of industrial stakeholders. SusChem could still be a possible platform to engage with this target group but, unless a partner would take up this challenge, a contact with SusChem (activity 3 of Ch 4.1) will not be followed up by RoC MM within the RoC 2.0.

APPENDIX A

Challenge 1.1 - Better Data

Title	Source	Link	public
Project overview: Worker survey on exposure to cancer...	OSHA	Link	20.05.20
Study to collect recent information relevant to modernising ...	DG EMPL	Link	18.09.19
Second study to collect updated information for a limited ...	DG EMPL	Link	18.09.19
EH40/2005 Workplace exposure limits	HSE (UK)	Link	Jan.20
Occupational Cancer statistics in Great Britain, 2020	HSE (UK)	Link	04.11.20

Challenge 1.2 - Education is key

Title	Source	Link	public
Substitution von gefährlichen Substanzen am Arbeitsplatz	OSHA	Link	23.02.21
The Austrian Moving School model: school quality means ...	OSHA	Link	25.11.20
Educating young people about working safely with chemicals	OSHA	Link	27.06.18
Making chemical safety an integral part of 5S in ...	OSHA	Link	18.06.18
Training OSH experts in using EU legislation on chemicals ...	OSHA	Link	18.06.18
Controlling exposure to dangerous chemicals when treating ...	OSHA	Link	18.06.18
Working Against Cancer: Giving professionals the right tools ...	European Cancer Org	Link	2021

Challenge 2.1 – Substitution

Title	Source	Link	public
Substitution of dangerous substances in workplaces	OSHA	Link	23.02.20
Spain: Substituting hazardous chemicals and ensuring ...	OSHA	Link	02.11.19
Austria: A disinfectants database — substituting ...	OSHA	Link	02.11.19
Substitution of carcinogenic and neurotoxic solvents used ...	OSHA	Link	03.09.18
Replacing hazardous resin with 3D printing to make moulds	OSHA	Link	18.06.18
Info sheet: Substitution of dangerous substances in the ...	OSHA	Link	22.02.18
Discussion starters to integrate chemicals into product ...	EEB	Link	N/A

Challenge 2.2 - General Guidance on Risk Management

Title	Source	Link	public
Substitution von gefährlichen Substanzen am Arbeitsplatz	OSHA	Link	23.02.21
"CASE STUDY: Eliminating risks from respirable crystalline ...	OSHA	Link	02.11.19
Managing risks of hazardous chemicals in the workplace ...	Safe Work Australia	Link	Jul. 20
Netherlands: Reducing worker exposure to harmful dust ...	OSHA	Link	02.11.19
Sweden: Protecting workers from potentially hazardous ...	OSHA	Link	02.11.19
Means of safety, prevention, prevention in the warehousing ...	OSHA	Link	2019
Ireland: Eliminating risks from respirable crystalline silica ...	OSHA	Link	02.11.19
France: Eliminating hazardous solvents from the analysis of ...	OSHA	Link	02.11.19
Germany: Safe and economical procedure for handling ...	OSHA	Link	02.11.19
Czechia: Detoxikon — minimising harm to public order and ...	OSHA	Link	02.11.19
Austria: A disinfectants database — substituting hazardous ...	OSHA	Link	02.11.19
Info sheet: vulnerable workers and dangerous substances	OSHA	Link	18.10.19
Handling fumigated containers in ports — health risks and ...	OSHA	Link	21.11.18
Info sheet: Practical tools and guidance on dangerous ...	OSHA	Link	03.10.18
Educating young people about working safely with ...	OSHA	Link	27.06.18
Non-binding Guidelines for the Hairdressing Sector ...	OSHA	Link	14.12.21
Implementing a chemical and hazardous waste ...	OSHA	Link	27.06.18
Ensuring safety at a pesticide manufacturing plant through ...	OSHA	Link	18.06.18
Making chemical safety an integral part of 5S in ...	OSHA	Link	18.06.18
Training OSH experts in using EU legislation on chemicals in ...	OSHA	Link	18.06.18
Managing the risks posed by hazardous chemicals in a ...	OSHA	Link	18.06.18
Controlling exposure to dangerous chemicals when treating ...	OSHA	Link	18.06.18
5 pages: Aiming for zero harm through training and ...	OSHA	Link	18.06.18

