

Competency framework for collaborative work in research and innovation

Ten key competencies for carrying out
complex projects in public administrations

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- Sergi Frias Hernández, lab manager, Coboï lab.
- Rosina Malagrida Escalas, head of the Living Lab for Health at IrsiCaixa.
- Ismael Peña López, director of the Public Administration School of Catalonia (EAPC).

- Laia Pineda Rüegg, director of the Barcelona Childhood and Adolescence Institute.
- Josep Maria Vilalta Verdú, Executive Secretary of the Catalan Association of Public Universities (ACUP).

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2. INTRODUCTION

Our societies are becoming increasingly more complex and, as a result, so are the problems and challenges faced by public administrations. In order to overcome, mitigate or prevent these problems and challenges, in all their multidimensionality or complexity, we need to develop new knowledge.

Today, it is up to public administrations to offer solutions to these challenges. These may be social challenges, which administrations address by designing, implementing and reviewing public policies. Or they may be organisational challenges, for instance, to make public services more suitable and efficient. With this aim in mind, public administrations must network amongst themselves and with other social stakeholders.

Collaborative work is one of the pillars of administrative transformation, because coming up with good solutions to complex challenges requires teamwork. Furthermore, it requires work by transdisciplinary teams that draw on the knowledge of those able to theoretically devise solutions, those in a position to implement them and those who are affected by them, such as public service users (Buser & Schneider, 2021).

Transforming administrations also means engaging in research and innovation processes. Here we conceive research and innovation as two interlinked parts of the same knowledge chain (Generalitat de Catalunya, Ministry of Health, 2016). Research is relevant in the process of transforming administrations when it is connected to innovation, that is, when it is geared towards overcoming challenges and produces knowledge about both the problems being faced and their possible solutions. This research goes beyond the academic world and needs to leverage experiential knowledge as well, which is best offered by people working in public administration and management, on the one hand, and social groups affected by the challenges and solutions, on the other. In this regard, the lines between research and innovation are blurred, and it is the process as a whole that becomes important. This is the underpinning philosophy of the EAPC's research and innovation projects.

Since its creation, the EAPC has supported research aimed at improving public administrations. At first, it did so by funding projects undertaken by university research groups, but over the years it be-

came apparent that these projects had little impact on administrations. In order to bolster this impact, the [EAPC Research Driver](#) was launched in 2018.

The EAPC Research Driver programme aims to produce research that improves and innovates public administrations and public policies, with a clear focus on informing decisions and opening up real avenues for application in the public administrations. In other words, research that helps to drive public policies based on scientific evidence.

It therefore follows the collaborative research approach, which builds on the principles of responsible research and innovation (RRI), as advocated by the European Commission. In this approach, research must be focused on resolving social challenges and have the participation of all the actors involved, to identify the challenges and develop the projects. It was a cross-cutting approach in the Horizon 2020 research framework programme, and is now one of the inspiring principles of the Horizon Europe framework programme (2021-2027), which promotes mission-oriented research (Mazzucato, 2018).

The research promoted by the EAPC Research Driver programme focuses on challenges proposed by professionals working in public administration and management. These challenges are addressed together with members of the scientific community and the affected social stakeholders, in order to bring the research and its results closer to the values, needs and expectations of society. The programme values the knowledge of any stakeholder of the so-called quadruple helix (academia, public administration, business/industry and civil society), all of whom are considered researchers in a collaborative team. In fact, any of them can propose challenges, which may be taken on by the programme if they meet two conditions. First, they must be complex challenges that require research and, second, they must be of relevance to a public institution that is committed to implement solutions to tackle them.

The EAPC launched this programme in 2018 as a pilot project; it then hosted an innovation camp for the European Commission in 2019; and since 2020 all its research projects have been modelled on this approach.

The EAPC has thus revised its initial strategy (funding research projects on public administration and public policy) to include the collaborative research approach, with two key aims. Firstly, to draw on the knowledge of the scientific community, professionals working in

public administration and management, business and industry, and civil society to analyse problems and the solutions put forth to solve them. And secondly, to ensure that these solutions are implemented and assessed by an institutional mentor, a specific figure in the team that takes on this commitment. In this way, research and innovation are intertwined and prove useful in the process of transforming administrations.

The idea is to find solutions to collective challenges where consensus is needed to ensure that these solutions are viable and socially acceptable. Here, collective intelligence plays a key role. It goes without saying that bringing on people from different fields and disciplines and with different experiences, roles and expectations makes this type of team somewhat complex. The EAPC's experience with teams working on collaborative research and innovation projects has shown how vital it is for them to possess certain competencies as a whole, to the extent that their very success depends on them. By success we mean that their work is done rigorously, draws on a range of perspectives and produces viable solutions. It is for this reason that we have developed this *Competency framework for collaborative work in research and innovation*, which describes the functions that must be performed in these processes; identifies ten key competencies for team members (and their associated behaviours); and draws connections between these functions and competencies in order to lay the foundation for a specific competency development programme.

The resulting competency development will be useful not only for collaborative teams pursuing research and innovation projects, but also generally for any team working on a project to find solutions to multidimensional or otherwise complex challenges. In the process of transforming administrations, in which the EAPC plays a pivotal role, these high-performance teams and these types of projects will become increasingly more common. As a school, it is our responsibility to provide the tools for their success. The main goal of this publication is just that.

3. AIMS

The general aim of this competency framework is to contribute to the success of projects undertaken by collaborative teams. Its specific aims are as follows:

- Identify and understand the competencies that must be drawn upon by members of transdisciplinary or collaborative teams carrying out research and innovation projects or, more broadly, projects whose mission it is to transform and improve administrations and public policies. This refers specifically to cross-disciplinary competencies, which do not depend on a person's functional (i.e. technical and procedural) expertise or the group to which they belong (academia, public administration or civil society).
- Describe the behaviours that reflect these competencies.
- Create a map of functions and competencies, and draw connections that can be used to design a competency development programme for people who may be on such teams.
- Provide the groundwork for a competency self-assessment tool that allows collaborative teams to identify their strengths and weaknesses as a whole, and their learning and training needs.
- Outline strategies to equip team members with training, learning and support tools and materials so that they can develop their competencies.
- Build a solid basis for the competency profile of people who are prepared to work on collaborative teams, so that this profile can be accredited for professional recognition purposes following any necessary competency development.

