CORE SKILLS

SEEKING AND PROCESSING INFORMATION	The ability to find, capture and process information to increase knowledge or find solutions. Ability to use advanced methods and tools for this purpose.
Levels of competence	**Level 1:** Has an ability to understand different types of information and critically reflect on the source and the connection between different information. Knows how to process and organize information for appropriate use with proper citing practises. Knows how to organise information related to own research an effective way. **Level 2:** Knows how to use and integrate new information with existing information and see information in new contexts and transfer to other settings. Knows how to effectively use standard digital software and tools to process the information. **Level 3:** Knows how to use advanced information systems to seek and process the large amount of information. Is able to contribute to developing methods and tools to process and analyse large amount of information and make it useful for a wide range of applications.
How the skill can be developed	**In academic context:** ○ Training in exploring different information channels and gaining an overview of a field ○ Seminars, webinars or trainings on information processing, use and how to critically reflect over sources. ○ Training on use of information **Outside academic context:** ○ Online courses and resources ○ Following relevant pages on rules for information processing and citing practises. ○ Joining communities (such as e.g. R-community sites)
Career pathways	Examples of positions requiring the higher level of competence: ○ Academic librarian — (level 2) ○ Scientific researcher — (level 2 to level 3) ○ Information processing specialist — (level 2) ○ Data mining specialist — (level 3) ○ Machine Learning Scientist — (level 3) ○ Biostatistician — (level 2 to level 3) ○ Bioinformatics Analyst (level 3) ○ Business Development Search and Evaluation Analyst — (level 2) ○ Solution Architect — (level 3)

discovery learning

CORE SKILLS

EMBRACING DIVERSITY	Ability to work with people with diverse backgrounds and experiences (nationality, gender, culture…). Ability to mainstream diversity and gender equality into own research.
Levels of competence	**Level 1:** Has a diversity self-awareness. Avoids generalisations and is sensitive to and respectful of individual differences. Appreciates working in diverse teams. Knows how to communicate effectively in diverse teams. **Level 2:** Has an ability to overcome explicit and unconscious bias and knows how to handle challenging interactions. Can use sensitive and inclusive communication (such as e.g. gender sensitive language). Makes positive use of diversity and difference to enrich research projects and outputs. **Level 3:** Seeks diversity in the team formation. Knows the tools and strategies to manage the diversity in the team effectively. Guides less experienced colleagues on how to collaborate in diversity reach environments.
How the skill can be developed	**In academic context:** ○ Seminars, workshops or trainings on diversity ○ Working in diverse research teams ○ Participating in international research mobility **Outside academic context:** ○ Actively seeking for opportunities to engage with diverse groups ○ Self-education about different aspects of diversity (online resources) ○ Advocating for diversity and inclusion
Career pathways	Examples of specific career pathways for which the skill is highly relevant include: ○ Research lead/team lead (in academia and beyond) — (level 3) ○ University teacher/Lecturer — (level 3) ○ Research communicator (especially when working with children and young persons) — (level 3) ○ Science entrepreneur — (level 2-3) ○ Manager of international R&D projects — (level 3)

discovery learning

CORE SKILLS

COMMUNICATING RESULTS OF RESEARCH	Ability to communicate research results to different audiences.
Levels of competence	**Level 1:** Can describe research (results, methodology, reliability) in own field to the relevant, larger, international research community using standard genres in the field. Understands how different persons and audiences relate to knowledge. **Level 2:** Can describe research (results, methodology, reliability) in own field to the general, academic community and non-academic experts in the field using appropriate genres. Is able to explain the possible practical implications of research and possible applications to experts in the field. **Level 3:** Can describe research (results, methodology, reliability) in own field and its possible impact to the public, using appropriate genres. Is able to explain the possible practical implications of research and possible applications to investors.
How the skill can be developed	**In academic context:** ⊙ Being part of an active research group with internal seminars and participating in broader seminars within the department — giving presentations in both settings. ⊙ Attending seminars on communication skills and relevant genres. ⊙ Participating in conferences **Outside academic context:** ⊙ Reflecting on and discussing generic aspects of communication when consuming and receiving information and knowledge. ⊙ Participating in activities such as „Draw your PhD" ⊙ Joining the NGO/activities communicating science to pupils
Career pathways	Examples of positions requiring higher level of competence: ⊙ Science teacher — (level 3) ⊙ User experience researcher — (level 2) ⊙ Science officer in public sector — (level 2) ⊙ Science communicator — (level 3) ⊙ Science Journalist — (level 3) ⊙ PR and communication manager — (level 3)

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CORE SKILLS

WORKING ACROSS BOUNDARIES	The ability to work multidisciplinary. Includes an ability to communicate own research to collaborators from other disciplines and sectors and understand ideas communicated by them.
Levels of competence	**Level 1:** Has an understanding on how knowledge and discipline are established. Recognises and appreciates differences between research fields, is aware of difficulties when working across boundaries. **Level 2:** Is able to communicate across boundaries through openness to other perspectives and to establish a shared language and common understanding with collaborators. Is able identify the opportunities for collaborations with actors beyond academia. **Level 3:** Has the ability to work in with different disciplines and sectors by transferring knowledge and practice from one domain to another, from different situations, fields and cultures. Has ability to facilitate collaborations across sectors and disciplines.
How the skill can be developed	**In academic context:** ○ Seminars, webinars or trainings on theory of science and how research is developed in different domains, and which boundaries between domains. ○ Training in transferable skills where one needs to establish a common understanding when communicating and recognize importance of clarifications when communicating. ○ Do projects and collaborate with researchers from other disciplines and cultures **Outside academic context:** ○ Online courses and resources where you learn about other research fields ○ International collaboration ○ Networking with different disciplines, innovators and funders ○ Doing an internship/working in organisations beyond academia
Career pathways	Examples of positions requiring higher level of competence: ○ Scientific journalist — (level 2) ○ Research careers advisor — (level 2) ○ R&D project manager — (level 3) ○ Scientific entrepreneur — (level 3) ○ Technology transfer manager — (level 3)

