Systems Innovation Competency Framework
Version 4.0

Introduction
With the growing awareness and need to address complex challenges that the world faces – like climate change, an ageing society or digitalisation – the number of people who not only can think and act systemically, but also can handle complex transitions and implement disruptive change needs to massively grow. These changes are non-linear, complex in nature and are characterized by loopy, exponential development pathways. This is why a Systems Innovation approach – emphasising the relatedness and connectivity of many phenomena in current society – is increasingly needed in all kinds of organisations as continuing to work through gradual, incremental changes will not be enough. This systems approach shifts the focus from individual parts to the organization of parts, recognizing that interactions are not static and constant but dynamic processes. Thus, the emphasis is on patterns, networks, relations and connections between nodes rather than in parts. As a result, central to systems innovation is iterative learning and systems thinking.

In the face of complex challenges, more people need to be competent to lead initiatives that create changes across whole systems. Certified Professional is one part of Climate-KIC’s education portfolio to empower people to drive and guide Systems Innovation by certifying personal competencies\(^1\) fundamental to changing systems and the future of work. So-called “future skills” like sense making, social intelligence, creativity, transdisciplinary communication, entrepreneurial thinking, a design mind-set, collaboration, adaptability or perseverance become increasingly important in an era of global and organisational change (Davies et al. 2011; Kirchherr et al. 2018). A Certified Professional has proven to be a ‘Systems Innovator’: a pioneer – not only capable of identifying the crucial leverage points – but for practically designing, testing, delivering and scaling innovative interventions for systemic change. A Certified Professional in Systems Innovation is characterized by his/her open-minded, adaptive and reflexive working style, leading systems innovation through collaboration and contributing to shared views and actions towards organizational innovation.

\(^1\) Competencies “[...] are acquired through a process of learning-by-doing, in which knowledge, skills, personal values and attitudes become integrated and connected to a particular task, duty, or role” (Lund et al. 2015, p. 82).
In the following, we are describing 20 competencies needed in many professions for changing systems, such as organizations and to proactively deal with the coming future of work. These are grouped in five “clusters”. The clusters do not stand for linear action steps, or stages but reflect the iterative, recursive and dynamic development of change processes. In fact they may unfold and evolve in several ways and paths. The first cluster (“Exploring”), combines competencies that are needed for understanding the system with its actors and its interconnectedness. The second cluster (“Framing”) brings together competencies that are crucial for envisioning system innovation and its potential future pathways. The third cluster (“Designing”) groups competencies starting with developing ideas through novel thinking and aiming at preparing a strategic plan for implementation. The fourth cluster (“Implementing”) comprises competencies needed for making planned things happen, including testing and prototyping, collaboration with and mobilisation of actors, and coordinating action. The last cluster (“Strengthening”) covers competencies aiming at learning from, adopting and deepening systems innovations. Mastering these competencies will enable professionals to promote innovative organizational change considering their contexts and environment, in a more comprehensive, sustainable and purposeful way.

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Exploring Systems Thinking

Description

Candidate identifies the necessity for change in a relevant system (e.g. his/her organisation, or community). He/she perceives the system as a whole, made up of interconnected and interdependent parts, and senses emerging patterns. Candidate conducts an analysis of system components and their relationships. Following a system mind-set he/she aims to identify patterns, paying attention to subsystems (e.g. social, technical, political etc.) and to different actors’ perspectives (e.g. selected companies, politicians, citizens). Moreover, the candidate takes into account the different levels of the system such as individual, groups and organisational as well as their relationships.

Knowing Capabilities & Resources

Description

Candidate is aware that he/she is part of the targeted system (and not an external agent) and understands his/her role in it as an innovator. He/she understands his/her interaction with the system and his/her opportunities of influencing it. For this purpose, the candidate appraises own personal and professional strengths and weaknesses and proactively addresses identified weaknesses through self-development and learning. The candidate moreover identifies existing and needed resources (e.g. financial, social, intellectual, cultural, political) and takes action to mobilise those not already available.