4. METHODOLOGY

Two complementary sources have been used to build this competency framework. Firstly, the lessons learned from the EAPC Research Driver programme (Guevara & Riera, 2020) and the EAPC's previous experience identifying and describing professional competencies (Escola d'Administració Pública de Catalunya, 2018, 2020). And secondly, the scientific literature available on competencies in this field and the experience of leading European and international institutions in collaborative research and innovation applied to solving complex social challenges.

With respect to the first point, our experience supporting the funded research teams taking this new collaborative approach has allowed us to detect competency development needs and has prompted us to embark on this project. We were also able to draw on the work previously carried out by the EAPC to compile the *Professional Framework for Management Functions in Public Administrations* (2018) and the *Competency framework for innovative professionals in public administrations* (2020), which provide methodological insights and a series of professional competencies and associated behaviours from which to draw connections. This project has an additional layer of complexity: the wide range of actors that must work together to find solutions to the complex challenges faced by public administrations and public policies. That is why we placed our focus on teams and ventured to identify the key competencies that team members should possess as a group (regardless of whether they each possess them all individually), reflecting on how teams should function throughout a project to ensure its success.

With regard to the second point above, we reviewed existing research and also took away what we could from the experience of leading European and international institutions that have become a reference in the theory and practice of collaborative work in research and innovation. Our main sources are described below:

- a) Scientific publications on competencies for collaborative research, open science and evidence-informed policymaking, e.g. European Commission, Directorate-General for Research and Innovation, O'Carroll et al. (2017), Topp et al. (2018), Guimarães et al. (2019), Knechtel (2020) and OECD (2020). The publications produced by the European Commission's Joint Research Centre (JRC), especially the competency frameworks it has developed for academic researchers and policymakers,

are of particular help for applying scientific evidence to policymaking (Joint Research Centre, European Commission, 2022).

- b) The experience and resources made available by the [Network for Transdisciplinary Research \(td-net\)](#), a European benchmark in this field led by the Swiss Academies of Arts and Sciences, especially the MOOC “[Partnering for Change: Link Research to Societal Challenges](#)”. In academic circles, the word transdisciplinary is used to describe research that embraces a combination of perspectives not only from various academic disciplines (which would be *interdisciplinary*), but also from social stakeholders not involved in academia. It corresponds to *collaborative research* in this publication.
- c) The work carried out by the [Network of Interdisciplinary and Transdisciplinary Research Organisations](#), which is led by universities in Australia and New Zealand, specifically the blog [Integration and Implementation Insights](#), which seeks to build a community around the new discipline of Integration and Implementation Sciences.

We also took into account the work of other institutions and organisations, including the [Rathenau Instituut](#) set up by the Dutch government in 1986 to assess the impact of technology on people’s lives; [Living Innovation](#), a Vienna-based organisation that brings together companies, scholars and members of civil society for responsible innovation; and the US-led [International Network for the Science of Team Science \(INSciTS\)](#), which aims to make team research-based knowledge accessible and useful so as to connect science and public policy. Lastly, we considered various tools developed under European research projects that followed an RRI approach, such as the [RRI tools](#) open science and innovation project, [HEIRRI](#) (Higher Education Institutions and Responsible Research and Innovation), and [SeeRRI](#) (Building Self-Sustaining Research and Innovation Ecosystems in Europe through Responsible Research and Innovation).

It should be noted that the competency framework presented here includes certain innovations with respect to these international precedents. The main reason is that this initiative comes from the public administration and not from an academic or research-focused institution, so it adopts a different perspective.

First of all, in this approach all types of knowledge contributed by the members of a complex team are valued equally, regardless of the group to which they belong (academia, public administration, business/industry or civil society). They all have potential as re-

searchers and innovators. In other words, both scientific knowledge and technical and experiential knowledge are regarded as essential for teams and must mutually engage during projects. The integration of these different types of knowledge, which entails pooling different languages, perceptions and perspectives, is in fact one of the key aspects that will require competency development.

Secondly, competencies are not divided by group (academia, public administration, business/industry, civil society), but rather it is assumed that any person from any of these groups can contribute with any of the cross-cutting competencies that a collaborative team needs. As we said, our focus is on the team as a whole.

The process followed to build the *Competency framework for collaborative work in research and innovation* is described below:

1. Review and analysis of relevant academic literature from around the world, in order to identify the competencies, attitudes and values already described in the field of collaborative or transdisciplinary research. References are listed at the end of this publication.
2. Elaboration of an initial map of connections between these competencies and the ones identified in the two previous EAPC publications.
3. Mapping of quadruple helix stakeholders (academia, public administration, business/industry and civil society) that were relevant to the project. The stakeholders' potential levels of interest and alignment with our objectives was also considered.
4. Drawing up of a preliminary proposal for a functional map of collaborative work in research and innovation projects, including an initial selection and description of key competencies.
5. Organisation of two working sessions with a group of experts from the stakeholder map, in order to work on, check and validate the initial proposal of competencies. This group was made up of the following people, all of whom have extensive experience supporting or leading collaborative research and innovation teams:

