

Competency framework for scientific processes
underlying the cross-cutting functions of the
Institut national de santé publique du Québec

INSTITUT NATIONAL
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DU QUÉBEC

Competency framework for scientific processes underlying the cross-cutting functions of the Institut national de santé publique du Québec

Vice-présidence aux affaires scientifiques
Vice-présidence aux affaires administratives

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ABSTRACT

The Institut national de santé publique du Québec (INSPQ) is a public health expertise and reference centre in Québec that engages in research, monitoring, training, knowledge translation, public policy development, and the production of scientific advisory reports. These are considered the organization's cross-cutting functions. Mastery of the scientific processes underlying these functions is essential to the improvement of the materials produced by the INSPQ and the services offered to its diverse clientele. Hence, it is of fundamental importance to begin by producing a comprehensive inventory of individual competencies linked to these processes.

To this end, the Vice-présidence aux affaires scientifiques (scientific affairs division) tasked a work committee with establishing a competency development plan for INSPQ staff engaged in carrying out the scientific processes underlying the cross-cutting functions.

This competency framework is the **first step** in this project. It is based on investigative fieldwork involving a large number of people from start to finish, and, as such, reflects the reality of our organization. The three competencies to emerge from this initiative are:

1. **Produce materials and provide services of high quality for the INSPQ's clientele**
2. **Generate competency development activities for public health actors in Québec**
3. **Manage projects**

The competency framework also presents the combined set of internal resources (knowledge, know-how, and soft skills) and external resources (available in the work environment) to be mobilized in the development of these competencies.

Based on this framework, the work committee will subsequently produce a **training needs analysis** so that a **competency development plan** can be designed based on the priorities of the staff and the organization.

TABLE OF CONTENTS

LIST OF TABLES	V
LIST OF FIGURES.....	VII
GLOSSARY	IX
INTRODUCTION.....	1
1 CONTEXT.....	3
2 CONCEPTUAL FRAMEWORK FOR DEVELOPING THE COMPETENCY FRAMEWORK.....	5
2.1 Conceptual framework for developing the competency framework.....	5
2.2 Collective competency	6
2.3 From competency framework to competency development plan	7
3 METHODOLOGY.....	9
3.1 The competency framework design team.....	9
3.2 Purpose of the framework	9
3.3 Definition of the framework by the Développement des compétences unit and framework format	9
3.4 Gathering of information.....	10
3.5 Processing of information and validation	11
4 RESULTS.....	13
4.1 The competencies and resources to be mobilized.....	13
4.2 The cross-cutting resources	14
4.3 The competency framework	15
CONCLUSION	23
REFERENCES.....	25
APPENDIX.....	27

LIST OF TABLES

Tableau 1	Categories and items of the 2010 needs survey of INSPQ staff.....	11
Tableau 2	Internal and external resources for competency 1	15
Tableau 3	Internal and external resources for competency 2	18
Tableau 4	Internal and external resources for competency 3	20

LIST OF FIGURES

Figure 1	Diagram of the competency framework development process, according to Jouvenot and Parlier (2005) in Brahimi, 2011	6
Figure 2	Two components of competency management (Le Boterf, 2006)	7
Figure 3	From competency framework to competency development plan.....	7
Figure 4	Three competencies for improving scientific processes underlying cross-cutting functions.....	13

GLOSSARY

Competency

“Complex knowledge of how to proceed based on the effective mobilization and combination of a variety of internal and external resources within a family of situations” (Tardif, 2006) [translation].

Collective competency

Collective competence is an emergence; it results from synergy and cooperation among individual competencies (Le Boterf, 2006).

Declarative knowledge

Enables a person to construct a mental representation of objects and facts. Concepts, propositions, sets of interrelated propositions, images, and metacognitive knowledge are examples of declarative knowledge (Brien, 1997).

Procedural knowledge

Enables a person to act upon reality through operators or operations. Policies, procedures, cognitive and metacognitive strategies are examples of procedural knowledge (Brien, 1997).

e-Learning

A set of concepts, methods and tools for effectively using new multimedia technologies and the Internet to improve the quality of learning by facilitating access to resources and services as well as remote exchanges and collaboration (Competice, 2002, cited by Brahimi, 2008).

Cross-cutting functions

The activities carried out by more than one INSPQ unit or division in order to achieve its mission. The cross-cutting functions include monitoring, research, training, knowledge translation, public policy development and the production of scientific advisory reports (INSPQ, 2010).

Online collaboration tools (e-Learning)

Discussion forums, videoconferencing, white boards, chats, instant messaging, wikis, blogs, podcasting, RSS, YouTube, electronic portfolios (Brahimi, 2011).

Scientific processes

A series of sequential operations performed to reach a goal. A scientific method follows a well-established process that incorporates mechanisms of quality assurance, accountability and systematic monitoring that must be implemented by managers (INSPQ, 2010).

Framework

An evolving, updatable tool that provides a portrait of professional activities and the resources (know-how, soft skills, networks of resources, etc.) that must be mobilized to carry out these activities. The competency framework can be used to develop competency development plans, based on a training needs analysis (Brahimi, 2011).

Knowledge translation

"A group of activities and interaction mechanisms that foster the dissemination, adoption and assimilation of the most up-to-date knowledge possible to allow for its use in professional practice..." and that involve "several groups of actors working in different organizational environments" (Lemire et al., 2009) [translation].

INTRODUCTION

This companion document describes the approach used to develop the competency framework for scientific processes underlying the cross-cutting functions of the INSPQ. It is intended mainly for professionals, physicians, and managers.

The document is comprised of four chapters. The first chapter describes the context surrounding development of the competency framework. The second chapter defines a few concepts related to the competency-based approach and describes the framework development process, based on a constructivist perspective. The third chapter focuses on implementation in the field, and the last chapter presents the results, i.e. the competency framework.