Network Development

Description

Candidate is aware of the necessity to identify the relevant actors and to network effectively with them to understand the system. Network Development at this stage is mainly about bringing in relevant perspectives to make sense of the whole system. The goal is to get a common understanding of the system and its context as diverse and rich as possible. The candidate engages others in building the system analysis and getting them involved in upcoming efforts to innovate the system.
Transdisciplinary Communication

Description

Candidate actively listens and understands the reasoning of experts from different disciplines, including their usual jargons, and relating them to mainstream discourse of the actors involved. Moreover, he/she crafts distinct narratives oriented to different stakeholders or sectors while staying compelling. This includes translation and communication into terms in common use and vice versa. Thus, candidate communicates effectively with diverse range of actors about system and context analysis, policy development, business and action plans, public relations, user-producer interaction, etc.

Framing

Defining Challenges

Description

Candidate reflects on the weaknesses, inconsistencies, problems and unsustainable situations of existing practices using a systems thinking lens. He/she scrutinises the context searching for relevant information to identify the system's challenges. Candidate exchanges with others his/her views on potential challenges and defines with them the challenge(s) to be addressed. As a result, actors are ready to frame important challenges and decide on which one(s) they want to work on.

Identifying Opportunities

Description

Candidate identifies relevant trends (e.g. environmental, societal, economical, technological) and their interdependencies for system innovation. He/she subsequently explores the stakeholder needs and the system's potential for future development. Based on this analysis, candidate - in interaction with relevant actors - identifies and generates a shared view about the opportunities for creating sustainable value through system innovation.
Shared Visioning

Description

Based on the critical analysis of the current system’s state and the multiple opportunities emerging, the candidate stimulates a shared vision to provide a long-term perspective of a more sustainable system. He/she works with other actors on formulating future scenarios and prioritizing the one that may serve as point of reference for goals and future developments. In this way, a collective, shared creative and inspiring vision is build up.

Facilitating Collective Creativity

Description

Candidate uses a collaborative approach of knowledge and idea generation, making the stakeholders co-designers of alternative trajectories of change from the current situation to the desired future. He/she identifies factors that may condition, foster and/or influence his/her own and others’ creativity. Candidate modifies single elements of the environment to facilitate co-creation processes. He/she is aware of the importance of generating creative tension being able to constructively manage conflicting situations in order to finally achieve a shared view on innovation paths.

Designing

Developing Ideas

Description

Candidate generates and develops alternative views of the system - both individually and together with other actors - aiming to identify different design concepts that could inspire system innovation. He/she is prone to question the ways things have traditionally been done or explained (critical thinking). Candidate is eager to produce and discuss new ideas or to combine ideas in unique ways with other actors. In doing so, he/she enhances unusual (divergent) thinking processes and independent thinking among the group members and facilitates a productive management of conflicting views. This leads to potential alternative configurations of the system aiming to take advantage of the opportunities and shared vision.
Evaluating Potential Solutions

Description

Candidate compares different overall views and ideas generated taking into account the stakeholder needs and shared vision. He/she discusses together with other actors the different innovative solutions while evaluating their potential advantages, disadvantages and overall feasibility. Candidate - individually and together with others - analyses risks, identifies weaknesses, and evaluates negative side-effects and costs that are likely to be caused by the intended innovation. In this way, he/she envisions short- and long-term potential impacts of the intended innovation. Candidate fosters collective decision-making through negotiation and consensus-building, even under uncertainty to prioritize the innovations to work on. This includes working with assumptions and insufficient information in a positive and proactive way.

Setting Goals

Description

Based on the selected innovations to work on, candidate - together with the other actors - sets the goals to be achieved and formulates the criteria of success. In doing that, they start from the vision and its ultimate goals, and engage in an iterative working-backwards process to derive intermediate objectives and main stepping stones. The candidate supports the group to identify the technical, institutional, and behavioural problems that are to be solved aiming to connect the present situation with the envisioned future system.

Formulating Strategies

Description

Candidate - together with other actors - formulates the strategies to achieve the goals of the intended system innovation. They work carefully in the development of an action plan in order to ensure that the different stakeholders are working towards the common goals and share the main strategies to reach the intended results. Candidate promotes among the actors the clarification of the conditions, inputs, and processes required for the strategies’ realisation. He/she stimulates the actors to consider potential adjustments under contextual changes and new scenarios. The candidate uses adaptive planning techniques, if deemed, and supports collective decision-making, managing uncertainty, ambiguity, and incomplete information.
Implementing
Testing & Piloting

Description

Candidate - with others - designs and dimensions one or several innovative interventions (prototypes) to initially test their feasibility and outputs as well as identifying strengths, weaknesses and needs for adaptation and improvement. He/she is open-minded and eager to learn from experiments, paying special attention to failure, mistakes or unexpected outcomes, using them as a chance for improvement of the designed intervention. Candidate cooperates with others in the redesign of the interventions to pilot them, so that assumptions, inputs, processes, outcomes and impacts are assessed and improved and further developed when needed.

