The professional profile of PhD-holders

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PhD - Polymer chemistry

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Core business

PHASE 3 Skill development

I proactively developed my skills through 119 hours of training and hands-on supervision of internships. I expanded competencies in polymer chemistry, characterization, and communication (MT180, conferences). My progression from proof-of-concept to advanced optimization reflects continuous and intentional skill development.

Knows how to tap the extensive professional network that he has patiently built.
Knows how to appoint a team of high-potential staff to work with him.
Actively monitors new trends in both the field and the skills vital to developing new projects.
Continually develops his managerial skills.

PHASE 3 Evaluation

I critically evaluated foam performance by linking structure (cell morphology) to properties (thermal conductivity, density, mechanical strength). I identified key limitations (open-cell content, defects) and reoriented research accordingly (surfactant screening, alternative formulations), showing strong analytical judgment and ability to guide project direction.

Is able to deploy and coordinate evaluation processes at both the national and international levels.

PHASE 2 Information management

I performed an extensive state-of-the-art review on non-isocyanate foams, structuring diverse sources into actionable research directions. I also organized experimental data across multiple formulation studies and ensured traceability of results. While efficient and structured, this management remains focused on my project rather than broader data systems.

Conducts advanced searches using a range of software solutions, resources and techniques, recognizing the advantages and limitations of each.
Masters the creation, organization, validation, sharing, storing and archiving of information and/or raw data and addresses the associated risks.
Understands the legal, ethical and security requirements of information management.
Is familiar with the value of, and uses, metadata.
Advises and assists his staff using information-gathering and management methods, critiquing sources and evaluating information and data.
Makes his staff aware of information security and legal and ethical requirements.

PHASE 3

Expertise and methods

During my PhD, I designed and optimized multiple foam chemistries (epoxy, Michael addition) from literature review to proof-of-concept. I defined experimental strategies, tuned formulations (surfactants, viscosity, blowing agents), and interpreted physicochemical characterizations (FTIR, SEM, thermal/mechanical data). The publication submission and reproducible protocols demonstrate strong methodological mastery and autonomy in research design.

Makes recognized contributions to the advancement of knowledge and innovation.
Is viewed as an international authority.
Possesses in-depth and comprehensive understanding of the strategic orientation of his field of expertise.
Sees opportunities for synergy among different sectors of activity.
Has the ability to develop new investigative methods.
Can work in an interdisciplinary setting.
Is able to devise and coordinate a collective work program focusing on new research problems.

Personal and relational qualities

PHASE 3

Communication

I presented my work in multiple formats (international conference, MT180, posters, outreach). I adapted messages from expert-level presentations to general audiences, demonstrating strong oral and visual communication skills

Is asked to provide input on key questions in his area of expertise.
Chooses content, register and channels of communication appropriate for the circumstance or to serve his strategy.
Uses national and/or international media.
Can manage and negotiate complex matters English and at least one other world.
Initiates and promotes actions to disseminate knowledge.

PHASE 3

Collaboration

I worked closely with academic and industrial teams and supervised multiple interns, coordinating tasks and integrating their results into the project. International and interdisciplinary exchanges strengthened collaborative effectiveness.

Can identify and mobilize various networks.
Sets up cooperations with a range of external organizations, at both national and international levels.

PHASE 3

Analysis, synthesis and critical thinking

I synthesized complex literature and experimental results to identify gaps and propose new strategies (e.g., improving foam homogeneity via surfactant selection). I connected chemistry, processing, and properties to guide decisions, demonstrating advanced critical thinking and scientific reasoning.

Takes a pioneering approach.
Knows how to defend a novel way of thinking to his staff and his peers.

PHASE 3

Open-mindedness and creativity

I explored alternative chemistries (epoxy, Michael addition, vitrimer systems) and innovative formulation approaches (prepolymerization, fillers, bubbly-liquid control). My ability to test unconventional strategies and adapt research directions shows strong creativity and scientific curiosity.