GROUP OF EXPERTS	
Assumpta Aneas Álvarez	Professor in the Faculty of Education, University of Barcelona
Rosa Arias Álvarez	Founder and CEO, Science for Change
Tatiana Fernández Sirera	Head of the Unit for Economic Promotion, Generalitat de Catalunya
Sergi Frías Hernández	Lab manager, CoboI lab
Núria Guevara Pedemonte	Head of the Unit for Research, Innovation and Knowledge Transfer, Public Administration School of Catalonia (EAPC)
Rosina Malagrida Escalas	Head of the Living Lab for Health, IrsiCaixa
Ismael Peña López	Director of the Public Administration School of Catalonia (EAPC)
Laia Pineda Rüegg	Director of the Barcelona Childhood and Adolescence Institute
Eulàlia Pla Rius	Deputy Director-General for Research, Innovation and Development, Public Administration School of Catalonia (EAPC)
Elvira Riera Gil	Research officer, Public Administration School of Catalonia (EAPC)
Josep Maria Vilalta Verdú	Executive Secretary, Catalan Association of Public Universities (ACUP)

- Design of a survey on the competencies validated in the first working session with the group of experts, in order to revalidate the list of selected key competencies, identify possible new competencies and work out the associated behaviours. The survey was sent by email to 73 people with the following profiles: experts in collaborative work identified in the initial stakeholder map, members of the research teams selected by the EAPC in the 2021 grant call for research on public administration and public policies, and specialists who collaborate with the EAPC on management training projects. The core group of experts was also asked to forward the survey to anyone else they consider especially competent in this field. A total of 47 responses was received, which were discussed in the second working session with the group of experts or

in one-on-one conversations with those not attending the working session.

7. Ten cross-cutting competencies, key for collaborative teams working on research and innovation projects, were selected and defined.
8. The behaviours associated with each of these competencies were identified and described. This step was carried out mainly by the EAPC team, building on the ideas and proposals that came out of the collaborative process leading up to it. Subsequently, information on the final proposal of key competencies and associated behaviours was provided to all the individuals having thus far collaborated in the project.
9. A map of connecting functions and competencies, was elaborated drawing on the work done internally at the EAPC and the contribution of other experts.

5. COLLABORATIVE WORK IN RESEARCH AND INNOVATION

As has been mentioned in the introduction, when faced with complex challenges or problems, administrations must offer solutions. These solutions must be oriented towards the common good, and they must be useful for improving public policies and the organisational design itself.

In order to achieve this, the boundaries between scientific disciplines, and also between theory and practice need to be crossed. Close interaction from the outset between scholars and social stakeholders who can make decisions, take action or are simply affected by these problems and solutions becomes essential.

In other words, there is a need to work collaboratively in teams that are complex because they bring together people who are potentially vastly different in terms of their knowledge, background, perspective and interests, but who are united by a common purpose: to find solutions to challenges that contribute to the common good.

This type of collaborative work rests on two pillars (Rathenau Instituut, 2021):

1. Active project management. Team members should start out with a shared vision; their interactions within the team and with relevant social stakeholders should be well organised; and their respective insights should be pooled.
2. Willingness to learn and to revise and adapt the project iteratively. Teams should follow a continuous learning approach and be open to adjusting their projects dynamically, because both the context of the challenges and the implementation of the solutions are prone to change.

In the next sections, the general competency of these teams is defined, that is to say their main objective or mission. An analysis of the functions they are expected to perform is subsequently outlined and, building on this, a description of the cross-cutting competencies they must draw upon and the behaviours associated with these competencies is presented.

5.1 General competency

Carry out research and innovation projects (or complex projects in general) to respond to administration and public policy challenges linked to social or organisational challenges, through collaborative work among actors working in the academia, in public management and members of social groups that are involved or affected.

5.2 Functional analysis

Functional analysis allows us to determine the main functions that collaborative teams must develop in research and innovation processes, and the professional performances through which these functions are realised operationally. This type of analysis is an essential first step towards identifying the key competencies that teams will require to perform their functions and handle any needs that arise while doing so.

In the analysis of collaborative research and innovation processes, four main functions are identified, which break down into a number of professional performances. It must be emphasised that these functions and professional performances can be carried out by any member of the team, regardless of the group to which they belong (academia, public administration, business/industry or civil society). However, as we will see below, certain groups are better suited to perform certain functions.

FUNCTIONS	
Before putting the team together (for the initial project proponent or proponents)	
F0	Conceive and envision a project to offer solutions to a public policy challenge.
After putting the team together	
F1	Design the project collaboratively.
F2	Gather and analyse information from a range of sources and types of knowledge, from a systemic standpoint.
F3	Collaboratively discuss, draw up and communicate the results.

5.2.1 Before putting the team together

The first of these functions is carried out before the team is formed, by the person or group of people seeking to launch a research and innovation project. This is why we have called it ‘function zero’ (FO).

It involves conceiving and envisioning a project to offer solutions to a public policy challenge. This process is essential and will be decisive for all subsequent teamwork. It is built around a challenge that has been identified (but not yet formulated) by the project proponents and meets two conditions: it is complex and requires the generation of new knowledge.

At this point, the project’s core proponents may seek the involvement of groups affected by the challenge, as they may be able to make relevant contributions when formulating the challenge and designing the initial project proposal.

This function includes the following professional performances (PP):

FUNCTIONS AND PROFESSIONAL PERFORMANCES	
FO	Conceive and envision a project to offer solutions to a public policy challenge.
	PP1 Formulate the challenge by analysing and contextualising it.
	PP2 Identify and map possible affected groups (using inclusive criteria) and relevant stakeholders from the public administration, academia, business/industry and civil society.
	PP3 Make initial contacts to canvass people’s interests, aims and expectations; identify knowledge gaps; detect possible barriers to stakeholder participation; and design strategies to mitigate these barriers.
	PP4 Draw up an initial theory of change proposal to find solutions to the challenge.
	PP5 Draw up an initial project proposal.
	PP6 Compile a list of potential team members, bearing in mind the required profiles and competencies, and propose the project to them.

The initiative to conceive a project can come from the academic world, public administration or social groups affected by a problem. However, public administration is best suited to perform this function, firstly because it can identify priority challenges for public policies and administrations and secondly because it has more means to identify and bring together the relevant stakeholders from all the groups linked to these challenges.