1 CONTEXT

As part of its 2009-2014 strategic plan, the INSPQ, a public health expertise and reference centre in Québec, proposed making changes to its professional practices with the aim of improving performance throughout the organization (INSPQ, 2009). Within this context, an optimization project was launched to meet the competency development needs of staff engaged in carrying out the scientific processes underlying the INSPQ's cross-cutting functions: monitoring, training, research, knowledge translation, public policy development, and production of scientific advisory reports. Examples of processes associated with these cross-cutting functions include bibliographic searches, information quality assessments, drafting of scientific articles, and new technology training (INSPQ, 2010).

The competency framework will then lead to formulation of a competency development plan that will meet the needs of staff members and reflect the realities of our organization.

In addition to competency development, other future applications of the framework include staff recruitment and promotion, succession planning, development of a staff recognition program, etc.

2 CONCEPTUAL FRAMEWORK FOR DEVELOPING THE COMPETENCY FRAMEWORK

2.1 CONCEPTUAL FRAMEWORK FOR DEVELOPING THE COMPETENCY FRAMEWORK

The project team adopted a competency-based approach, with competency being defined as complex *knowledge of how to proceed, based on the effective mobilization and combination of a variety of internal and external resources within a family of situations* (Tardif, 2006) [translation].

The eight-step approach (Figure 1) is based on three essential principles: the **establishment of a definition of competency**, the **gathering of information**, and the **processing and validation** of that information.

Note that the **establishment of a definition** is key. The above definition highlights the dynamic and contextual nature of competency; accordingly, the **information** will be gathered in the field—with the participation of a large number of representative persons and groups throughout the process—and then categorized into professional situations.

Processing the information involves using the data gathered to identify a network of internal and external resources that personnel need to mobilize in order to deal with the situations they encounter. The **internal resources** identified in the framework will be cognitive, procedural and behavioural (knowledge, know-how, soft skills). The **external resources** are the documents, guides, laws, networks, structures, software, experts, and any other component necessary to the development of the competency.

Step-by-step **validation** throughout the process firmly anchors the project in the real work environment, and, as such, ensures the framework's sustainability.

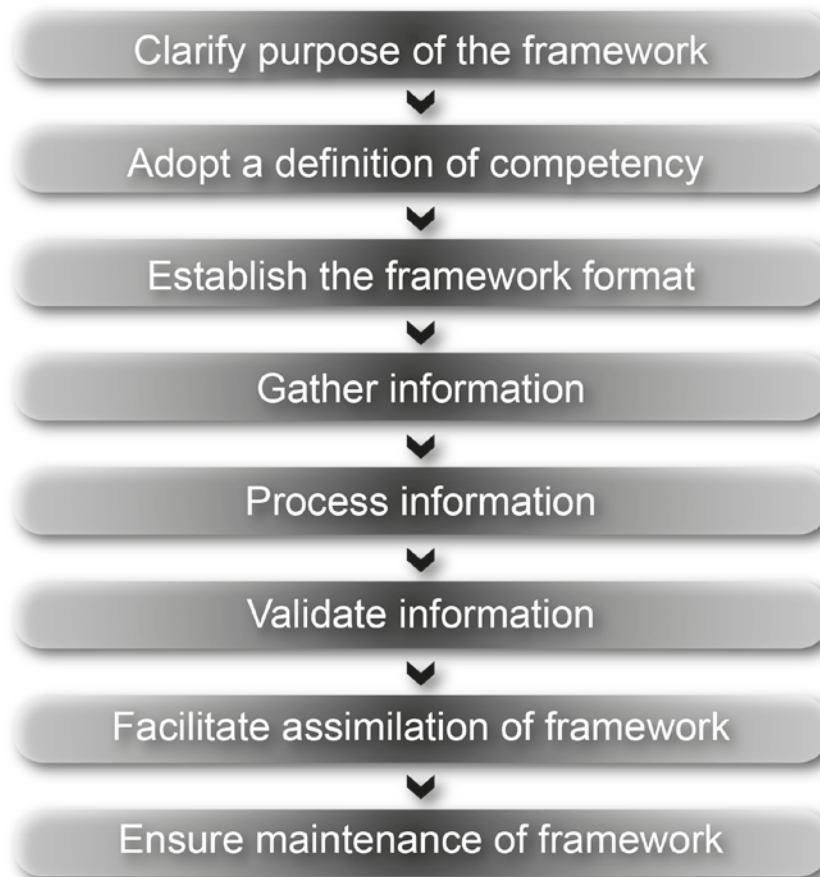


Figure 1 **Diagram of the competency framework development process, according to Jovenot and Parlier (2005) in Brahimi, 2011**

2.2 COLLECTIVE COMPETENCY

This view of a competency framework, based on authentic professional situations (see Step 4), highlights the notions of **collective competency** and **interdisciplinarity**, given that these situations are often managed collectively.

For Le Boterf (2006), collective competency emerges from cooperation and synergy among individual competencies. Consequently, the organization must create an environment that is conducive to teamwork, loop learning, the use of online collaboration tools (e-Learning), and the creation of networks of interdisciplinary teams. He explains that, from now on, organizations must work collaboratively and take into consideration the management of both individual and collective competencies, as shown in Figure 2.

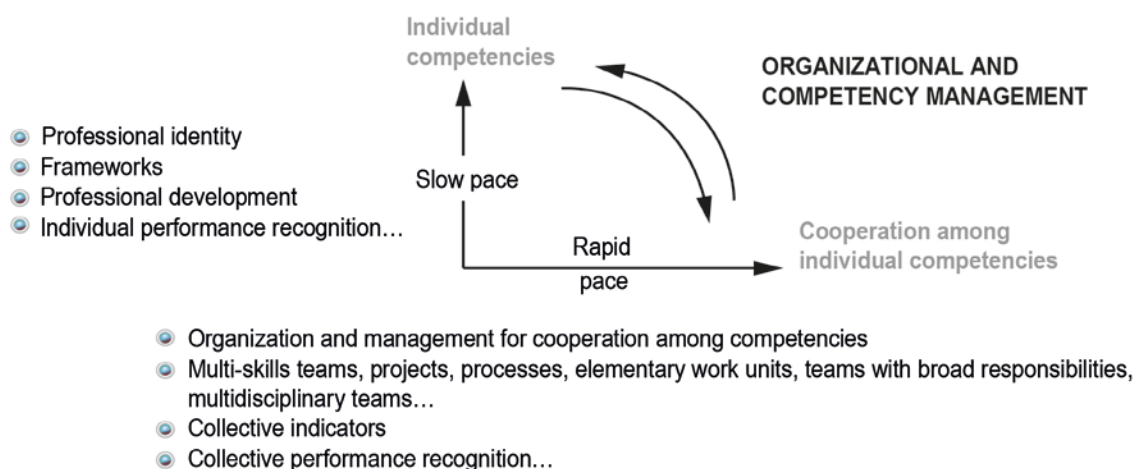


Figure 2 Two components of competency management (Le Boterf, 2006)