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CORE SKILLS

WORKING IN TEAM	Ability to work collaboratively with another person or a group of people in order to achieve a common goal.
Levels of competence	**Level 1:** Has experience in team work (short-term or long-term). Knows own personal and work strengths and weaknesses. Is able to identify relevant or useful information and share it with other team members. **Level 2:** Is flexible and can work with a wide variety of different people on different tasks. Can recognize personal and work strengths and weaknesses of other team members. Actively supports and contribute to the efforts of other team members. **Level 3:** Has experience as a team leader. Can respond immediately to challenges or situations in the team, including the interpersonal conflicts within the team. Is able to motivate and inspire the team.
How the skill can be developed	**In academic context:** ◉ Being a part of research team ◉ Participation in domestic and foreign internships (i.e. scholarship programs, Erasmus). ◉ Teambuilding activities (i.e. sport, escape room for teams). ◉ Active involvement in common seminar projects and tasks (it requires the assignment of such tasks by teachers/supervisors). ◉ Seminars, webinars or trainings on working in team within academia. **Outside academic context:** ◉ Seminars, webinars, trainings or online courses on working in team. ◉ Self-education in given field (online sources, publications, scientific articles, career stories etc.). ◉ Following companies that have built successful teams on social networks. ◉ Participating in communities
Career pathways	Examples of specific career pathways for which the skill is highly relevant include: ◉ Laboratory assistant — (level 1 – 2) ◉ Researcher — team leader/task leader — (level 2/level 3) ◉ R&D project manager — (level 3) ◉ Editor of scientific journal — (level 3) ◉ Software developer — (level 2) ◉ Head of hospital department — (level 3)

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CORE SKILLS

SHARING OWN WORK WITH OTHERS	Knowledge of how to share own research, including both data and results with wider scientific community and beyond in such way that other stakeholders can collaborate, participate and contribute.
Levels of competence	**Level 1:** Understands the meaning of "open science" in terms of production, management, analysis and dissemination. Knows how to categorise, tag, store, and distribute the information generated by their research so that other can re-use it. **Level 2:** Systematically applies the principles of open science in their work building upon the principle "open data by default". Encourages making personal knowledge explicit through activities such as blogs, wikis, etc. in unidirectional way. Is familiar with data knowledge management and knows how to apply its principles in their project or team. **Level 3:** Knows how to apply knowledge management across complex R&I projects. Has skills and expertise to act in and beyond their own disciplinary community. Brings people together using group conversational tools (cafes, workshops, round tables etc. in bidirectional way) for each step of the workflow/research from planification till results.
How the skill can be developed	**In academic context:** ○ Organization of/participation in round tables, workshops and "open conversations" within and across disciplines ○ Active participation in the development and design of Data Knowledge Management systems of own department or project ○ Seminars, webinars or trainings on Open Science and Open Data Management **Outside academic context:** ○ Online resources: e-courses, blogs, podcasts, e-books on open science and Knowledge Management. ○ Creation of blogs, wikis ○ Open communities on academic social networks, Linkedin or other social media platforms.
Career pathways	Examples of specific career pathways for which the skill is highly relevant include: ○ Research lead/team lead (in academia) — (level 3) ○ Business research consultant for client-driven R&D activities — (level 3) ○ Science entrepreneur — (level 3) ○ Data management officer/chief — (level 3) ○ Chief of a liaison officer –public sector — (level 3) ○ Chief of an NGO-non-profit organization — (level 3) ○ Solution Architect — (level 3) ○ Innovation manager — (level 3)

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CORE SKILLS

WORKING WITHIN LEGAL AND ETHICAL CONSTRAINS	Ability to understand ethical and legal constrains of the own research. Ability to implement good ethical practice across all stages of research
Levels of competence	**Level 1:** Understands legal and ethical requirements related to research in their discipline and in general. Applies the relevant guidelines for the ethical conduct in their own research. Is aware of environmental, social and ethical impacts of their own research. **Level 2:** Has a solid understanding of the legal framework related to practical application of research (such as e.g. clinical trial, introducing new technology or implementing policy) in the field of their interest. Is able to advise less experienced researchers and colleagues on ethical and legal aspects of their research. **Level 3:** Has a thorough understanding of regulatory framework related to their field of research and innovation stemming from it. Is able to set up the comprehensive compliance strategies and actively manage the research compliance risks. Communicates and with regulatory authorities. Advises peers and less experienced members of staff.
How the skill can be developed	**In academic context:** ◎ Seminar and courses on research ethics ◎ Drafting the section on research ethics for grant proposals ◎ Drafting the submissions for institutional ethics review ◎ Participating in courses and activities co-organised with regulatory bodies, and professional and industrial associations **Outside academic context:** ◎ Trainings organised with regulatory bodies, and professional and industrial associations ◎ Following the websites of regulatory bodies
Career pathways	Examples of specific career pathways for which the skill is highly relevant include: ◎ Clinical research coordinator — (level 3) ◎ Regulatory affairs specialist — (level 3) ◎ Scientific officer (at public institution) — (level 2) ◎ Clinical specialist — (level 2) ◎ Government affairs advisor — (level 3) ◎ Policy researcher — (level 2 — 3) ◎ Partnership manager — (level 2)

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SKILLS FOR DEVELOPING IDEAS

UNDERSTANDING INNOVATION	Knowledge of how innovations emerge and how does the innovation process work. Ability to understand how this can be applied to different fields and sectors, including own area of research.
Levels of competence	**Level 1:** Understands what innovation is/is not. Understands where innovation ideas come from. Is aware of the main stages and milestones along the innovation process and understands basic concepts such as the technology-product-market trinomial. **Level 2:** Knows how to use tools for business modelling (business model canvas). Has got familiarized with social or market segmentation and its impact over science and innovation communication. Is aware of the usefulness of prototyping and interaction with target stakeholders. **Level 3:** Has acquired certain level of experience in business modelling and market segmentation and estimations. Knows the different legal frames to take science-based technology or policy from academia to social practice or markets. Understands the path towards social or market uptake of new technologies or policies.
How the skill can be developed	**In academic context:** ○ Seminars, webinars or trainings on innovation management, entrepreneurship and creativity techniques ○ Training on transferable skills ○ Guided visits/internships at university's incubators, scientific parks, innovation labs, or specific chairs with companies (when there are) **Outside academic context:** ○ Online courses and resources (including blogs and podcasts) ○ Incubators and accelerators ○ Networking with innovators and investors ○ Internships at start-ups
Career pathways	Examples of specific career pathways for which the skill is highly relevant include: ○ R&D lead/team lead (in private sector — i.e. CTO)(level 3) ○ Business development consultant (for R&D intensive sector) — (level 3) ○ Investment analyst (with focus on R&D intensive sector) — (level 3) ○ Science entrepreneur — (level 3) ○ Business Development Search and Evaluation Analyst — (level 1—2) ○ Business development manager — (level 3) ○ Innovation consultant (in public sector) — (level 2) ○ Innovation manager — (level 3)

