

How are university CIOs trained in 2025? The French Touch

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Abstract

This communication, “How are university CIOs trained in 2025? The French Touch”, analyzes the training of university Chief Information Officers (CIOs) in France. It examines the evolution of their role between 2018 and 2025, emphasizing the growing importance of managerial skills and the integration of digital strategy, cloud, user-centric services, and operational efficiency. The paper also discusses the organization of training programs, the stakeholders involved, and the pedagogical methods used.

1 Introduction

In higher education, the role of university Chief Information Officers (CIOs) has undergone significant transformation. CIOs are now pivotal in steering digital transitions (Schäper et al., 2025). With universities relying increasingly on digital technologies for teaching, learning, and administration, their responsibilities have expanded. Post-Covid dynamics have accelerated these changes, presenting both challenges and opportunities.

After presenting this topic at EDUCAUSE 2024 (Mocquet *et al.*, 2024), we observed that training for university CIOs is not a globally shared concern. This paper presents practices developed in France and invites comparison with international approaches. While abroad CIOs usually oversee IT

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infrastructure and CDOs focus on data and innovation (Decube, 2024), in France this separation is less clear, as the DSI may encompass both functions. We will therefore use the term “CIO” throughout.

Here, CIOs are considered managers in higher education institutions, not in research-only bodies such as CNRS. Their role varies according to institutional size and local strategy. Although framed by national policies, digital strategy implementation remains institution-specific, reflecting the autonomy of French higher education. Strengthening managerial skills is central to current debates.

Key Competencies for University CIOs: a short literature review

The role of CIOs in higher education is evolving rapidly, demanding a skill set beyond technical expertise. A short literature review (Consensus, 2025) identifies essential competencies: strategic adaptability, leadership, communication, and knowledge of IT and higher education.

Strategic thinking is crucial (Dlamini, 2015), as CIOs must align IT with institutional missions and manage complexity. Leadership requires a balance of transformational and transactional styles (Waheed, 2022). Core IT knowledge and awareness of digital trends remain vital (Paz et al., 2010). Communication skills foster cross-departmental collaboration (Haselkorn, 2003), while understanding governance and regulatory frameworks is equally important (Pinho & Franco, 2017). Personality traits such as conscientiousness and openness further support IT strategy adoption.

A gap persists between institutional expectations and CIOs’ competencies. Addressing it requires targeted training, mentoring, and structured professional development. Collaboration between universities and industry organizations is necessary to design pathways adapted to evolving demands.

In conclusion, the CIO role now requires balancing technical acumen, strategic insight, and leadership. Structured training better prepares CIOs for the complexities of digital transformation.

The French context: decentralized governance and institutional autonomy

In France, the absence of a centralized IT department reflects both history and university autonomy (Mocquet et al., 2022; Schafer & Tuy, 2013; Forest, 2021). Institutions manage their digital strategies independently, but often collaborate through organizations such as Abes, Amue, Association Cocktail, Esup, and Renater. The French digital ecosystem thus resembles a rhizome built by and for universities, reflecting an interconnected dynamic (Mocquet, 2024).

Several trends reshape this ecosystem. Cloud adoption has transformed storage, access, and compliance. Recruitment challenges persist as universities seek skilled professionals. User-centric services require CIOs to combine technical expertise with managerial skills. Finally, financial constraints highlight the need for operational efficiency and strong strategic vision.

The central challenge is to train CIOs not only to address technology but also to make informed strategic decisions. Continuous training remains essential to prepare them for complex and evolving environments.

2 The training delivered from 2018 to 2024

The program is voluntary: universities choose whether to enrol their CIOs. It was designed under the mandate of the Ministry of Higher Education (MESR) and France Universités. Four key organizations co-manage it (see Figure 1): the Assemblée des DSI (ADSI), the Agence de Mutualisation (Amue), the Comité des Services Informatiques (CSIESR), and the Institut des Hautes Études de l’Éducation et de la Formation (IH2EF).

The program builds collective reflection through case studies, feedback, and analyses from CIOs and public or private actors.

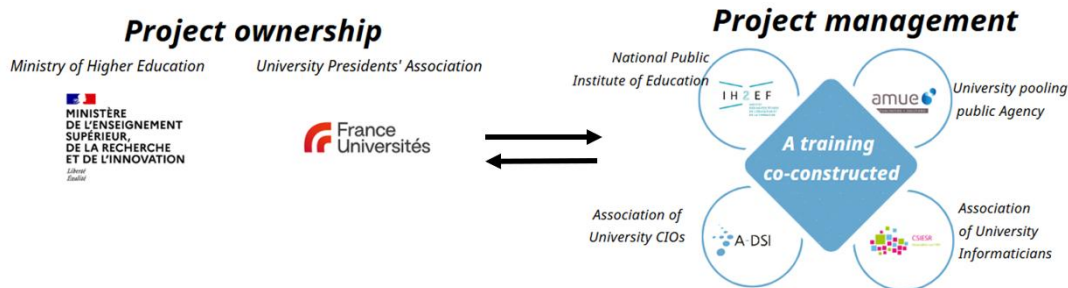


Figure 1: The organization

How to develop skills?