Motivating & Mobilising Others

Description

Candidate convincingly presents to others the limitations and problems of the status quo and the need for change. He/she shows the benefits of the proposed interventions to different actors and engages them to take action towards the achievement of the intended goals. Candidate maintains momentum for those already actively involved, and interacts with passive or reluctant actors to convince them to get involved in the project of change. Quality of dialogue (based on active listening and on well elaborated and timely messages through a range of communication channels) is important to transition from the old system identity to the new one.

Collaborating with Others

Description

Candidate works together with others in the process of making the innovation of the system happen. He/she actively promotes shared mental models about the intended innovation and makes clear the contributions of his/her role and those of the other actors to this endeavour. Candidate understands the expectations and interests of the different actors involved in the innovation process and contributes to their alignment with the goals of the intervention. He/she contributes to building trust among the actors and is aware of the challenges getting the actors out of their “silos” in the system. Candidate promotes coop-
eration across boundaries to facilitate transition processes and supports a culture of open feedback for improvement and learning in a climate of psychological safety.

**Coordinating Action**

**Description**

Being clear about the supra-ordinated goals, candidate puts in place different coordinating strategies between partners (e.g. mutual adaptation, task coordination, coordination through goal-setting or coordination through shared vision, mission and culture). He/she implements with others suitable structures and operation processes reviewing them regularly to enhance quality and effectiveness. Candidate pays special attention to interfaces among different actors and units their interdependencies, frictions and conflicts and deals with unintended consequences, ripple effects, diversity and ambiguity.

**Implementing**

**Reflecting & Adapting**

**Description**

Under changing circumstances, candidate adapts his/her working style and revises their “mind-set” with a clear view on the intended innovation. This includes revisiting previous activities and stages in the process and avoiding a “what is done is done” mentality. He/she also promotes reflexivity among actors on the collective vision, objectives, strategies and processes of innovation and the eventual need to adapt them to current or anticipated circumstances. Candidate handles dynamic situations in an agile and flexible manner putting in place adaptive solutions and helping others to do so.

**Monitoring & Learning**

**Description**

Candidate monitors the implementation of the intervention, checking if it is on track and contributes to the intended changes. He/she identifies circumstances or contextual factors that deviate the change processes from the expected course towards the realisation of the vision. Through monitoring candidate identifies opportunities for learning and improvement. He/she shares these learning opportunities with others to promote organisational learning, not only correcting malfunctions of ongoing processes, but also improving
and innovating processes and, when demands change, to come up with new solutions. Candidate uses, as deemed, different learning processes such as “learning-by-doing”, vicarious learning, learning from failures, learning from feedback, network learning and learning communities.

**Showing Perseverance**

**Description**

In spite of difficulties, obstacles or discouragement during the innovation process, candidate shows steady persistence towards the achievement of the intended innovation. Thereby, he/she remains motivated and focussed, even under pressure and when confronted with criticism and resistance, and works towards convincing others about the importance to keep trying. Candidate shows resilience when confronted with difficulties, setbacks and failures, keeping a positive attitude, ability to regulate emotions and identifying helpful feedback from the situation. Under this conditions, he/she enables the group to carry on a rational analysis of what might have gone wrong and to search for paths that might be more productive.

**Scaling-up**

**Description**

Candidate takes action to consolidate the innovation established by the intervention and to produce long-lasting effects. He/she transfers interventions and/or lessons learned to other locations, sectors or organisations aiming for expansion of successful innovations, impacting more people and, thus, finally embedding the innovation in the mainstream. This involves an institutional spread of the innovation from ‘frontrunners’ and niche level to incumbent organizations and regime level enabling an environment for change. To do this effectively, the candidate requires social, political, and resource mobilization skills.