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SKILLS FOR DEVELOPING IDEAS

GROWTH MINDSET AND INITIATIVE	The ability to be a self-starter and to meet the challenge of higher-level objectives
Levels of competence	**Level 1—3:** Is open to trial and error and understands the importance of pivoting. Sees challenges as opportunities and persists in the face of setbacks. Tries different approaches and methods. Asks for feedback and learns from criticism.
How the skill can be developed	**In academic context:** ● Seminars, webinars or trainings on innovation management, entrepreneurship, creativity techniques and SDGs. ● Training on transferable skills (mainly problem solving and communication) ● Guided visits/internships at university's incubators, scientific parks, innovation labs, or specific chairs with companies (when there are) **Outside academic context:** ● Incubators and accelerators ● Networking with innovators, investors and NGOs ● Internships at start-ups
Career pathways	Examples of specific career pathways for which the skill is highly relevant include: ● Research lead/team lead (in academia) ● R&D lead/team lead (in SMEs — i.e. CTO) ● Investment analyst (with focus on R&D intensive sector) ● Business development consultant (for R&D intensive sector) ● Science high-impact/social entrepreneur ● R&D lead/team lead (in corporations) ● CEO (in hight-tech SMEs)

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SKILLS FOR DEVELOPING IDEAS

CREATIVE THINKING	The ability to approach a problem or challenge from a new perspective and come up with new ideas and solutions
Levels of competence	**Level 1:** Is able to solve problems with various solutions. Recognises new trends; is insightful; goes beyond the obvious. Makes connections between previously unrelated issues. Develops own conceptual approach/understanding of intellectual position. **Level 2:** Is able to think across disciplines, position complex concepts within larger frameworks of knowledge and culture. Is able to use methods stimulating creative process such as brainstorming or mind-mapping. Develops new ways of working on a topic. Identifies which ideas are likely to be successful. **Level 3:** Challenges traditional viewpoints. Provides breakthrough thinking for the discipline/research area and has strategic input to other disciplines/research areas. Encourages, inspires and works with others; actively seeks collaborations for inter-disciplinary research.
How the skill can be developed	**In academic context:** ○ Trainings on techniques to facilitate creative thinking (e.g. design thinking, mind mapping) ○ Participation in training using participatory training methodologies ○ Engaging in interdisciplinary discussions/seminars **Outside academic context:** ○ Engaging in artistic activities ○ Writing content on Wikipedia ○ Participating in activities requiring application of problem solving in contexts that are new and unfamiliar
Career pathways	Examples of specific career pathways for which the skill is highly relevant include: ○ Scientific journalist — (level 2) ○ Science communicator — (level 2) ○ Principal investigator — (level 3) ○ Scientific entrepreneur — (level 3)

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SKILLS FOR DEVELOPING IDEAS

OPPORTUNITIES ALERTNESS	Ability to understand the context of how the opportunities emerge in the particular field/sector. Ability to identify those opportunities and link them to own research.
Levels of competence	**Level 1:** Has an insight into the transferable nature of research to other work environments. Understands the main trends in their field of research and its practical application. **Level 2:** Seeks out appropriate opportunities to use the skills and own research outside academic contexts. Is responsive to collaborative opportunities across disciplines/research areas and with non-academic organisations. **Level 3:** Knows how to manage a systematic opportunities identification process (preparation, incubation, insights, evaluation, elaboration). Actively creates and champions opportunities for others within and outside academia.
How the skill can be developed	**In academic context:** ○ Participation in business courses/courses on market analysis ○ Lectures and workshops with representatives of industries and other sectors outside academia ○ Participation in networking events with actors from beyond academia ○ Intersectoral mentoring programme **Outside academic context:** ○ Business incubators ○ Participation in events enabling networking ○ Following the thematic media and experts
Career pathways	Examples of specific career pathways for which the skill is highly relevant include: ○ Grant opportunities manager — (level 2) ○ Business development manager — (level 3) ○ Investment analyst (with focus on innovative sectors) — (level 3) ○ Scientific entrepreneur — (level 3) ○ Innovation consultant — (level 3)

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SKILLS FOR DEVELOPING IDEAS

UNDERSTANDING POSSIBLE IMPACT OF OWN RESEARCH	Ability to understand possible social and economic implications of solutions derived from (own) research (including the commercial potential of the solution). Ability to communicate those implications to relevant audiences (e.g. via policy papers).
Levels of competence	**Level 1:** Understands the difference between academic and societal & economic impact of research. Is aware of the possible economic and social impacts of their own research. Has learnt about the bidirectional impact between technology and society. Understands the fundamental concepts of Responsible Research and Innovation (RRI). **Level 2:** Can clearly identify the societal challenges to be addressed by their own research and communicate its possible impact. Knows how to write policy briefings or present the possible impact of solution based on the research to investors. Understands how societal impact of research can be measured and evaluated. **Level 3:** Is able to clearly demonstrate societal and economic impact of their research. Has been involved in developing products and solutions based on their own research. Understands the processes and tools for LCSA (Life Cycle and Social Analysis) and how to use it in developing new products and solutions.
How the skill can be developed	**In academic context:** ○ Seminars, webinars or trainings on innovation management, RRI and LCSA. ○ Training on transferable skills (mainly in communication) **Outside academic context:** ○ Participation in hackathons ○ Online courses and resources ○ Networking with NGOs and experts ○ Internships at RRI/LCSA service offices (i.e. consultancy) ○ Following relevant pages on social media, joining social media groups, subscribing to newsletters
Career pathways	Examples of specific career pathways for which the skill is highly relevant include: ○ Research lead/team lead (in academia) — (level 2) ○ Research liason officer (in public sector) — (level 2) ○ R&D lead/team lead (in private sector — i.e. CTO) — (level 2) ○ Investment analyst (with focus on R&D intensive sector) — (level 2) ○ Data office for science-based policy-making — (level 2) ○ Business development consultant (for R&D intensive sector) — (level 3) ○ Science entrepreneur — (level 3) ○ Science diplomat — (level 3)