5.2.2 After putting the team together

Once the team is formed, its members collaboratively perform three functions, which involve designing the project; gathering and analysing information, and integrating knowledge; and drawing up and managing results. Each function includes various professional performances.

FUNCTIONS AND PROFESSIONAL PERFORMANCES	
F1	Design the project collaboratively.
	PP1 Reformulate the challenge and theory of change as a team.
	PP2 Share and consider the expectations of every team member.
	PP3 Work together to draw up a revised version of the stakeholders map.
	PP4 Examine any knowledge gaps, whether scientific or experiential, as a team.
	PP5 Define the project aims and approach as a team.
	PP6 Define the working methodology as a team.
	PP7 Identify learning or training needs among the team members and affected groups, as well as tools to work through them.
	PP8 Specify the roles, tasks and responsibilities of all team members.
	PP9 Plan the project and set a work schedule as a team.
	PP10 Collectively analyse the project risks and prepare solutions to mitigate them.

FUNCTIONS AND PROFESSIONAL PERFORMANCES		
F2	PP11	Agree on decision-making rules; confidentiality, data protection and transparency protocols; ethical issues; and the distribution of intellectual property rights.
	Gather and analyse information from a range of sources and types of knowledge, from a systemic standpoint.	
	PP1	Carry out a systematic review of the scientific literature, previous experiences and comparable cases, and find points of connection.
	PP2	Integrate the needs, expectations and challenge-related perspectives of the involved or affected groups.
	PP3	Integrate the scientific and experiential knowledge of the team members.
	PP4	Compile and find points of connection between the various languages, concepts and discourses used by the team members.
F3	Collaboratively discuss, draw up and communicate the results.	
	PP1	Review and redirect the project, if necessary, in an iterative way.
	PP2	Cross-check the results, review them with the involved or affected groups and give them feedback regularly.
	PP3	Collaboratively assess the quality of the project in terms of scientific rigour, social robustness and practical relevance, making sure that the results can be upscaled and generalised.
	PP4	Work together to draw up a list of recommended actions that can be implemented and assessed.
	PP5	Systematise the knowledge gained and produce a final results report.
	PP6	Present the results and recommended actions to everyone involved in the project.

Each of these functions is performed collaboratively by the team members, who all bring valuable, complementary knowledge and perspectives to the table, so they are all needed. That said, the academic members of the team are best suited to identify research gaps and deliver methodological rigour. The groups affected by the challenges or problems are best suited to input needs and expectations, and to make more creative or disruptive proposals for

possible solutions. Finally, members of the public administration are best suited to propose viable, actionable and assessable solutions, as they will be largely responsible for the future implementation and evaluation of the results (Guevara & Riera, 2020).

Although this publication will not be going into them, the need to incorporate members that exercise certain roles within the team, such as those of leadership, facilitation or mediation, and communication or relationship-building should be emphasised. It is important that the team manages these roles accordingly to ensure the project's success.

6. CROSS-CUTTING COMPETENCIES AND ASSOCIATED BEHAVIOURS

The term ‘competencies’ refers to the knowledge, skills and attitudes that are mobilised in a given environment to achieve excellent results.

Cross-cutting competencies are those that complement a person’s or team’s expertise in the professional elements involved in their main functions. They encompass aspects relating more to attitudes and emotions, supplementing professionalism with the necessary attributes in terms of basic personal traits, functional management criteria and relations with others in all regards.

Building a competency framework involves modelling and describing professional excellence, although different levels of attainment can be defined for each competency. In this publication we do not divide attainment into levels, and in our description of the behaviours associated with each competency we have taken the highest level, i.e. excellence, as our standard of reference.

The associated behaviours are the behavioural displays of excellent professionals in their role as members of a collaborative team engaged in research and innovation projects, and show whether a person is acting in line with the defined competency.

As mentioned above, the focus of this competency framework is the team as a whole. We are aware that it is extremely difficult that all members of a collaborative team have an excellent level of all ten competencies, but we believe that the team as a whole should aspire to mobilise all of them throughout the project. Before embarking on a project, it is important for the team to consider the competencies required to carry it out successfully.

The cross-cutting competencies are grouped into three blocks: the first, *holistic perspective*, includes three personal competencies referring to members’ basic personal traits; the second, *focus on transformation*, includes three functional competencies referring to functional management criteria; and the third, *radical collaboration*, includes four interpersonal competencies referring to relations with others.

HOLISTIC PERSPECTIVE
personal competencies



Systemic and critical thinking

Analyse information, interconnecting the multiple dimensions of reality and selecting information that is pertinent to the project, and avoid professional and cultural biases.



Strategic vision

Be alert to signs of change and spot opportunities and trends in the environment, in order to anticipate future scenarios and employ forward thinking.



Flexibility and adaptability

Display a willingness and openness to implement change; embrace new perspectives, types of knowledge and approaches; adapt to the environment, and iteratively revise the project.

FOCUS ON TRANSFORMATION
functional competencies



Orientation towards the common good

Guide the project so that it generates public value and helps to build a more just, inclusive, equitable, sustainable and resilient society.



Results orientation

Make decisions so that the project leads to transformative solutions that can be implemented, transferred to other contexts and replicated.



Planning

Effectively determine the project's aims and priorities, mapping out the team's actions, setting deadlines, identifying the necessary resources, and establishing criteria for pursuing and achieving objectives.

RADICAL COLLABORATION
relational competencies



Teamwork and networking

Work and collaborate with a group of people to achieve a common goal and build professional relationships of trust, identifying key stakeholders and networking with them to carry out actions that benefit everyone involved.



Leadership

Project a compelling vision, a strong purpose and a clear direction, motivating individuals and teams to achieve common goals.



Positive conflict management

Positively and effectively manage situations, events and conflicts in which interests are at stake that may affect the relationships between people, jeopardise the project's aims, or undermine the interests or tarnish the image of the people and organisations involved.