Extends his curiosity to fields apparently very remote from his own and draws from them substance to apply to his own field;
Knows how to take calculated risks by questioning existing knowledge and methods.
Encourages creativity in his peers and his staff.
Knows how to create a mindset conducive to creativity and innovation.
Deploys tools and methods that promote collective creativity.
Develops cultural diversity and intercultural dialogue within his teams.

PHASE 3 **Commitment**

I maintained a high level of engagement through sustained experimental work, conference participation, and publication efforts. Achievements such as MT180 finalist and an article under review reflect consistent involvement and motivation throughout the PhD.

Has the ability to express a vision and enlist support, even during periods of adversity.
Capitalizes on the enthusiasm and perseverance of the people he directs.

PHASE 3 **Integrity**

I followed scientific integrity training and applied rigorous reproducibility standards in experimental protocols. Data interpretation and reporting were conducted transparently, especially in identifying limitations and uncertainties in results.

Creates a culture of respect and ethical behavior within his entity.
Takes immediate measures if he observes unethical conduct.
Contributes to changing policies, procedures and practices relating to integrity.

PHASE 2 **Balance**

I managed research workload, training, and communication activities (teaching, outreach, conferences). While effective overall, balancing intensive experimental phases and deadlines remains an area of ongoing improvement.

Knows how to deal with strong opposition.
Draws on his strengths and transcends his weaknesses.
Knows how to cope with pressure generated by his career or his personal life.
Is able to keep his work and home environments separate.

PHASE 2 **Listening and empathy**

Through collaboration with supervisors, industrial partners (Soprema), and students, I incorporated feedback into project decisions. I adapted communication to different audiences (academic, industrial, outreach), showing good interpersonal awareness.

Knows how to engage in active listening in various situations.
Is careful to take his contacts' needs and frame of reference into account.
Expresses gratitude regularly.
Takes the needs of his staff into consideration, is sensitive to signs of stress and able to provide support and advice when needed.

PHASE 1 **Negotiation**

I engaged in discussions regarding experimental orientations and internship supervision. However, negotiation remains limited to scientific exchanges rather than formal resource or strategic negotiations.

Is able to detect people's unstated needs based on the requests they formulate.

Knows how to reconcile the drivers, requirements and constraints of his contacts to reach a consensus, and is able to gather all the information needed to do so.

Business management and value creation

PHASE 3 **Project management**

I structured my PhD into clear research axes (EF, MAF) with defined objectives and timelines. I coordinated experiments, supervised interns, and ensured progress toward deliverables (publication, thesis), demonstrating autonomy in managing a complex research project.

Takes the general environment of projects into account and is able to take a long-term view.
Develops complex, high-impact projects.
Allocates resources strategically among different projects.
Is able to synchronize tasks among inter-dependent projects.
Manages his time strategically as his level of responsibility increases, particularly through careful use of delegation.
Takes ownership of difficult or unpopular decisions and explains them with clarity and rigor; knows when it is time to abort a project.

PHASE 3 **Managing change**

I adapted research strategies based on results (e.g. introducing surfactant screening and deeper study in understanding the relationship with bubbly-liquid stabilization). I embraced iterative development and redirected efforts efficiently when limitations were identified. I participated in the reorganization of the laboratory and assured the well being and tideness of work area, as well as supply organization and inventories.

Knows how to give meaning and perspective.
Knows how to manage the key stages of change and grief.
Promotes and encourages change, contributes to organizational change initiatives.

PHASE 2 **Managing risks**

I identified scientific risks such as poor foam structure or low insulating performance and implemented mitigation strategies (formulation optimization). Risk management is present but mainly technical rather than strategic.

Analyzes and identifies the risks created by an activity.
Educates and trains staff and partners in the implementation of appropriate risk management procedures.
Takes social and environmental imperatives into account in the projects he manages.
Educates and trains his staff in the imperatives of social and environmental responsibility.

PHASE 3 **Decision-making**

I made informed decisions on formulation parameters, experimental design, and project direction based on data analysis and literature. My ability to prioritize promising approaches reflects strong decision-making autonomy.