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SKILLS FOR DEVELOPING IDEAS

PROTOTYPING	Ability to conduct tests and experiments to test a product or concept at an early stage of development. Knowledge of tools and processes for effective prototyping.
Levels of competence	**Level 1:** Understands the full scope of prototyping (including prototyping ideas). Understands the TRL and BRL scales (Technology Readiness Level and Business Readiness Level), their interactions, and how does prototyping evolve along them. **Level 2:** Knows how to manage processes from lab-tests to client-focus demonstrations. Understands the differences between prototyping functions/design as well as ideas/technology/products. Knows to identify target stakeholders for different types of tests (technical vs market) and adapt prototypes accordingly. Knows to use Design Thinking processes and tools. **Level 3:** Has acquired certain level of experience in interacting with potential end-users and rapid prototyping. Knows about managing trials, focus groups or industrial demonstrators. Understands how prototyping can be used for getting regulatory certifications.
How the skill can be developed	**In academic context:** ○ Seminars, webinars or trainings on prototyping, Design Thinking, 3D printing, product design and CAD (Computer Aided Design). ○ Training on transferable skills. **Outside academic context:** ○ Online courses and resources ○ Guided visits/internships at prototyping companies/labs ○ Networking with designers ○ Following relevant pages on social media, joining social media groups, subscribing to newsletters
Career pathways	Examples of specific career pathways for which the skill is highly relevant include: ○ Product developer or Product designer (in private sector) — (level 3) ○ Solution Architect — (level 3) ○ User experience researcher — (level 1) ○ Software or hardware developer in R&D — (level 2) ○ Visual design strategist — (level 2) ○ Product experience design lead — (level 2) ○ Design researcher — (level 2)

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SKILLS FOR IMPLEMENTATION

SOLVING COMPLEX PROBLEMS	The ability to solve novel, ill-defined problems in complex, real-world settings.
Levels of competence	**Level 1:** Is able to explore the problems they have not experienced before. Can build the understanding of problems through research and diagnose the possible causes and effects. Is able to develop an action plan that solves that problem. **Level 2:** Is able to create solutions for complex problems by generating a range of options. Is able to weigh possible options, evaluate the pros and cons of each option and their impact. Can decide on data required to make a qualified decision. Is able to clearly define the core concept/function/product/service that will provide the required solution. Can use problems solving systems such as Systems Thinking. Knows how to engage stakeholders in development of solutions. **Level 3:** Is able to foresee future changes to circumstance, resources and capabilities that may affect the implementation of solution. Can implement strategic plans to implement solutions and scale them up.
How the skill can be developed	**In academic context:** ○ Managing own PhD project ○ Actively participating in research projects ○ Working on assignments **Outside academic context:** ○ Participating in hackathons ○ Playing strategic video games ○ Particpating in online trainings
Career pathways	Examples of specific career pathways for which the skill is highly relevant include: ○ Research lead/team lead (in academia and beyond) — (level 3) ○ Business strategy consultant — (level 3) ○ Science entrepreneur — (level 3)

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SKILLS FOR IMPLEMENTATION

KNOWLEDGE TRANSFER MANAGEMENT	Ability to manage a process of transferring scientific knowledge to other contexts and sectors within the existing legal, social and technical constraints.
Levels of competence	**Level 1:** Has a basic understanding the technology transfer process from research to bringing the solution to the market (invention disclosure, evaluation, protection, marketing, licensing, commercialization). Has a basic knowledge of IP law and legal regulations, knows how IP protection is obtained. Is aware regarding IP protection and commercialization rules at their institution. **Level 2:** Knows, where to search for usable patent information and conduct basic assessment of the novelty of his/her idea or technology. Is able to formulate a competitive advantage of his/her idea or technology. Is able to make a basic IP protection and commercialization strategy. **Level 3:** Is able to identify novelty and technology readiness level of technology and to choose the best way of protecting the research results. Is able to manage the process of transferring scientific knowledge to other contexts and sectors and to mobilise and coordinate the necessary resources for it. Knows what to look out for and avoid risks. Is able to assist other in the knowledge transfer process.
How the skill can be developed	**In academic context:** ○ Seminars and trainings on technology transfer provided by the institution ○ Through participation on the technology transfer activities related to existing research ○ Consulting with the technology transfer office **Outside academic context:** ○ Internship in company/organisation with own R&D capacities ○ Participation in hackathons, incubators and accelerators programmes ○ Participation in trainings and activities organised by national patent offices or organisations such as WIPO ○ Online e-learning courses
Career pathways	Examples of specific career pathways for which the skill is highly relevant include: ○ Policy officer — (level 1) ○ R&D project manager — (level 1) ○ Technology transfer officer — (level 2) ○ Technology transfer liaison — (level 2) ○ Scientific entrepreneur — (level 3) ○ Innovation and technology transfer manager — (level 3) ○ Technology analyst/technology transfer consultant — (level 3) ○ Innovation consultant — (level 2 — 3)