Communication

Deliver information whenever necessary and to whoever needs it, in the most suitable way according to the situation and recipients, to make the message effective.

HOLISTIC PERSPECTIVE



Systemic and critical thinking

Analyse information, interconnecting the multiple dimensions of reality and selecting information that is pertinent to the project, and avoid professional and cultural biases.

ASSOCIATED BEHAVIOURS

Addresses complex problems with a holistic and inclusive mindset.

Draws on intuition and connects ideas.

Identifies and maps out systems and the ways in which their parts connect, and finds underlying patterns.

Imagines different options and identifies their enablers and their barriers.

Identifies leverage points and opportunities with the greatest potential to make sustainable improvements to the system.

Challenges established approaches and asks questions that open up new avenues of thought.

Recognises or identifies potential biases or barriers that make it impossible to offer objective solutions, and is able to mitigate them.

Identifies inconsistencies and errors in one's own reasoning and that of others.

Dismisses reasoning based on impressions, opinions, prejudices or beliefs.



Strategic vision

Be alert to signs of change and spot opportunities and trends in the environment, in order to anticipate future scenarios and employ forward thinking.

ASSOCIATED BEHAVIOURS

Is alert to the social, political or organisational environment for signs of change that may affect the project or related public policies.

Imagines and thinks long-term, and works through scenarios to build solid future outlooks that are shared with relevant stakeholders.

Pictures multiple futures and what these could mean for the reality to be transformed.

Detects changes and trends in a given environment, and recognises factors that may help or hinder the transformation sought by the project, in order to (re)set the project's course in anticipation of the potential impact of these changes.

Proposes ways to redirect the project to get ahead of the possible impact of any changes and trends detected.

Understands and takes into account the interests of social groups that are relevant to the project, and spots opportunities for action.

Draws connections between local occurrences and global trends.

Conceptualises the steps to take to reach the desired scenario.



Flexibility and adaptability

Display a willingness and openness implement change, embrace new perspectives, types of knowledge and approaches, adapt to the environment and iteratively revise the project.

ASSOCIATED BEHAVIOURS

Is open-minded to new ideas, perspectives, types of knowledge and approaches, and accepts the challenge of acting outside one's comfort zone.

Values the diversity of ideas and contributions that come from team members and social groups linked to the project.

Shows tolerance and respect for ideas that are different from one's own.

Accepts arguments that are more solid than one's own.

Tolerates mistakes and turns them into learning opportunities.

Shows a willingness to revise and reorient the project when the need arises.

Copes well with complexity, uncertainty, insecurity and a lack of clear answers to the problems posed.

FOCUS ON TRANSFORMATION



Orientation towards the common good

Guide the project so that it generates public value and helps to build a more just, inclusive, equitable, sustainable and resilient society.

ASSOCIATED BEHAVIOURS

Ensures that the project seeks the general interest and the present and future well-being of society, and does not serve self-interests.

Sets up systems to gain in-depth knowledge of the public's needs, demands and expectations.

Conceives the project with economic, social and environmental sustainability criteria.

Values and promotes participatory and community work, and makes a special point to embrace the perspectives of groups that are often excluded.

Defines aims and work processes in light of the needs and expectations of the involved or affected groups.

Is familiar with and uses methods to bring out points of agreement and disagreement relating to matters of interest for the involved or affected groups.

Identifies, when consensus cannot be reached, a minimum common denominator that allows agreements to be made so that the project has a positive social impact.

Is familiar with and uses methods to measure the public value of possible proposals for action.

Makes proposals for action that pursue the shared vision of all stakeholders.



Results orientation

Make decisions so that the project leads to transformative solutions that can be implemented, transferred to other contexts and replicated.

ASSOCIATED BEHAVIOURS

Designs work processes and chooses suitable methodologies to make specific proposals for action.

Works with clearly defined, measurable, realistic and ambitious goals.

Works with project execution monitoring tools and implements corrective measures when necessary.

Takes risks and commits resources to achieve better results.

Designs and uses indicators to assess the project's design and results, and prepares them for the sake of transparent accountability.

Ensures that the project's results include proposals for action that can be implemented through public policy.

Formulates proposals for action in such a way that their implementation in policy and their impact on society can be assessed.

Formulates proposals for action in such a way that they can be transferred and replicated in other settings.



Planning

Effectively determine the project's aims and priorities, mapping out the team's actions, setting deadlines, identifying the necessary resources, and establishing criteria for pursuing and achieving objectives.

ASSOCIATED BEHAVIOURS

Understands that planning is done in pursuit of the team members' shared vision, and includes them in the process.

Determines the actions required to achieve the intended aims and assigns them to the team members, bearing in mind the different functions and workloads they have at each stage of the process.

Commits the right amount of resources to complete these actions on time, and makes adjustments as needed.

Draws up schedules and properly prioritises pending tasks to ensure that deadlines are met.

Identifies risks and is able to manage them planning-wise, making changes if necessary.

Designs and uses performance assessment indicators to determine whether planning changes should be made.

Is flexible when making and carrying out plans, and updates them as needed based on the iterative project revisions, the assessment of indicators and any unforeseen circumstances.

RADICAL COLLABORATION



Teamwork and networking

Work and collaborate with a group of people to achieve a common goal and build professional relationships of trust, identifying key stakeholders and networking with them to carry out actions that benefit everyone involved.

ASSOCIATED BEHAVIOURS

Is able to identify relevant stakeholders and the right people for the project across disciplines, professional backgrounds and sensibilities.

Proactively makes contacts and is able to bring them onto the project.

Values the importance of taking part in a team whose members possess a range of profiles, and recognises the power that people from different backgrounds have to enrich and transform the project.

Shows empathy and assertiveness, both with fellow team members and with other stakeholders from different backgrounds.

Listens with interest, allowing everyone to express themselves and valuing their input.