Thus, the challenge facing organizations is to develop both individual and collective competencies, and to address the latter on an operational level. To do so, Le Boterf proposes several courses of action:

- Identify the networks of resources that a person must mobilize in order to act competently, as mentioned previously.
- Develop and monitor indicators of cooperation tied to collective performance (team, project, process, network, etc.).
- Intervene consistently on the level of a wide range of *levers of action*: work organization, training, operating rules, team composition, issue sharing.
- Foster the organization's collective know-how.
- Identify and formalize the "lessons to be learned" from the organization's various experiences and practices.
- Design and implement a mechanism for monitoring, updating and making available the organization's accumulated know-how and experience.

2.3 FROM COMPETENCY FRAMEWORK TO COMPETENCY DEVELOPMENT PLAN

As mentioned previously, the framework is a tool for developing competency development plans. However, as shown in Figure 3, a training needs analysis must first be conducted. The needs analysis will be the subject of a separate document.

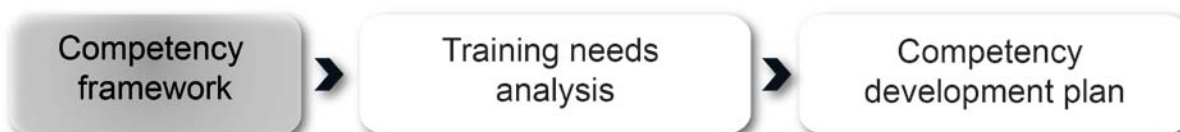


Figure 3 From competency framework to competency development plan

3 METHODOLOGY

This section describes the entire framework development process. Note that due to certain constraints, the steps presented in the previous chapter were slightly modified.

3.1 THE COMPETENCY FRAMEWORK DESIGN TEAM

The first step consisted in creating a work committee within the INSPQ to develop the competency framework. The team comprised three members from the Développement des compétences (competency development) unit of the Vice-présidence aux affaires scientifiques (Céline Farley, *responsable scientifique* (scientific team leader), Doina Malai, *chargée de projet* (project lead), and Cora Brahimi, *experte en technologie éducative* (educational technology expert)) and one member from the Développement organisationnel (organizational development) unit of the Vice-présidence aux affaires administratives (administrative affairs division) (Francine Gravel, *coresponsable de ce projet* (co-lead for this project)).

3.2 PURPOSE OF THE FRAMEWORK

As mentioned earlier, as part of the 2009-2014 strategic plan, the organization identified a number of projects considered essential to improving the materials produced by the INSPQ and the services offered to its diverse clientele. A competency framework for the scientific processes underlying the cross-cutting functions of the INSPQ is an essential tool for developing staff competency. Thus, this tool will make it possible to identify the learning needs of personnel and to subsequently create a competency development plan for ongoing learning.

3.3 DEFINITION OF THE FRAMEWORK BY THE DÉVELOPPEMENT DES COMPÉTENCES UNIT AND FRAMEWORK FORMAT

To ensure that each member of the project team shared the same interpretation of the concept of competency and, by extension, the same view of the framework development process, a broad discussion was held to build a common understanding of the relevant concepts, to standardize the terminology used, and to agree on the framework's content (format).

Recall that *L'approche par compétences, un levier de changement des pratiques en santé publique du Québec* (the competency-based approach – a catalyst for change in public health practices in Québec) is the result of a reflective process during which we adopted a definition of competency as complex knowledge of how to proceed. This point of reference led to our defining the competency framework as a document comprising an inventory of all the competencies needed to perform the activities of monitoring, competency development, research, knowledge translation, public policy development, and production of scientific advisory reports. The resources that are mobilized in the development of each competency are also assessed.

3.4 GATHERING OF INFORMATION

In the competency framework development process presented in Figure 1, the gathering of information consists mainly in collecting, from persons involved in cross-cutting functions, data about the professional situations they face on a regular basis. Given that a recent initiative (the training needs analysis) produced a substantial amount of information relevant to the generation of this framework, the development process was slightly modified, as explained below.

The first step consisted in analyzing two documents considered relevant to the project: 1) the INSPQ's *Plan stratégique 2009-2014* (2009-2014 strategic plan) and 2) the results of the 2009-2010 *Analyse de besoins de formation* (training needs analysis) of INSPQ staff.

The purpose of analyzing the *Plan stratégique* (INSPQ, 2009) was to ensure alignment with organizational priorities and, above all, with the organizational view of the processes underlying the cross-cutting functions.

The *Analyse de besoins de formation* conducted in 2009-2010 (Farley & Gravel, 2010) through interviews with INSPQ professionals and physicians led to the identification, based on the information gathered, of a number of professional situations, and the data were further enriched through a series of validations by professionals, physicians, and managers responsible for cross-cutting functions. This ensured that all relevant information—concerning the development of competencies among individuals engaging in the scientific processes underlying cross-cutting functions—was examined and included in the competency framework. Given the importance of this needs analysis to the generation of the framework, included below are a few details about the data gathering tool used and the analysis results.