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SKILLS FOR IMPLEMENTATION

DATA-DRIVEN DECISION MAKING	Ability to understand how data can be used to support strategic decisions. Ability to use data, facts and metrics to guide strategic decisions related to development of solutions. Knowledge of tools and techniques to support data-driven decision making.
Levels of competence	**Level 1:** Recognises and appreciates the significance of data ability to support decisions and have knowledge of the data's boundaries in use, and what is ethical use of data. **Level 2:** Knows how to use standard research tools for solving business/public policy decision problems. Is able to identify data sources, gather, extract and transform data and perform statistical analysis. Is familiar with business intelligence tools. Knows how to present the outcomes of data analysis in accessible way. **Level 3:** Knows how to use to use data, facts and metrics to guide strategic decisions related to development of solutions across different topics and areas. Is familiar with advanced data analysis techniques such as AI.
How the skill can be developed	**In academic context:** ○ Preparing data to get an understanding of a situations and producing data that can inform and is suitable to use as support for decisions (a fundamental part of PhDs education) ○ Seminars, webinars or trainings on how to make data-driven decisions ○ Training on transferable skills and tools and techniques to support data-driven decision making **Outside academic context:** ○ Online courses and resources ○ Collect data or gather data from others that might be relevant. ○ Following relevant pages on social media, joining social media groups, subscribing to newsletters ○ Engaging in online Open Science communities
Career pathways	Examples of specific career pathways for which the skill is highly relevant include: ○ Policy coordinator — (level 2) ○ Policy analyst — (level 2) ○ Data analyst — (level 2) ○ Any senior level manager — (level 2) ○ Scientific entrepreneur — (level 3)

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SKILLS FOR **IMPLEMENTATION**

MANAGING PEOPLE	Ability to build a team and facilitate its work. Ability to inspire people towards a common goal. Ability to develop others.
Levels of competence	**Level 1:** Has experience in managing a small team within a small research task or dissertation project/work. Is able to coordinate and plan the activities of other co-workers within the small task. **Level 2:** Has experience in managing a larger team. He/she knows the strengths and weaknesses of close co-workers and assigns them tasks accordingly. **Level 3:** Has experience in managing a large team. Is able to organize and plan activities for a wide range of employees/collaborators (scientists, economists, technicians, etc.). He/she knows the strengths and weaknesses of employees and assigns them tasks accordingly.
How the skill can be developed	**In academic context:** ⊙ Submit a student project within open calls with an expected small team. ⊙ Include co-workers in your dissertation research. ⊙ Participate in other projects/activities (within exchange stays). ⊙ Participate in seminars, webinars or trainings focused on people management within academia. **Outside academic context:** ⊙ Seminars, webinars, trainings, workshops or online courses on people management. ⊙ Participate in other projects/activities outside academia. ⊙ Self-education in given field (online sources, publications, scientific articles, career stories etc.). ⊙ Follow successful team leaders on social networks.
Career pathways	Examples of specific career pathways for which the skill is highly relevant include: ⊙ Scientist– team leader — (level 3) ⊙ Thesis (PhD/Mgr/MSc/Bc) supervisor — (level 3) ⊙ R&D project manager — (level 3) ⊙ Senior manager — Human Resources — (level 3) ⊙ Company/department director — (level 3) ⊙ Head of medical department — (level 3)

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SKILLS FOR IMPLEMENTATION

MANAGING FINANCE	Ability to understand the financial effects and process of planning, organizing, controlling and monitoring financial resources needed to implement innovative solutions.
Levels of competence	**Level 1:** Knows to make simple budget estimations for existing projects (e.g. in grant proposals). Understands the different nature of costs. Can design procedures and use tools for monitoring a project's budget. **Level 2:** Knows how to prepare financial estimations around the future of innovative solutions. Knows how to calculate variables such as depreciation and profitability. **Level 3:** Knows to attract funding to innovation projects (working with investors). Knows techniques and methodologies for the valuation of an innovative solution. Understands different opportunities from banks and fintech.
How the skill can be developed	**In academic context:** ○ Seminars, webinars or trainings on accountability and finance. ○ Training on transferable skills ○ Internships at Project Management Offices **Outside academic context:** ○ Online courses and resources ○ Internships at financial offices in different sectors or investors' offices.
Career pathways	Examples of specific career pathways for which the skill is highly relevant include: ○ Participant in R&D project funded by a public institution — (level 1) ○ Project manager or coordinator — (level 1—2) ○ R&D lead/team lead (in public and private sector) — (level 2) ○ Science entrepreneur — (level 3) ○ Investments Analyst (comp level 1—2) ○ Business developer manager — (level 3) ○ Innovation manager — (level 3) ○ Innovation consultant — (level 3)

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SKILLS FOR IMPLEMENTATION

MANAGING PROJECTS	Ability to plan and execute projects. Knowledge of project management techniques and methodologies, including agile approaches. Understanding of specifics of projects management in innovative environments/development of innovative solutions.
Levels of competence	**Level 1:** Understands the nature of projects, and the main differences between R&I and other projects. Knows the main project management techniques and methodologies (SMART objectives, Gantt-deliverables-milestones, PERT, risk management, communication, budget constraints). **Level 2:** Knows agile approaches. Can decide amongst different possibilities to increase effectiveness of teams and activities. Knows techniques for conflict resolution and feedback. Can define proper KPI (Key Performance Indicators). Can manage remote working. **Level 3:** Has acquired certain level of experience in using the main techniques in project management, so can include hybrid project management approaches. Knows to choose and use advanced software in project management, including mobile based. Knows techniques and methodologies for problem solving and managing complexity.
How the skill can be developed	**In academic context:** ○ Seminars, webinars or trainings on project management. ○ Internships at Project Management Offices ○ Managing own research project ○ Guiding students on how to manage their thesis writing **Outside academic context:** ○ Online courses and resources ○ Internships at Project Management Offices in different sectors (i.e. engineering, clinical, innovation) ○ Participating in/initiating projects for community
Career pathways	Examples of specific career pathways for which the skill is highly relevant include: ○ Participant in R&D project funded by a public institution — (level 1) ○ Project coordinator (i.e. European R&D project) — (level 2) ○ R&D lead/team lead (in public and private sector) — (level 2 — 3) ○ Project manager (public and private sectors) — (level 2 — 3) ○ Science entrepreneur — (level 2 — 3) ○ Chief of Operations (private sector) — (level 3) ○ Business development manager (level 2 — 3) ○ Innovation manager (level 2 — 3)