Challenge 3.2 - Involving Occupational Prevention Organisations

Title	Source	Link	public
Self-assessment Tool User Manual European Quality ...	JRC	Link	Mar. 20
Managing risks of hazardous chemicals in the workplace ...	Safe Work Australia	Link	Jul. 20
The health and safety toolbox: How to control risks at work	HSE	Link	N/A

Challenge 3.4 - Empowering workers

Title	Source	Link	public
Substitution of dangerous substances in workplaces	OSHA	Link	23.02.21
Training OSH experts in using EU legislation on chemicals in ...	OSHA	Link	18.06.18
Managing the risks posed by hazardous chemicals in a ...	OSHA	Link	18.06.18
IARC Handbooks Meetings – Volume 19: Oral Cancer ...	IARC	Link	22.12.20
Occupational health in the courts ...	ETUI	Link	N/A
Gender, working conditions and health. What has changed?	ETUI	Link	N/A
Involving your workforce in health and safety ...	HSE	Link	N/A
Your health, your safety ...	HSE	Link	N/A
Krebserkrankungen lassen sich verhindern: ...	Beratungsstelle	Link	2013
Information für rauchende und nichtrauchende Arbeitnehmer	BZgA	Link	2015
Rauchfrei am Arbeitsplatz ein Leitfaden für Betriebe	BZgA	Link	2015

Challenge 4.1 - Bridging the Gap

Title	Source	Link	public
The challenge of digital transformation in the automotive ...	ETUI	Link	Sep. 20
Materialforschung, die den Menschen dient	BMBF	Link	Nov. 18
Emerging risks identification on food and feed	EFSA	Link	26.07.18
Joint venture on the further development of chemical ...	EFSA	Link	17.09.19
Livestock, food chain and public health risk assessment	EFSA	Link	17.09.19
Applying ecosystem services for pre-market environmental ...	EFSA	Link	08.07.19
Moving towards a holistic approach for human health risk ...	EFSA	Link	08.07.19
Advancing human health risk assessment	EFSA	Link	08.07.19
Food Safety Regulatory Research Needs 2030	EFSA	Link	01.07.19
Application of data science in risk assessment and early ...	EFSA	Link	27.08.18
Conquering cancer, mission possible	DG RTD	Link	22.09.20
Cancer : foresight on demand brief in support of the ...	DG TRD	Link	Aug. 21

Challenge 4.2 - Process-generated Carcinogens

Title	Source	Link	public
Investing into occupational safety and health and its ...	EU COM	Link	30.12.20
Ireland: Eliminating risks from respirable crystalline silica ...	OSHA	Link	02.11.19
Human risk assessment of multiple chemicals using ...	EFSA	Link	30.01.20

Challenge 4.3 - Safe Working Procedures

Title	Source	Link	public
Protecting workers from potentially hazardous carbon ...	OSHA	Link	02.11.19
Eliminating risks from respirable crystalline silica dust	OSHA	Link	02.11.19
A workshop that stopped smoking	OSHA	Link	2021
Controlling worker exposure to dangerous substances ...	OSHA	Link	02.11.19
United Kingdom: Free web-based tool for selecting the best ...	OSHA	Link	02.11.19
Netherlands: Reducing worker exposure to harmful dust in ...	OSHA	Link	02.11.19
Sweden: Protecting workers from potentially hazardous ...	OSHA	Link	02.11.19
France: Eliminating hazardous solvents from the analysis of ...	OSHA	Link	02.11.19
Germany: Safe and economical procedure for handling ...	OSHA	Link	18.06.18
Managing the risks posed by hazardous chemicals in a ...	OSHA	Link	18.06.18
Controlling exposure to dangerous chemicals when ...	OSHA	Link	18.06.18
Determination and Metrics for Emerging Risks Identification ...	EFSA	Link	06.07.20
Control of substances hazardous to health	HSE	Link	2013
Case Study: HSE supports small/medium size chemical ...	HSE	Link	N/A