The questionnaire, consisting of competency items (necessary resources), was developed based on:

- individual and group interviews (60 professionals were interviewed by HR advisors, along with other professionals selected in collaboration with managers);
- an analysis of public health competency frameworks, and, in particular, that of the Public Health Agency of Canada (PHAC, 2007);
- the results of validation of the competency items, performed by union authorities;
- the results of online validation (SurveyMonkey) of the competency items and their relevance, performed by managers.

The questionnaire, which consisted of 14 categories and 90 items (Table 1), was administered online using SurveyMonkey, from November 26 to December 23, 2009, for professionals, and from February 18 to March 12, 2010, for physicians. It allowed measurement of:

- the proficiency level for each item - Expert (3); Master (2); Beginner (1); N/A (0)
- the level of learning needs - High (3); Moderate (2); Low (1) None (0)

Tableau 1 Categories and items of the 2010 needs survey of INSPQ staff

Category	Item
● Fully understand the role and functioning of the INSPQ and of the public health network	6 items
● Be proficient in the use of certain IT tools	6 items
● Apply leadership principles	7 items
● Develop skills for conducting knowledge translation activities	6 items
● Master various aspects of collective and individual competency development	8 items
● Use information and communication technologies in developing knowledge translation activities	3 items
● Master communication strategies and tools	8 items
● Supervise the work of teams	5 items
● Plan and manage work load	11 items
● Apply various research methods relevant to the public health sector	11 items
● Apply different concepts and basic methods to the practice of public health activities	7 items
● Understand the ethical, political, scientific, and economic contexts that can influence choices in the public health sector	4 items
● Apply biostatistical and epidemiological concepts, methods and tools	6 items
● Apply data gathering, processing, and storage methods	2 items

3.5 PROCESSING OF INFORMATION AND VALIDATION

The design team devised a competency framework (presented in the following chapter) based on all the information gathered. This arduous task involved identifying and classifying professional situations based on the data collected, and then formulating the competencies needed to effectively manage the situations which professionals and physicians face on a daily basis. The second step consisted in identifying all the internal (knowledge, know-how and soft skills) and external resources likely to be mobilized in the development of the competency.

Throughout the process, various individuals and groups helped validate the results obtained at each step. Validation was an **iterative process**, given that the material presented to each group was enriched by the reflections and comments of previous groups, which significantly improved the quality of the document. Note that certain projects recently initiated by the INSPQ as part of its 2009-2014 strategic plan, and aimed at improving the entire organization's performance, were a source of highly relevant information. An analysis was conducted of the work performed by teams, particularly those engaging in the scientific

processes underlying the cross-cutting functions, and all information relevant to the competency framework was used in shaping it.

The following is a list of **individuals and groups consulted**¹ at the INSPQ:

- INSPQ Training Committee
- INSPQ professionals within the context of the Human Resources Development Plan
- Management Committee of the Vice-présidence aux affaires scientifiques de l'Institut
- Committee to oversee the training needs of members of the Département de médecine préventive et de santé publique of the Centre hospitalier de l'Université de Montréal and of the Centre hospitalier universitaire de Québec
- Scientific team leaders, physicians, professionals, administrators and managers at the Institut
- INSPQ Scientific Steering Committee
- Professionals at the unité des Communications et de la documentation
- INSPQ Executive Committee

¹ See Appendix for the complete list of persons consulted.

4 RESULTS

4.1 THE COMPETENCIES AND RESOURCES TO BE MOBILIZED

The framework design team made use of all available data to identify three competencies: the first deals with **the production of materials and the provision of high quality services**; the second deals with **competency development activities**, and the last deals with **project management**, as shown in Figure 4 below:

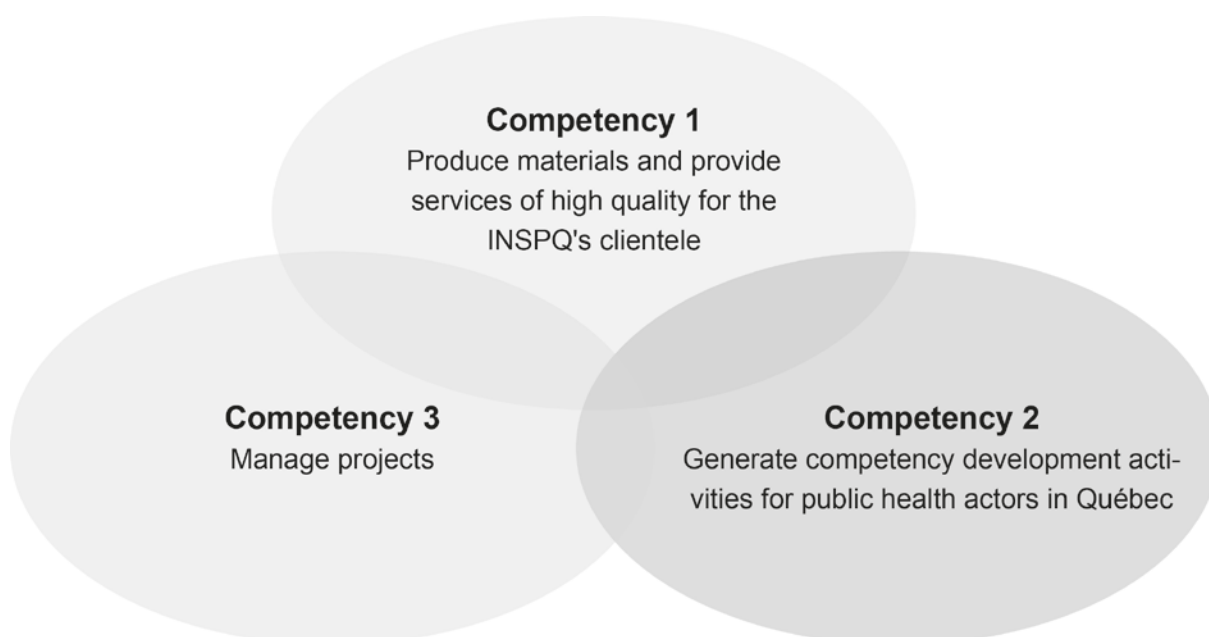


Figure 4 Three competencies for improving scientific processes underlying cross-cutting functions

The **internal resources** (knowledge or declarative knowledge, know-how or procedural knowledge, and soft skills) and the **external resources** (reference documents, software, professional networks, etc.) that must be mobilized in the development of each competency are identified in Table 2. This network of resources is a reference for improving the scientific processes underlying the INSPQ's cross-cutting functions.