Employs debate, discussion and negotiation techniques to facilitate mutual understanding and agreement.

Works the ideas of others into one's own discourse, and recognises the value of other people's contributions.

Embraces the team's decisions as one's own, even when one disagrees with them personally.



Leadership

Project a compelling vision, a strong purpose and a clear direction, motivating individuals and teams to achieve common goals.

ASSOCIATED BEHAVIOURS

Fosters all-around participation to set a collaborative work agenda.

Motivates the team and generates enthusiasm around the shared challenge.

Strives to build a sense of belonging within the team.

Brings out the best in all team members, so as to integrate their knowledge.

Creates a safe, positive and trusting work environment in which everyone feels empowered to share their visions and proposals, while respecting and listening to those of others.

Applies participatory methods to engage stakeholders and give them a voice throughout the process.

Advocates consensual decision-making within the team.

Promotes self-reflection, joint reflection and critical thinking within the team

Acts transparently and is a role model for the rest of the team when it comes to encouraging such behaviour.

Encourages horizontal relationships and manages power relations and tensions within the team.



Positive conflict management

Positively and effectively manage situations, events and conflicts in which interests are at stake that may affect the relationships between people, jeopardise the project's aims, or undermine the interests or tarnish the image of the people and organisations involved.

ASSOCIATED BEHAVIOURS

Embraces differences and values their positive and constructive nature, rather than regarding them as a threat.

Values conflict's potential to spark change and innovation.

Stays focused on the team's initial aims and commitments when analysing and managing conflicts.

Negotiates assertively and shows understanding and consideration for the expectations, interests, needs and positions of others.

Seeks and helps to find alternatives by encouraging team participation.

Helps to choose the best solution whereby everyone wins in some way, showing a win-win mindset.

Acts as a mediator in situations of conflict between people, groups or organisations.

Shows composure and emotional self-control in order to encourage constructive dialogue that minimises the parties' sense of fear and loss.



Communication

Deliver information whenever necessary and to whoever needs it, in the most suitable way according to the situation and recipients, to make the message effective.

ASSOCIATED BEHAVIOURS

Identifies the points across every phase of the project at which communication is necessary, and determines to whom information needs to be relayed, whether team members, social stakeholders linked to the project or the wider public.

Applies the right communication strategies depending on the aims and target audience.

Seizes communication opportunities at any point as the project develops.

Compiles and finds points of connection between the various perspectives, languages, concepts and discourses contributed by the team members.

Shows assertiveness and persuasiveness when communicating with the team, the social stakeholders involved and the general public.

Communicates clearly, thoroughly and in a way that is understandable for the target audience.

Adapts the communication style, discourse and language to the listener or audience profile and the channel being used.

Rigorously presents facts and figures in visual form to make them easier to understand.

7. MAP OF FUNCTIONS AND COMPETENCIES

To complete this *Competency framework for collaborative work in research and innovation*, we present a map of functions and competencies, identifying the connections between them in order to lay the foundation for a future competency development programme.

This exercise will also aid the development of a self-assessment tool for teams to identify their competencies as a whole and their learning and training needs.

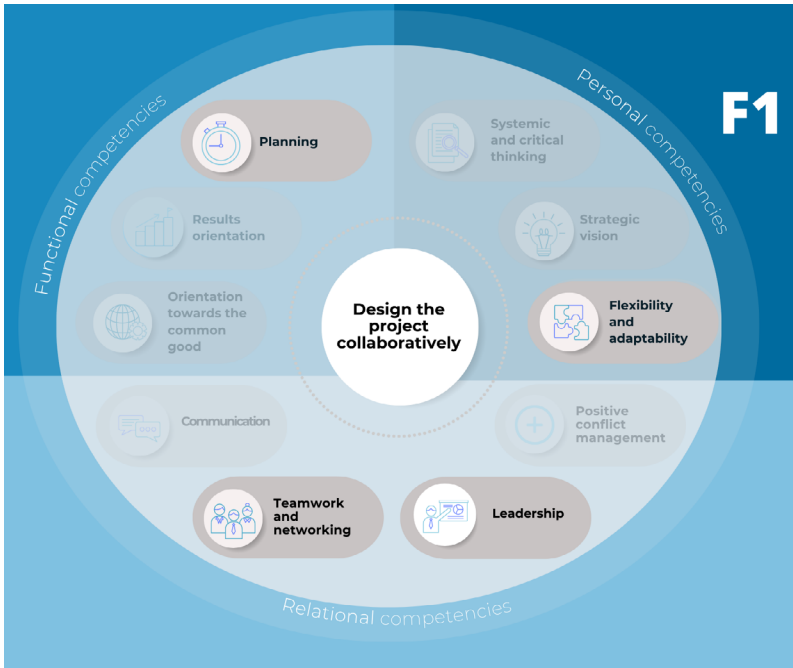
The map of functions and competencies is the result of contributions from various experts, and gives us clues as to which competencies are most important for carrying out each professional performance and, more broadly, each function.

Our approach indicates the following for each function:

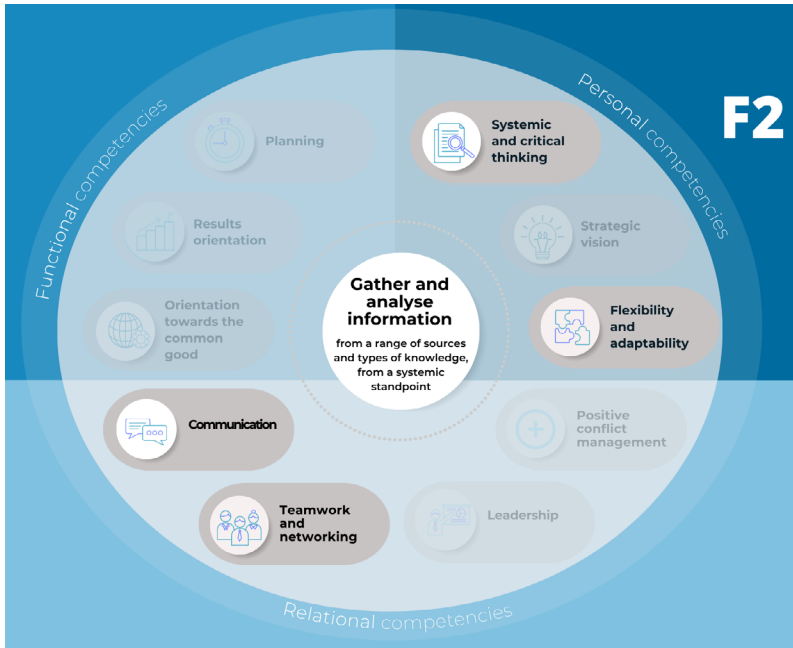
- For function O, which involves conceiving and envisioning the project, the main competencies required are strategic vision, orientation towards the common good, and systemic and critical thinking, far ahead of the rest.



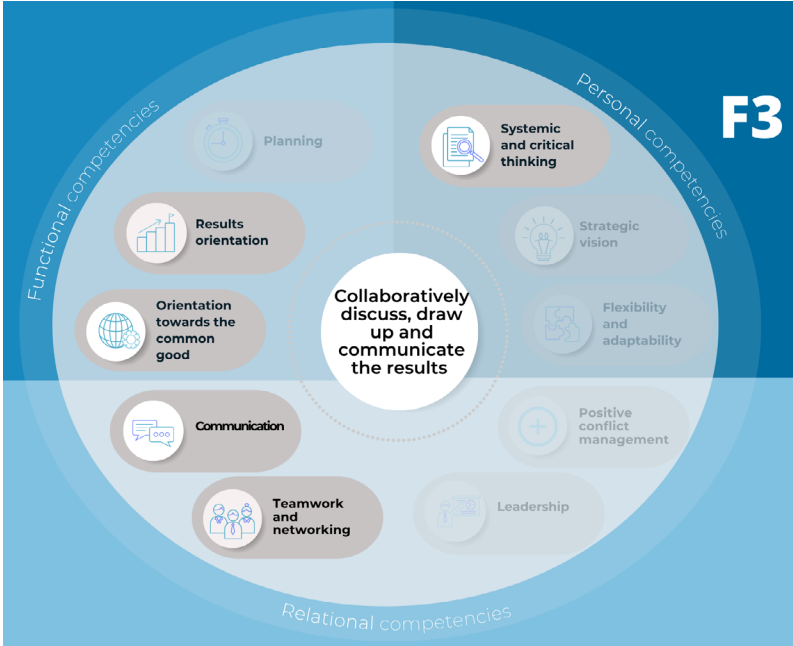
- For function 1, which involves designing the project, teamwork and networking are extremely important, as are flexibility and adaptability, leadership and planning.



- For function 2, which involves taking the project forward by integrating different types of knowledge, four main competencies are required, all to a similar extent: teamwork and networking, flexibility and adaptability, communication, and systemic and critical thinking.



- Finally, for function 3, which involves discussing, drawing up and communicating the results, the main competency required is results orientation, followed by communication, orientation towards the common good, teamwork and networking, and systemic and critical thinking.



Of the ten competencies, the only one that does not stand out overall in any function is positive conflict management. However, this competency proves vital at critical moments, for certain professional performances to be carried out during project design and development. For example, when considering the expectations of the team's various members; when assigning roles, tasks and responsibilities; and when integrating the needs, expectations and challenge-related perspectives of the involved or affected groups.

The following table shows the main competencies that teams must mobilise for each professional performance. The relevance of each competency is indicated on a spectrum of four colours (dark blue denotes high relevance and white, low relevance).

COMPETENCY FRAMEWORK FOR COLLABORATIVE WORK IN RESEARCH AND INNOVATION - PUBLIC ADMINISTRATION SCHOOL OF CATALONIA

GENERAL COMPETENCY

Carry out research and innovation projects (or complex projects in general) to respond to administration and public policy challenges linked to social or organisational challenges, through collaborative work among actors working in the academia, in public management and members of social groups that are involved or affected.

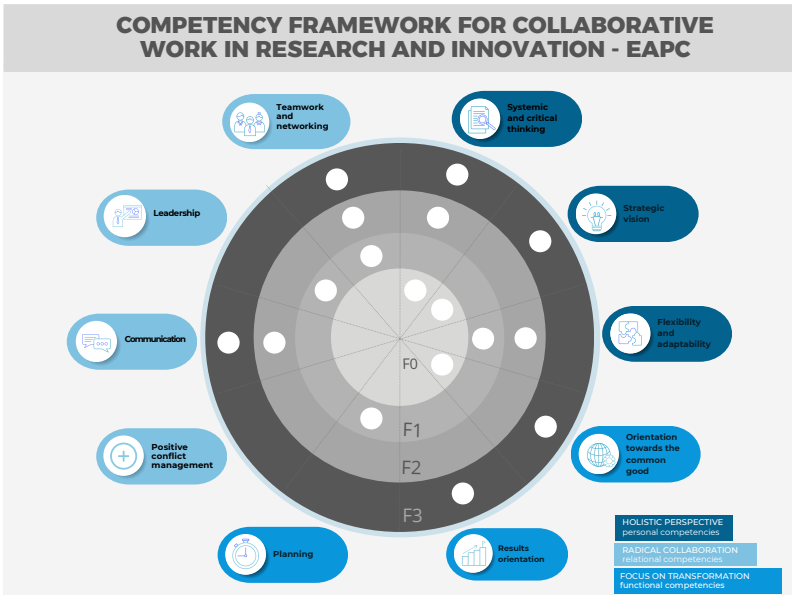
FUNCTIONS		COMPETENCIES									
Before putting the team together (for the initial project proponent or proponents)		SYSTEMIC AND CRITICAL THINKING	STRATEGIC VISION	FLEXIBILITY AND ADAPTABILITY	ORIENTATION TOWARDS THE COMMON GOOD	RESULTS ORIENTATION	PLANNING	TEAMWORK AND NETWORKING	LEADERSHIP	POSITIVE CONFLICT MANAGEMENT	COMMUNICATION
F0	Conceive and envision a project to offer solutions to a public policy challenge.										
PP1	Formulate the challenge by analysing and contextualising it.										
PP2	Identify and map possible affected groups (using inclusive criteria) and relevant stakeholders from the public administration, academia, business/industry and civil society.										
PP3	Make initial contacts to canvass people's interests, aims and expectations; identify knowledge gaps; detect possible barriers to stakeholder participation; and design strategies to mitigate these barriers.										
PP4	Draw up an initial theory of change proposal to find solutions to the challenge.										
PP5	Draw up an initial project proposal.										
PP6	Compile a list of potential team members, bearing in mind the required profiles and competencies, and propose the project to them.										