Is able to instigate and control major change.
Knows how to make decisions in an unstable and uncertain environment taking all technical, financial, human, organizational, political and other factors into account.

PHASE 1 **Obtaining and managing funding**

The PhD is conducted within a CIFRE framework, but I was not directly responsible for securing funding. Exposure to funding context exists but without active leadership in acquisition.

Manages his own funding and is comfortable in discussions with budget, financial and economic decision-makers.
Understands the funding process and knows how to determine the profitability of an activity.
Knows how to answer a request for proposals and/or write a grant application.

PHASE 2 **People management**

I supervised interns, guiding experimental work and helping structure their projects. This demonstrates emerging leadership, though on a limited scale.

As a manager, makes appropriate use of the full spectrum of HR policies and management tools with regard to his teams (recruitment, promotion, evaluation, safety rules, principles of non-discrimination and diversity, etc.).
Puts together and directs a team, taking advantage of the strengths and skills of each member.
Has the ability to set objectives for his staff and evaluate their attainment.
Knows how to delegate and monitor.
Supports his staff; encourages them to become more autonomous and recognizes their commitment and results.
Ensures the collective success of projects.
Detects and nurtures the talents of his staff and supports to their professional development.
Knows how to deal with conflicts.
Involves his staff in decision-making.
Has his own management style.
Is able to define guidelines for safety and social responsibility.
Accepts responsibilities beyond his defined scope for the good of the organization as a whole.

PHASE 3 **Producing results**

I delivered tangible outputs: proof-of-concept materials, optimized formulations, a submitted publication, and conference presentations. Results are consistent, measurable, and aligned with project objectives.

Has proven experience with bringing a new product to market or starting up a new company or entity.
Manages innovation processes from the birth of an idea through its delivery to market.
Is recognized in his field on the strength of his results.

PHASE 2 **Intellectual and industrial property**

Working in a CIFRE context, I considered industrial relevance and confidentiality. While aware of IP issues, I have not yet directly managed patents or formal protection processes.

Is familiar with the process of filing a patent and with all forms of protection of research outcomes (technical protection and marketing).
Makes his peers and staff aware of the legal requirements of intellectual/industrial property and/or copyright.
Is able to list the areas of technical knowledge that is strategic for the company and identify the individuals in possession of it. Knows how to manage the sharing and perpetuation of knowledge.

PHASE 2 **Customer focus**

Through collaboration with Soprema, I aligned research with industrial needs (thermal insulation, recyclability). I integrated application constraints, though direct interaction with end-users remains limited.

Knows how to reconcile the needs of customers, partners and the entity.
Is able to make choices based on technical constraints and feedback from customers and partners.
Creates the conditions for his entity to keep a pulse on the needs of the market.

Strategy and Leadership

PHASE 2 Strategy

I contributed to defining research directions (choice of chemistries, optimization priorities) aligned with long-term goals (sustainable insulation materials). Strategic thinking is present but still guided by supervisors.

Observes his environment; recognizes discontinuities and micro-trends; detects weak signals.
Develops his own approach and shapes his understanding of the topic.
Encourages brainstorming and draws conclusions relevant to his area of activity.
Regularly produces documents of a forward-looking and strategic nature.
Makes sure that his activities contribute to the company's strategy and attainment of its objectives, and to the enrichment of his organization or sector of activity.
Is familiar with various innovation strategies.
Ensures that his staff is aware of and understands their environment and the importance of strategy.

PHASE 2 Leadership

I demonstrated leadership through intern supervision, coordination of experimental work, and scientific communication. Leadership is developing but not yet at a level of independently driving large teams or programs.

Recognizes the need for and merits of collective effort; knows how to motivate and drive the entity he manages.
Is familiar with various leadership styles and adapts them to the specific project and the people on the team.
Is known within the company as a leader with the potential to promote ideas and initiatives and contribute effectively to their implementation.
Is able to impose his leadership in a competitive context.
Coordinates and mobilizes networks.
Encourages his staff to build a climate of trust.
Grooms his staff for future leadership roles.