The three competencies are examined in more detail below.

Competency 1

In the context of their activities involving the **production of materials and the provision of services** intended for the INSPQ's clientele, professionals and/or physicians must mobilize a certain number of resources in order to effectively pursue the aforementioned activities. These resources are associated, in particular, with the field of research, and include knowledge of methods, design and use of research tools, use of relevant documents and software, and the adoption of context-appropriate behaviours. For example, professionals will be able to conduct literature reviews, draft scientific advisories, engage in teamwork, and maintain an ethical approach. They must also use the tools that are available to them, such

as the *Guide d'éthique de la recherche et d'intégrité scientifique* (research ethics and scientific integrity guide) of the Fonds de la recherche en santé du Québec (FRSQ), as well as information retrieval services.

Competency 2

Professionals and/or physicians are called on to **generate competency development activities** intended for public health actors in Québec. To successfully fulfill their responsibilities, they must mobilize resources that are associated with the development and facilitation of training sessions or communities of practice, knowledge translation activities, the use of teaching strategies, the use of online collaboration tools (e-Learning), the design of educational tools, and knowledge of work and social environments (and their distinct characteristics) and of learning theories. For example, they will be able to use a variety of facilitation techniques, create a slide presentation, adopt attitudes of listening and fairness, and make use of resources that are available to them, such as reference frameworks, quality assurance guides, and the Développement des compétences unit.

Competency 3

Professionals and/or physicians are often responsible for managing projects. The activities related to this competency are project planning, implementation, and monitoring. To act effectively, they must mobilize resources such as client needs analyses, work organization, use of project management tools, and risk management analyses. Among other things, they must demonstrate leadership, build team spirit, and embrace criticism. They will be able to effectively make use of external resources that are available to them, such as networks, human resources, and various field-specific documents.

4.2 THE CROSS-CUTTING RESOURCES

An examination of the framework (Table 2) shows that many resources are common to all three competencies. This overlapping of resources reflects their cross-cutting nature and, as such, emphasizes the importance of effectively mobilizing them. Though not exhaustive, the following list identifies resources that can be regarded as cross-cutting:

- Written and oral communication
- Ethics
- Teamwork
- Knowledge of work and social environments and their distinct characteristics
- Use of software
- Web searches
- Listening skills
- Facilitation of meetings

4.3 THE COMPETENCY FRAMEWORK

The following table outlines the internal and external resources for each of the three competencies. Several resources were consulted during the framework development process in order to clarify certain concepts (CFC, 2011, Labesse, 2008, Lemire & Litvak, 2011, Mintzberg, 2009).

Tableau 2 Internal and external resources for competency 1

Competency 1: Produce materials and provide services of high quality for the INSPQ's clientele			
INTERNAL RESOURCES			EXTERNAL RESOURCES
Knowledge (declarative knowledge)	Know-how (procedural knowledge)	Soft skills (attitudes)	
Research - Quantitative and qualitative scientific research methodology - Synthesis of documents - Literature reviews - Systematic reviews - Meta-analyses - Scan concepts and methods - Concepts tied to ethical research and public health ethics - General biostatistical and epidemiological concepts and methods	Surveys - Conduct knowledge syntheses, literature reviews, systematic reviews, meta-analyses Quantitative and qualitative data - Use multiple sources of quantitative and qualitative data (administrative, health and social services network surveys, analysis of the sociopolitical context, etc.) - Use qualitative data collection methods (individual and/or group interviews, etc.) - Develop measurement tools - Use measurement tools - Conduct a scan - Analyze and interpret quantitative and qualitative data	- Intellectual honesty - Critical thinking - Sense of ethics - Collegial spirit - Scientific diligence - Listening skills - Respect for confidentiality - Initiative - Creativity - Open-mindedness - Motivation - Analytical and synthesis skills - Professionalism - Autonomy - Flexibility, and negotiation skills - Diplomacy	Products - Research development prospects at the INSPQ - FRSQ's guide to research ethics and scientific integrity - Tri-Council Policy Statement: Integrity in Research and Scholarship - Plan d'action ministériel [2007] pour une éthique en recherche (departmental action plan (2007) for research ethics) - Policy on intellectual property - Guideline on the reproduction of copyrighted materials - Policy for managing and protecting the confidentiality of information and telecommunications assets

Table 2 Internal and external resources for competency 1 (cont.)

Competency 1: Produce materials and provide services of high quality for the INSPQ's clientele			
INTERNAL RESOURCES			EXTERNAL RESOURCES
Knowledge (declarative knowledge)	Know-how (procedural knowledge)	Soft skills (attitudes)	
Tools ● Bibliographic databases (PubMed, MEDLINE, Cochrane, etc.) ● Santécom catalogue ● Scan tools and methods (RSS feeds, etc.) ● Data processing and analysis software (SPSS, SAS, NUDIST, etc.) Knowledge of work and social environments and their distinct characteristics ● Knowledge of the INSPQ ● Various health structures and public health issues (federal, provincial, local levels) ● Various community settings ● Different contexts (Aboriginal people, ethnic and cultural communities, etc.) ● Public policy development ● Basic concepts of public health monitoring	Specialized, adapted documents ● Draft specialized documents ● Scientific advisory reports ● Specialized reports (monitoring report on the health status of the population, etc.) ● Research papers (letter of intent and research protocol, research report, methodology report, scientific paper, peer-reviewed article in a journal) ● Communication products and tools adapted to various target audiences (brief for a parliamentary commission or a public hearing, thematic newsletter, synthesis document, article in a professional journal) ● Posters, brochures, newsletters Dissemination ● Use oral and written communication strategies ● Respond appropriately to requests for information from journalists/senior officials/civil servants		Products ● Infocentre de santé publique (public health infocentre) ● Santécom network's documentation centres ● Electronic documentation resources (help menu for searching documents, periodicals, databases, and books on health, social sciences, education, etc.) ● Activity-specific software (SPSS, SAS, Epidata, NVivo, SurveyMonkey, Reference Manager, etc.) ● Programme national de santé publique 2003-2012 (Québec Public Health Program 2003-2012) ● Programme national de santé publique 2003-2012 – Mise à jour 2008 (Québec Public Health Program 2003-2012 – 2008 update) ● Public Health Act, Occupational Health and Safety Act, Act respecting the Institut national de santé publique du Québec ● Plan stratégique 2009-2014 de l'INSPQ (INSPQ 2009-2014 strategic plan) ● Programmation [scientifique] 2005-2008 de l'INSPQ (the INSPQ's scientific program for 2005-2008) ● Mythes et réalités sur les peuples autochtones (myths and realities about Aboriginal people) ● Prestation et financement des services de santé et des services sociaux destinés aux Premières Nations et aux Inuits (provision and funding of health and social services for First Nations and Inuit communities) ● Follow-up to the social determinants relevant to Aboriginal populations in Canada