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SKILLS FOR IMPLEMENTATION

ENCOURAGING CO-CREATION	Understanding the principles of co-creation. Knowledge of tools and practices to facilitate co-creation process.
Levels of competence	**Level 1:** Identify value creation opportunities and agrees on value distribution. Actively participates in idea generation. Encourages colleagues to share creative ideas while brainstorming. Shows willingness to integrate new ideas and approaches. Knows simple tool to support cocreation. **Level 2:** Brings outside ideas into the collaboration work. Is able to integrate ideas across departments and industries. Knows how to facilitate co-creation process with small groups of collaborators. Is able to use digital collaboration tool to facilitate co-creation process. **Level 3:** Is able to generate or galvanize support for new ideas that benefit the organization-project at a macro level. Knows how to facilitate co-creation process with large groups of internal and external collaborators onsite and online. Understands the principles of crowdsourcing and knows how to use crowdsourcing tools.
How the skill can be developed	**In academic context:** ○ Collaborate in joint research groups with industry in the search for innovation ○ Seminars, webinars or trainings on innovation and process of co-creation. ○ Trainings on Open Science and RRII **Outside academic context:** ○ Online resources: e-courses, blogs, podcasts, -e-books ○ Workshops for innovation and co-creation ○ Synergies with entrepreneurial hubs (opportunities of collaboration on your field of study) ○ Following relevant pages on social media, joining social media groups, subscribing to newsletters
Career pathways	Examples of specific career pathways for which the skill is highly relevant include: ○ Research lead/team lead (in academia) — (level 2) ○ Business research consultant (for R&D intensive sector) — (level 3) ○ Business entrepreneur — (level 3) ○ Science entrepreneur (competence level 3) — (level 3) ○ Innovation manager — (level 3) ○ Product owner/Product manager (public and private sectors) — (level 2 — 3)

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SKILLS FOR IMPACT

ENCOURAGING CO-CREATION	Ability to generate sustainable income and funding necessary to develop viable solution and implement it in practice.
Levels of competence	**Level 1:** Has a knowledge of key relevant funding sources in the desired impact area. Recognises and appreciates the significance of income and funding generation. Has a basic experience with proposal writing for small grants. **Level 2:** Understands the processes for funding generation. Understands more complex and alternative funding tools. Contributes to gathering different types of funding sources in the desired impact area. **Level 3:** Understands and plans long-term funding needs and defines strategies to mobilise the resources needed to create an impact. Actively seeks for investors and negotiates with funding providers. Applies for increasingly larger funding.
How the skill can be developed	**In academic context:** ○ Preparing grant applications for small grants or contributing to applications for more complex grants. ○ Seminars, webinars or trainings on funding opportunities and other fundraising possibilities ○ Training on transferable skills **Outside academic context:** ○ Online courses and resources ○ Incubators and accelerators ○ Fundraising for NGOs/causes (volunteering) ○ Networking with innovators and funders ○ Following relevant pages on social media, joining social media groups, subscribing to newsletters
Career pathways	Examples of specific career pathways for which the skill is highly relevant include: ○ Research lead/team lead (in academia) — (level 2) ○ Research liason officer (in public sector) — (level 2) ○ Business development consultant (for R&D intensive sector) — (level 3) ○ Investment analyst (with focus on R&D intensive sector) — (level 3) ○ Programme director (at NGO or in public sector) — (level 3) ○ Science entrepreneur (competence level 3) — (level 3)

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SKILLS FOR IMPACT

USER FOCUS	Ability to properly identify and engage customer or user of the innovative solutions and continuously adapt developed solutions according to their feedback.
Levels of competence	**Level 1:** Understands the concepts of user need, FAB (features, advantages and benefits) analysis, value proposition, unique buying reason/unique selling point. Knows to design interviews to different potential users. **Level 2:** Has got familiarized with market and social segmentation and its impact on science communication and on the design of activities for user feedback. Knows techniques and methodologies for gathering this feedback (focus groups and Design Thinking). **Level 3:** Has gained some level of experience in organising activities for obtaining user feedback. Knows techniques, methodologies, and software solutions for managing user feedback. Can activate strategic thinking.
How the skill can be developed	**In academic context:** ⭕ Seminars, webinars or trainings on innovation design. ⭕ Training on transferable skills (mainly communication and problem solving) **Outside academic context:** ⭕ Online courses and resources ⭕ Internships at the marketing department within players from the private sector ⭕ Following relevant pages on social media, joining social media groups, subscribing to newsletters or publications in innovation management.
Career pathways	Examples of specific career pathways for which the skill is highly relevant include: ⭕ R&D lead/team lead (in private sector — i.e. CTO) — (level 2) ⭕ Product developer (in private sector) — (level 2) ⭕ Science entrepreneur — (level 2 — 3) ⭕ Policy analyst (level 2) ⭕ User Experience researcher (in private sector) — (level 2 — 3) ⭕ Innovation manager (in private sector) — (level 2 — 3) ⭕ Innovation consultant — (level 2)

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SKILLS FOR IMPACT

LEADERSHIP	Ability to mobilise people and resources towards the achievement of a goal.
Levels of competence	**Level 1:** Understands how one's actions influence behaviours of others. Actively participates in defining objectives of a project/work. Develops awareness of need to gain support. Is familiar with basic techniques of how to increase the influence in a positive way. **Level 2:** Provides direction and builds capacity for the group to deliver results, face challenges and develop continually. Is able to match social situation to patterns in connectionist networks. Motivates and promotes a collaborative approach. **Level 3:** Initiates projects and initiatives. Communicates organisation's priorities and sets team and individual objectives in line with them. Provides guidance to staff to meet objectives and supports their ongoing development. Influences and provides leadership in external relationships and for the multidisciplinary and cross-sectoral teams.
How the skill can be developed	**In academic context:** ○ Lead small research groups with undergraduate students on specific subjects in your field of research (for example: the preparation of their degree or master thesis). ○ Seminars, webinars or trainings on leadership skills and management of teams. ○ Participating in strategic planning exercises, such as strategic plans for academic departments/units. ○ Training on leadership skills ○ Create & lead communities of research **Outside academic context:** ○ Online resources: courses, blogs, podcasts, e-books ○ Follow coaching sessions ○ Participate in advocacy campaigns ○ Following relevant pages on social media, joining social media groups, subscribing to newsletters
Career pathways	Examples of specific career pathways for which the skill is highly relevant include: ○ Research lead/team lead (in academia) — (level 2) ○ Research liaison officer (in public sector) — (level 2) ○ Science advisor (IIOO, government or political party) — (level 3) ○ Business research consultant (for R&D intensive sector) — (level 3) ○ Programme director (at NGO or in public sector) — (level 3) ○ Science entrepreneur (competence level 3) — (level 3) ○ all C level positions (CEO, CTO, COO, CFO) — (level 3)