FUNCTIONS		COMPETENCIES									
After putting the team together		SYSTEMIC AND CRITICAL THINKING	STRATEGIC VISION	FLEXIBILITY AND ADAPTABILITY	ORIENTATION TOWARDS THE COMMON GOOD	RESULTS ORIENTATION	PLANNING	TEAMWORK AND NETWORKING	LEADERSHIP	POSITIVE CONFLICT MANAGEMENT	COMMUNICATION
F1	Design the project collaboratively.										
PP1	Reformulate the challenge and theory of change as a team.										
PP2	Share and consider the expectations of every team member.										
PP3	Work together to draw up a revised version of the stakeholders map.										
PP4	Examine any knowledge gaps, whether scientific or experiential, as a team.										
PP5	Define the project aims and approach as a team.										
PP6	Define the working methodology as a team.										
PP7	Identify learning or training needs among the team members and affected groups, as well as tools to work through them.										
PP8	Specify the roles, tasks and responsibilities of all team members.										
PP9	Plan the project and set a work schedule as a team.										
PP10	Collectively analyse the project risks and prepare solutions to mitigate them.										
PP11	Agree on decision-making rules; confidentiality, data protection and transparency protocols; ethical issues; and the distribution of intellectual property rights.										

FUNCTIONS		COMPETENCIES									
Gather and analyse information from a range of sources and types of knowledge, from a systemic standpoint.		SYSTEMIC AND CRITICAL THINKING	STRATEGIC VISION	FLEXIBILITY AND ADAPTABILITY	ORIENTATION TOWARDS THE COMMON GOOD	RESULTS ORIENTATION	PLANNING	TEAMWORK AND NETWORKING	LEADERSHIP	POSITIVE CONFLICT MANAGEMENT	COMMUNICATION
F2	Gather and analyse information from a range of sources and types of knowledge, from a systemic standpoint.										
PP1	Carry out a systematic review of the scientific literature, previous experiences and comparable cases, and find points of connection.										
PP2	Integrate the needs, expectations and challenge-related perspectives of the involved or affected groups.										
PP3	Integrate the scientific and experiential knowledge of the team members.										
PP4	Compile and find points of connection between the various languages, concepts and discourses used by the team members.										

FUNCTIONS		COMPETENCIES									
Collaboratively discuss, draw up and communicate the results.		SYSTEMIC AND CRITICAL THINKING	STRATEGIC VISION	FLEXIBILITY AND ADAPTABILITY	ORIENTATION TOWARDS THE COMMON GOOD	RESULTS ORIENTATION	PLANNING	TEAMWORK AND NETWORKING	LEADERSHIP	POSITIVE CONFLICT MANAGEMENT	COMMUNICATION
F3	Collaboratively discuss, draw up and communicate the results.										
PP1	Review and redirect the project, if necessary, in an iterative way.										
PP2	Cross-check the results, review them with the involved or affected groups and give them feedback regularly.										
PP3	Collaboratively assess the quality of the project in terms of scientific rigour, social robustness and practical relevance, making sure that the results can be upscaled and generalised.										
PP4	Work together to draw up a list of recommended actions that can be implemented and assessed.										
PP5	Systematise the knowledge gained and produce a final results report.										
PP6	Present the results and recommended actions to everyone involved in the project.										

Finally, the following figure summarises the main competencies to be mobilised in collaborative research and innovation work processes overall:



8. CONCLUSIONS

The Public Administration School of Catalonia occupies a position that extends across the country's public governance ecosystem, allowing it to influence how decisions are made in public administrations. These administrations must respond to complex challenges. There has been plenty of theorising on the quadruple helix model in the field of epistemology for some years now, but it has often proved difficult to put into practice.

The competency framework we have developed is intended to provide tools to those engaged in collaborative research and innovation processes where stakeholders with diverse backgrounds, types of knowledge and experiences are needed. These processes are complex and their success hinges on having the right teams, tools and planning in place before setting off.

This *Competency framework for collaborative work in research and innovation* can contribute, on the one hand, to a team's self-assessment, whereby it is able to work out its shortcomings or points for improvement, and, on the other hand, to the competency development of the team's members through learning and training processes that make it possible to mobilise the competencies needed to successfully bring the research and innovation process to fruition.

This publication has focused on describing collaborative research and innovation processes aimed at transforming and improving public administrations, and the functional analysis we have carried out pertains to these types of processes. However, the resulting map of competencies, showing ten cross-cutting competencies and their associated behaviours in three blocks - *holistic perspective*, *focus on transformation* and *radical collaboration* - can be used for the self-assessment and development of any transdisciplinary team facing a complex challenge by means of collective intelligence processes.

The EAPC, through its EAPC Research Driver programme, seeks to further the cultural change initiated internationally by many organisations to mobilise collective intelligence for better public policies and the common good. This publication lays the groundwork for the creation of new resources and materials to develop the competencies of people working towards this goal.

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