Table 2 Internal and external resources for competency 1 (cont.)

Competency 1: Produce materials and provide services of high quality for the INSPQ's clientele			
INTERNAL RESOURCES			EXTERNAL RESOURCES
Knowledge (declarative knowledge)	Know-how (procedural knowledge)	Soft skills (attitudes)	
	Teamwork - Use inter-team liaison and integration methods - Set up exchanges allowing for cooperation and co-production		- Methodology tools of the National Collaborating Centre for Healthy Public Policy (deliberative processes, health impact assessment (HIA), knowledge syntheses, etc.) - Development of reports on public policies and health. Methodology guide - Public Policy and Health Portal - Policy framework for the development and advancement of monitoring in Québec - Plan commun de surveillance de l'état de santé de la population et de ses déterminants 2004-2007 (2004-2007 joint plan for monitoring the health status of the community and its determinants) - Departmental plan – cross-thematic monitoring INSPQ support teams - Unité des communications et de la documentation (communications and documentation unit) - Unité de Politiques publiques favorables à la santé (healthy public policy unit) - Secrétariat général (General Secretariat)

Tableau 3 Internal and external resources for competency 2

Competency 2: Generate competency development activities for public health actors in Québec			
INTERNAL RESOURCES			EXTERNAL RESOURCES
Knowledge (declarative knowledge)	Know-how (procedural knowledge)	Soft skills (attitudes)	
Knowledge of work and social environments and their distinct characteristics - Various health structures and public health issues (federal, provincial, and local levels) - University networks and training environments (provincial, federal, international levels) - Expert networks (CEFES, BENA, professional orders, etc.) - Various community settings - Different contexts (Aboriginal people, ethnic and cultural communities, etc.) Design - Knowledge translation planning - Notions of reflective practices - Competency-based approach - Competency framework - Basic concepts of teaching - Training needs analysis methods - Learning evaluation methods	Design - Design classroom training sessions (face-to-face) - Design online training courses (pedagogical design) - Develop educational materials - Narrated PowerPoint presentations - Educational software program - Audio-video capsules - Posters, brochures, newsletters - Design data collection and measurement tools - Choose relevant data collection techniques for analyses - Use data collection techniques - Questionnaire - Nominal group - Delphi group - Use online collaboration tools (e-Learning) - Use interactive teaching strategies (coaching, communities of practice, etc.)	- Listening skills - Respect - Empathy - Sense of ethics - Cooperative spirit - Open-mindedness - Intellectual curiosity - Creativity	Products - Programme national de santé publique 2003-2012 (Québec Public Health Program 2003-2012) - Programme national de santé publique 2003-2012 – Mise à jour 2008 (Québec Public Health Program 2003-2012 – 2008 update) - Public Health Act, Occupational Health and Safety Act, Act respecting the Institut national de santé publique du Québec - Plan stratégique 2009-2014 de l'INSPQ (INSPQ 2009-2014 strategic plan) - Programmation [scientifique] 2005-2008 de l'INSPQ (the INSPQ's scientific program for 2005-2008) - Mythes et réalités sur les peuples autochtones (myths and realities about Aboriginal people) - Prestation et financement des services de santé et des services sociaux destinés aux Premières Nations et aux Inuits (provision and funding of health and social services for First Nations and Inuit communities) - Follow-up to the social determinants relevant to Aboriginal populations in Canada - Guide entitled "Animer un processus de transfert de connaissances : bilan des connaissances et outil d'animation" (guide for facilitating a knowledge translation process: knowledge synthesis and facilitation tool) - Tools to support the development of a knowledge translation plan - Research and knowledge translation portal - L'approche par compétences – Un levier de changement de pratiques en santé publique au Québec (the competency-based approach – a catalyst for change in public health practices in Québec)

Table 3 Internal and external resources for competency 2 (cont.)

Competency 2: Generate competency development activities for public health actors in Québec			
INTERNAL RESOURCES			EXTERNAL RESOURCES
Knowledge (declarative knowledge)	Know-how (procedural knowledge)	Soft skills (attitudes)	
- Online learning tools (e-Learning) (discussion forums, blogs, wikis, etc.) - Interactive teaching strategies (communities of practice, case studies, coaching, mentoring, etc.) - Supervision of trainees Facilitation - Learning styles - Group dynamics - Oral and written communication strategies	Facilitation - Use group facilitation techniques - Use coaching strategies (mentoring, etc.) Teamwork - Develop a project based on a joint process of reflection on competency development/knowledge translation		- Guide for developing continuing education activities in compliance with quality requirements - Reference framework for the application of a quality assurance system related to training - Policy on intellectual property - Guideline on the reproduction of copyrighted materials - Reference framework for assessing training needs. Continuing education component - Training innovation project – Phase I: Information and Communication Technologies (ICT) – Fact sheets on e-Learning tools - Digital learning environments (platforms, portals) - Communities of practice (community of practice for health and social services scan, etc.) - Expert networks (Centre d'études et de formation en enseignement supérieur/CEFES, Bureau de l'environnement numérique d'apprentissage/BENA, professional orders, etc.) INSPQ support teams - Training committee - Unité Développement des compétences (competency development unit) - Knowledge translation sector - Unité des Communications et de la documentation (communications and documentation unit)