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SKILLS FOR IMPACT

NETWORKING AND BUILDING ALLIANCES	**Ability to build and maintain professional networks within and outside own professional community. Ability to develop collaborations to pursue common goals.**
Levels of competence	**Level 1:** Builds networks with peers and colleagues within its own institution and wider academic community. Uses effective communication channels. Knows how to use academic social networks effectively. **Level 2:** Build professional networks across disciplines and with external experts. Builds effective communication channels. Is able to create opportunities for networking and engage less experienced colleagues in it. **Level 3:** Leads and facilitates networks. Is able to engage networks in supporting common strategies and visions.
How the skill can be developed	**In academic context:** ○ Organization of/participation in conferences, journeys or round tables in your university on the topic of your research ○ Seminars, webinars or trainings on communication, team management and strategic thinking ○ Collaborate in the preparation of a project proposal. ○ Using academic social media/networks (e.g. ResearchGate, Academia.edu) **Outside academic context:** ○ Online resources: e-courses, blogs, podcasts, -e-books ○ Using academic social media/networks (LinkedIn) ○ Workshops for team management, strategic thinking and co-creation. ○ Undertake a non-profit/volunteer initiative related to your field of study with other interested stakeholders.
Career pathways	Examples of specific career pathways for which the skill is highly relevant include: ○ Research lead/team lead (in academia) — (level 3) ○ Business research consultant (for R&D intensive sector) — (level 3) ○ Business entrepreneur (level 3) ○ Science entrepreneur (level 3) ○ Project manager/leader (competence level 3) ○ Chief of a liaison officer –public sector — (level 3) ○ Chief of an NGO-non-profit organization (level 3) ○ Business development manager (level 3) ○ Partnership manager (level 3) ○ Innovation consultant (level 3)

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SKILLS FOR IMPACT

GETTING BUY-IN & NEGOTIATING	Ability to resolve issues through effective strategic communication. Ability to get people accept an idea or proposed solution and take actions to support it.
Levels of competence	**Level 1:** Articulates, and champions shared mission, vision and values of organisation or project to both internal and external audiences. Translates organisational strategy into clear, effective operational messages. **Level 2:** Ensures key objectives, roles and responsibilities are understood by the involved stakeholders. Demonstrates good interpersonal skills and can comfortably communicate. **Level 3:** Conveys messages persuasively. Communicates in a number of styles and she/he can adapt language and style to suit needs of audience. Shows active listening and questioning and generates creative solutions though cooperation mechanisms. Shows abilities to manage conflicts and identify win-win strategies.
How the skill can be developed	**In academic context:** ○ Participate in interdisciplinary or multidisciplinary groups of research. ○ Seminars, webinars or trainings on communication, leadership, problem solving and decision-making. ○ Participate in debate clubs ○ Participation in conferences, discussion panels and masterclasses **Outside academic context:** ○ Online resources: e-courses, blogs, podcasts, e-books ○ Participate in role-playing games and scenarios — practice negotiating from the worst possible scenario ○ Join theatre communities/clubs
Career pathways	Examples of specific career pathways for which the skill is highly relevant include: ○ Research lead/team lead (in academia) — (level 3) ○ Business research consultant (for R&D intensive sector) — (level 2) ○ Science entrepreneur — (level 2) ○ Policy officer — (level 2) ○ Chief of a liaison officer — public sector — (level 3) ○ Chief of an NGO-non-profit organization — (level 3)

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SKILLS FOR IMPACT

COMMUNICATING IDEAS TO DIFFERENT AUDIENCES	Ability to communicate key ideas related to a topic to different audiences.
Levels of competence	**Level 1:** Can briefly summarize and simplify a scientific topic in own field to the relevant, larger, international research community using standard genres in the field. **Level 2:** Can briefly summarize and simplify complex topic to different audiences. Understands different communication needs of various target groups and is able to adapt the communication style accordingly. Knows different methods and channels for communicating ideas. Can debate the idea and provide feedback using inclusive language. **Level 3:** Can use the communication of ideas as an effective tool for getting support or buy-in or mobilising audience for action. Can use story-telling techniques to communicate the ideas.
How the skill can be developed	**In academic context:** ○ Being part of an active research group with internal seminars and participating in broader seminars within the department — giving very short presentations in both settings. ○ Attending seminars on communication skills and relevant genres. ○ Reflecting on and discussing key ideas when consuming and receiving information and knowledge. ○ Taking part in «blitz» communication events. **Outside academic context:** ○ Online courses and resources ○ Reflecting on and discussing key ideas when consuming and receiving information and knowledge. ○ Obtaining knowledge about how different persons and audiences relate to knowledge.
Career pathways	Examples of specific career pathways for which the skill is highly relevant include: ○ Principal investigator — (level 3) ○ User experience researcher — (level 2) ○ Science communicator — (level 2) ○ Business development manager — (level 3) ○ Business Development Search and Evaluation Analyst — (level 2) ○ Customer Service Agent — (level 2) ○ Partnership manager — (level 3)