Skill development combines a reference framework, face-to-face training, and clear objectives.

- A reference skills framework : Since 2017, MESR, France Universités and professional associations have developed a national framework for managerial professions. It clarifies responsibilities, supports recruitment and mobility, and defines CIO roles introduced in 2018 (CPU & MESR, 2018). Five areas are highlighted: knowledge, managerial skills, technical skills, project and change management, and personal qualities (cf. Appendix). Face to face in the same place : Courses are delivered at IH2EF, the national training center for higher education executives. This single location enables cross-trade sequences (e.g., Digital and HR departments). Residential sessions encourage networking and both formal and informal exchanges.
- Training objectives and issues : This training program targets five key skill areas (see Table 1). The CAPTURE phase identifies employment and skills-related challenges in IT departments, particularly for CIOs. The MANAGE phase focuses on organizational performance, emphasizing management strategies and resource optimization. KNOW addresses team management through a skills-based approach, offering tools to structure and enhance collective work. DEVELOP aims to strengthen digital competencies among students and staff, fostering adoption and upskilling. Finally, INTEGRATE explores forward-looking workforce planning, incorporating strategic foresight into digital transformation.

The program adopts a modular architecture, with each module grounded in a professional scenario to activate specific elements of the reference framework.

- Module 0 (MO): Assuming a new role and a new post supports onboarding with 16 hours of training.
- Module A (MA): Managing digital strategy focuses on governance in higher education.
- Module B (MB): Evolving digital skills addresses adaptation to emerging sector needs.
- Module C (MC): Improving information system quality emphasizes best practices and optimization.

Each module offers 16 hours of training and blends theoretical input with hands-on applications. This modular format ensures flexibility while addressing CIOs’ evolving professional demands.

Practical examples, case studies

In collaboration with professional associations, a two-year training program was co-developed to address core competencies essential to CIOs’ daily activities. It covers strategic and operational topics, combining conceptual input with practical applications.

- Strategic project management. CIOs are trained to lead projects effectively and foster interdepartmental collaboration in decision-making.
- Managing without direct authority. The program explores how to structure departments and guide teams indirectly, a common situation in universities.
- Budgeting and cost management. Training strengthens financial skills to manage budgets and control costs, particularly critical in a constrained funding environment.
- Technical and technological issues. Advanced themes such as artificial intelligence, IT architecture, and technical debt are also addressed.

The program alternates conceptual overviews with peer exchanges and practical exercises. Annual seminars on topics such as cyber threats enrich the content. Sessions are also synchronized with other professional groups, fostering interdisciplinary collaboration and realistic problem-solving..

Key data in progress

Between September 2018 and June 2024, 191 registrations were recorded, including 114 unique CIOs from 68 universities and 27 other institutions (Figure 2).

The first training cycle comprised four modules. In 2020, a new cycle was introduced to strengthen cross-functional management skills, reflecting evolving institutional needs.

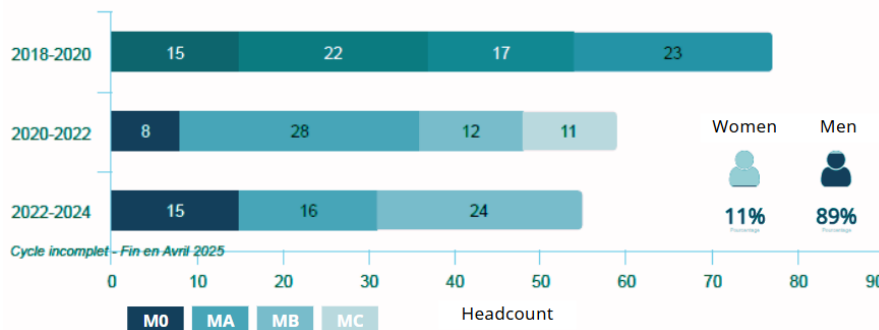


Figure 2: Participation data (2018–2024)

Participation varied by module:

- MO – Assuming a new role: relatively stable with 15 participants in 2018–2020 and 2022–2024, despite a drop to 8 in 2020–2022.
- MA – Digital strategy: peaked at 28 in 2020–2022 (22 in 2018–2020), before falling to 16 in 2022–2024.