Tableau 4 Internal and external resources for competency 3

Competency 3: Manage projects			
INTERNAL RESOURCES			EXTERNAL RESOURCES
Knowledge (declarative knowledge)	Know-how (procedural knowledge)	Soft skills (attitudes)	
Initiation – Project design (exploration) - Current and future needs of the client - Various health structures and public health issues (federal, provincial, local levels) Project planning (organization) - Basic project planning concepts Performance – Project implementation - Work organization - Performance indicators - Decision-making Control – Project evaluation and follow-up - Accountability - Cost estimates Communication - Oral and written communication strategies	Initiation – Design (exploration) - Define client needs (rationale, objectives, definition of final product) - Apply a reflective approach Project planning (organization) - Plan the project in collaboration with partners (plan, roles and responsibilities, allocation of resources, schedule, costs) - Use project management tools - Analyze and manage risks Performance – Project implementation - Lead and support a team to generate results - Validate results and take necessary measures Control – Project evaluation and follow-up - Follow and update the schedule - Monitor the performance indicators - Use control measures (accountability, etc.) - Ensure the closure of the project - Manage validated processes using a reflective approach to project management	- Listening skills - Open-mindedness - Sense of ethics - Autonomy - Initiative - Cooperative spirit - Intellectual curiosity - Transparency - Diplomacy - Scientific diligence - Leadership	Products - Policy on INSPQ activities and services (vision, mission, values, guidelines, etc.) - Programme national de santé publique 2003-2012 (Québec Public Health Program 2003-2012) - Programme national de santé publique 2003-2012 – Mise à jour 2008 (Québec Public Health Program 2003-2012 – 2008 update) - Public Health Act - Act respecting the Institut national de santé publique du Québec - Plan stratégique 2009-2014 de l'INSPQ (INSPQ 2009-2014 strategic plan) - Programmation [scientifique] 2005-2008 de l'INSPQ (the INSPQ's scientific program for 2005-2008) - Vers un projet scientifique organisationnel à l'Institut (cibles) (towards a scientific and organizational project at the Institute (targets)) - Plan stratégique 2005-2010 du ministère de la Santé et des Services sociaux (MSSS 2005-2010 strategic plan) - Trousse de gestion de projet personnalisée à l'INSPQ (customized project management kit, INSPQ) - Guide to the Project Management Body of Knowledge (PMBOK Guide)

Table 4 Internal and external resources for competency 3 (cont.)

Competency 3: Manage projects			
INTERNAL RESOURCES			EXTERNAL RESOURCES
Knowledge (declarative knowledge)	Know-how (procedural knowledge)	Soft skills (attitudes)	
	Political sense - Analyze governance structures that could impact the project - Develop relevant partnerships - Establish strategic relationships and networks - Use influencing techniques (reasoning, negotiation, etc.) Written and oral communication General management - Manage and resolve conflicts - Manage time and priorities - Initiate change - Use stress management techniques Facilitation of meetings - Facilitate meetings		Support teams at the INSPQ - Vice-présidence aux affaires administratives (administrative affairs division) - Unité du développement organisationnel (organizational development unit) - Managers

CONCLUSION

This competency framework, designed for improving the scientific processes underlying the cross-cutting functions of monitoring, training, research, knowledge translation, public policy development, and production of scientific advisory reports, and based on data from both the strategic plan and the 2009-2010 needs survey, and validated by more than 50 professionals, middle managers, researchers, experts, and physicians, is an accurate reflection of the INSPQ's current situation.

The methodological approach, based primarily on existing data and on multiple consultation-validation sessions held within the organization, led to the development of a competency framework which examines the INSPQ's cross-cutting functions in all their complexity. It highlights the importance of teamwork, of communication, and of the need to foster an environment that promotes information sharing, interdisciplinary and inter-division teamwork, and the use of information and communication technologies (ICT).

The prescribed approach is an assurance of the quality of the data collected and of the incorporation of innovative approaches. Moreover, the active participation and involvement of managers itself demonstrates an openness to change.

Finally, this framework will serve as a starting point for the development of a training needs analysis and, subsequently, of an ongoing competency development plan linked to the cross-cutting functions and intended for INSPQ staff. Note also that this framework can easily be updated—new resources will be added, depending on advancements in knowledge, and those considered obsolete will be removed.

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APPENDIX

LIST OF PERSONS CONSULTED FOR THE VALIDATION OF THE COMPETENCY FRAMEWORK

INSPQ Training Committee (group session)

Denise Aubé, médecin spécialiste (physician specialist), Évaluation de l'organisation des soins et services, Direction de l'analyse et de l'évaluation des systèmes de soins et services

Kristina Maud Bergeron, agente de planification, de programmation et de recherche (planning, programming and research officer), Politiques publiques favorables à la santé, Vice-présidence aux affaires scientifiques

Micheline Fauvel, conseillère cadre (executive adviser), Gestion de projet, Laboratoire de santé publique du Québec

Gisèle Fontaine, agente de planification, de programmation et de recherche (planning, programming and research officer), Développement des compétences, Vice-présidence aux affaires scientifiques

Patricia Goggin, médecin conseil (physician adviser), Infections transmissibles sexuellement et par le sang, Direction des risques biologiques et de la santé au travail

Yun Jen, médecin spécialiste (physician specialist), Habitudes de vie, Direction du développement des individus et des communautés

Claire Laliberté, agente de planification, de programmation et de recherche (planning, programming and research officer), Santé et environnement, Direction de la santé environnementale et de la toxicologie

Nicole Marois, conseillère en formation (training adviser), Infections transmissibles sexuellement et par le sang, Direction des risques biologiques et de la santé au travail