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SKILLS FOR IMPACT

ENGAGING STAKEHOLDERS	Ability to identify internal and external stakeholders relevant to/impacted by the developed solutions. Ability to engage them in the formulation of solution.
Levels of competence	**Level 1:** Is able to identify actors impacted or impacting their research. Understands the differences between the stakeholder and is able to choose proper channels to reach out to them. **Level 2:** Is able to identify strategies and actions required to promote productive involvement of stakeholder. Understands how relationships with stakeholders should be managed and developed. Understands and anticipates stakeholders' needs. Maintains regular contact with stakeholders to ensure up to date and relevant communication and fosters strategic stakeholder relationships. **Level 3:** Identifies opportunities and innovative approaches to develop new and existing stakeholder relationships. Demonstrates and awareness of stakeholder issues and reflects on impacts/implications on project. Balances the potentially competing demands of stakeholder groups. Demonstrates ability to confidently and appropriately manage conflicts or challenging stakeholder issue.
How the skill can be developed	**In academic context:** ⭕ Manage different groups of stakeholders in the scope of your research (interdisciplinary approach of investigations) ⭕ Participating in the organization of events (workshops, conferences etc.) ⭕ -Co-create event/project/research with different stakeholder ⭕ Seminars, webinars or trainings ⭕ Training on management & communication skills **Outside academic context:** ⭕ Online courses and resources ⭕ Collaboration with different stakeholders that works in the same field of study (enterprises, NGO's, public sector etc.) ⭕ Following relevant pages on social media, joining social media groups, subscribing to newsletters
Career pathways	Examples of specific career pathways for which the skill is highly relevant include: ⭕ Research director –(managing interdisciplinary groups) — (level 3) ⭕ Project developer (in public or private sector) — (level 2) ⭕ Director of private-public partnerships (level 3) ⭕ Science entrepreneur (competence level 3) — (level 3)

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Examples of professions

Biostatistician

She/he using mathematics, statistics, and data to biology by collecting, analysing, and summarising the data they collect during their biological research to draw conclusions in the areas of medicine and agriculture. They are a critical addition to any research team and are often involved in the writing of papers on groundbreaking topics and research.

Bioinformatics Analyst

She/he works with large databases of data such as genomics or studying different cells and molecules, researches the pathology of diseases and helps with the development of experiments and algorithms to find cures.

Business development manager

She/he works closely with scientific teams and other Business Development members to develop client acquisition strategies, builds new client relationships and strengthens existing partnerships through capable management of existing collaborations.

Machine Learning Scientist

She/he designs, develops performing statistical analysis and uses results to improve model, analyses the use cases of ML algorithms and ranks them by their success probability. She/he needs to understand when the findings can be applied to business decisions.

Product Experience Design Lead

She/he is responsible for designing, modelling, prototyping, testing and defining product interfaces and interactions to deliver an exceptional user experience. It is a multifaceted role that involves working closely with user research teams, external design agencies, product management and members of the agile sprint teams.

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Examples of professions

⚙️ ## Visual Design Strategist

She/he has a strategic approach to working visually to improve communications, increase creativity, and unlock better thinking. Visual Design Strategists should have experience with Human Centred Design or Design Thinking and strong leadership presence to facilitate collaboration between Design, Product, and Tech.

⚙️ ## Design Researcher

She/he leads clients and teams through a journey of human-centred research to discover insights and inspiration and contributes to all phases of the design process. Design Researcher designs and plans creative research, including screeners, field and discussion guides. She or he has an ability to synthesise research findings, uncover and articulate insights that will inform and inspire design.

⚙️ ## User Experience researcher

She/he systematically studies target users to collect and analyse data that will help inform the product design process. UX researcher generally works with two types of research, qualitative and quantitative.

⚙️ ## Sales manager, Sales Executive — Life Sciences

Her or his responsibilities include full cycle sales from prospecting, securing, and managing client meetings, understanding client needs, addressing client concerns and objections, managing other experts in defining opportunities, proposing solutions, negotiating and closing deals.

⚙️ ## Product owner/Product manager

The product manager is responsible for guiding a product to success. They lead a cross-functional team that works on a product and improves its features. It is an organisational role that outlines a strategic roadmap for a product or product line.
The product owner is responsible for the product backlog. This means the product owner is responsible for a list of actionable tasks for new features, any change to existing features, bug fixes, etc. to make sure a team can attain a certain product outcome. It encompasses everything an agile team will work on.

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Examples of professions

⚙ Innovation consultant/Innovation manager

The Innovation consultant works with their clients to identify new opportunities and markets, which are essential for mapping out future growth. She/he provides input to identify strategies, business opportunities and new technologies to develop a collaborative process of innovation. She/he manages the end-to-end execution of idea implementation in underwriting, in the form of test & learn experiments/projects — stakeholder management, research design, data analysis and actionable insight generation for optimised risk management
The innovation manager is an enabler who creates the framework conditions in the company to enable innovation. She/he is an expert in the field of target-oriented innovation management methods and sets measures that ensure a quantitatively and qualitatively high innovation outcome. The innovation manager is thus responsible for the creation of structures and processes, for the conviction of people and for the dissemination of the necessary innovation knowledge within the company.

⚙ Partnership manager

She/he cultivates and maintains business relationships with key business partners, as well as implements strategy to enhance revenue for his company. She/he creates stronger partnerships through advocacy and coordination of new projects, manages partners at a strategic level and has a good working knowledge of how relations between NGOs, private sector and governments are managed.

⚙ Solution Architect

She/he is in charge of leading the practice and introducing the overall technical vision for a particular solution. She/he is responsible for evaluating an organisation's business needs and determining how IT can support those needs leveraging software, hardware, or infrastructure. A solutions architect also bridges communication between IT and business operations to ensure everyone is aligned in developing and implementing technical solutions for business problems. The process requires regular feedback, adjustments, and problem-solving in order to properly design and implement potential solutions.

⚙ Software or hardware developer in R&D

The research and development (R&D) engineer for computer software or hardware is an integral part of a modern R&D team. Like other members of the R&D team, the computer software or hardware engineer's primary focus is designing and creating an innovative new product.

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Examples of professions

⚙️ **PR and Communication manager**

She/he provides strategic oversight for communication strategies and multichannel campaigns that increase awareness and generate leads for product portfolios within the Science business unit.

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