Catherine Martin, agente de planification, de programmation et de recherche (planning, programming and research officer), Développement et adaptation des personnes, Direction du développement des individus et des communautés

Faisca Richer, médecin spécialiste (physician specialist), Santé des autochtones, Vice-présidence aux affaires scientifiques

Diane Sergerie, agente de planification, de programmation et de recherche (planning, programming and research officer), Sécurité et prévention des traumatismes, Direction du développement des individus et des communautés

Mylène Trottier, médecin conseil (physician adviser), Santé au travail, Direction des risques biologiques et de la santé au travail

INSPQ professionals interviewed about generic competencies within the context of the Human Resources Development Plan (group session)

Chantale Langevin, experte (expert), Infocentre, Vice-présidence aux affaires scientifiques

Lucie Beaudreau, experte (expert), Surveillance, prévention et contrôle des maladies infectieuses, Direction des risques biologiques et de la santé au travail

Yvonne Robitaille, chercheure (research officer), Surveillance des maladies chroniques et de leurs déterminants, Direction de l'analyse et de l'évaluation des systèmes de soins et services

Karine Souffez, agente de planification, de programmation et de recherche (planning, programming and research officer), Recherche / Transfert de connaissances, Vice-présidence aux affaires scientifiques

Isabelle Thériège, agente de planification, de programmation et de recherche (planning, programming and research officer), Analyse des politiques de dépistage et de lutte contre les maladies chroniques, Direction de l'analyse et de l'évaluation des systèmes de soins et services

Abdoulaye Anne, agente de planification, de programmation et de recherche (planning, programming and research officer), Développement et adaptation des personnes, Direction du développement des individus et des communautés

Management Committee of the Vice-présidence aux affaires scientifiques (group session)

François Benoit, chef d'unité scientifique (Lead), Centre de collaboration nationale sur les politiques publiques et la santé

Pierre Bergeron, expert associé (associate expert), Politiques publiques favorables à la santé

Suzanne Bruneau, conseillère cadre (executive adviser), Santé des autochtones

Maude Chapados, agente de planification, de programmation et de recherche (planning, programming and research officer), Politiques publiques favorables à la santé

Robert Choinière, directeur adjoint (associate director), Direction adjointe à la Vice-présidence aux affaires scientifiques

Céline Farley, chef d'unité scientifique (scientific team leader), Développement des compétences

Geneviève Lapointe, analyste en politiques (policy analyst), Politiques publiques favorables à la santé

Marie-Claire Laurendeau, conseillère cadre (executive adviser), Recherche / Transfert de connaissances, Vice-présidence aux affaires scientifiques

Jérôme Martinez, chef d'unité scientifique (scientific team leader), Études et analyses de l'état de santé de la population

Josée Morisset, conseillère cadre (executive adviser), Bureau de direction scientifique

Denis Roy, vice-président (vice-president), Vice-présidence aux affaires scientifiques

Sylvie Vézina, chef d'unité scientifique (scientific team leader), Infocentre

Committee to oversee the training needs of members of the Département de médecine préventive et de santé publique of the Centre hospitalier de l'Université de Montréal and of the Centre hospitalier universitaire de Québec (individual consultations)

Lyne Arcand, médecin conseil (physician adviser), Développement et adaptation des personnes, Direction du développement des individus et des communautés

Réjean Dion, médecin conseil (physician adviser), Laboratoire de santé publique du Québec

Patricia Goggin, médecin conseil (physician adviser), Infections transmissibles sexuellement et par le sang, Direction des risques biologiques et de la santé au travail

Patrick Levallois, médecin et professeur (physician and professor), Département de médecine sociale et préventive, Institut national de santé publique, Centre de santé publique, Université Laval

Michel Levy, dentiste (dentist), Habitudes de vie, Direction du développement des individus et des communautés

Marie-France Raynault, médecin et professeure agrégée (physician and associate professor), Faculté de médecine, département de médecine sociale et préventive, Université de Montréal

Susan Stock, médecin spécialiste (physician specialist), Santé au travail, Direction des risques biologiques et de la santé au travail

Scientific team leaders, physicians, professionals, administrators and managers at the Institut (individual consultations)

Denise Aubé, médecin spécialiste (physician specialist), Évaluation de l'organisation des soins et services, Direction de l'analyse et de l'évaluation des systèmes de soins et services

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Anne Chamberland, agente de planification, de programmation et de recherche recherche (planning, programming and research officer), Initiative sur le partage des connaissances et le développement des compétences, Vice-présidence aux affaires scientifiques

Robert Choinière, directeur adjoint (associate director), Direction adjointe à la Vice-présidence aux affaires scientifiques, Vice-présidence aux affaires scientifiques

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Danièle Francoeur, chef d'unité scientifique (scientific team leader), Évaluation de l'organisation des soins et services, Direction de l'analyse et de l'évaluation des systèmes de soins et services

François Giroux, chef d'unité (team leader), Communications et documentation, Secrétariat général, communications et documentation

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INSPQ Scientific Steering Committee (group session)

Denis Roy, vice-président (vice-president), Vice-présidence aux affaires scientifiques

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Réal Morin, directeur scientifique (scientific director), Direction du développement des individus et des communautés

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Claude Thellen, directeur scientifique (scientific director), Direction de la santé environnementale et de la toxicologie

Robert Choinière, directeur adjoint (associate director), Vice-présidence aux affaires scientifiques

Unité des communications et de la documentation (individual consultations)

François Giroux, chef d'unité (team leader), Communications et documentation, Secrétariat général, communications et documentation

Geneviève Beauregard, nutritionniste (nutritionist), Projets et développement

Vicky Bertrand, agente d'information (information officer), Projets et développement

Elsa Drevon, bibliothécaire bibliothécaire (librarian), Documentation

Vicky Tessier, bibliothécaire bibliothécaire (librarian), Documentation

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Michèle Beaupré-Bériau, secrétaire générale et directrice des communications et de la documentation (secretary-general and communications and documentation director), Secrétariat général, communications et documentation

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