- MB – Digital skills: 17 in 2018–2020, 12 in 2020–2022, and 24 in 2022–2024, reflecting the growing importance of cloud technologies.
- MC – Information system quality: 23 in 2018–2020, 11 in 2020–2022, and 24 in 2022–2024, showing a strong recovery.

Overall, the number of trainees has risen slightly, aligning with institutional training plans for both new and experienced CIOs.

Pedagogical methods

The course alternates between theoretical input and shared experiences with CIOs from higher education and other sectors. Real-life scenarios aligned with the reference framework develop collaborative problem-solving skills. Each module concludes with an oral presentation simulating a budget dialogue, bridging theory and practice. A Moodle platform supports the program by providing early access to resources, allowing participants to upload work and engage in forum discussions. The oral presentation serves as the capstone assessment.

3 Discussions and experience feedback

Feedback on the training combines participant impressions, challenges encountered, and evolving perceptions of the CIO role.

- Training feedback : Although no longitudinal survey exists, on-site evaluations show satisfaction rates between 80% and 95%. Qualitative indicators confirm long-term impact: 59% of participants enrolled in additional modules, and two became instructors in 2024–25. Testimonials highlight added relational value, helping to break professional isolation and foster peer collaboration.
- Challenges : Difficulties stem mainly from participant diversity (experience, size of institutions) rather than from specific skills. This heterogeneity sometimes complicates exchanges and role-playing, which is why groups often self-organize by comparable institution size.
- Changing perception of the CIO role : Historically rooted in technical expertise, CIOs now require negotiation and strategic skills. Training provides opportunities to experiment with new roles, strengthen managerial abilities, and collaborate across diverse backgrounds. These peer-based sessions are valued, provided workload constraints allow participation. This experience feedback is structured at the intersection of three complementary dimensions: the participants' overall impressions of the training, the challenges encountered throughout the learning process, and the gradual transformation in how the role of a CIO is perceived and embodied. Together, these axes offer a multidimensional understanding of the training's impact, both individually and collectively.

Testimonial: Benefits of this CIO training program

As part of a qualitative study, an April 2025 interview with a Paris-based CIO underlined the program's formative value. He described it as "invaluable," not only for deepening expertise but also for repositioning his strategic role. The curriculum went beyond leadership and digital strategy, offering crucial immersion in the French higher education ecosystem, including ministry structures, policy relations, and sector-specific challenges. The program also strengthened his professional network through associations, forums, job listings, and conferences. Case studies and workshops with experienced CIOs accelerated his operational readiness and reduced potential missteps. Finally, the residential format at IH2EF fostered lasting professional relationships and collaborations.

4 Conclusion

In conclusion, the central issue was how to transform CIOs' skills in a decentralized higher education system where each institution defines its digital strategy.

Our experience shows it is possible to mobilize institutions, professional associations, and training bodies to co-construct a program that, over six years, involved nearly 200 participants. Delivered face-to-face and rooted in real-life scenarios, the training facilitates transfer of competencies into daily practice. High satisfaction and sustained engagement confirm its relevance.

This peer-based model, focused on managerial skills, strengthens both expertise and professional networks. Real-life contexts improve CIOs' operational capacity.

Looking ahead, the Inspectorate General (Clareton et al., 2025) provides six strategic recommendations: integrate IS into national governance, enhance collaboration with software providers, analyze mutualization models, link IS with accounting, prioritize shared standards, and designate a unified IS for the sector. Four scenarios are outlined, ranging from full state withdrawal to a strong ministerial mutualization model.

These recommendations will shape future training. A new phase of co-construction is needed to align curricula with the evolving digital transformation of higher education.

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6 APPENDIX – French skills framework for CIO

Source : France Universités, DGSIP, ADSI (2021), Le référentiel des DSI/DSIN, URL : https://franceuniversites.fr/wp-content/uploads/2018/04/referentiel_livret_DSI-DSIN.pdf, online

Domain of Knowledge	Domain of Knowledge (<i>Connaissances</i> C)	
	C	C1
	C2	In-depth knowledge of the organization of higher education, research, and innovation (ESRI) and the sociology of professions and university organizations.
	C3	Knowledge of budgeting, finance, public procurement, and human resource management.
	C4	Knowledge of internal and external communication techniques.
	C5	Knowledge of contract law/public procurement.
	C6	Knowledge of the legal and ethical framework of the civil service.
Domain of Skills	Managerial Skills (<i>Compétences managériales</i> CM)	
	CM	CM1

		CM2	Foster team cohesion and promote favorable working conditions for staff.	
		CM3	Address the institution’s digital evolution needs in the best possible conditions.	
		CM4	Ensure the development of staff skills through training, job transformation, and support actions.	
	CT	Technical Skills (<i>Compétences techniques CT</i>)		
		CT1	Make information systems and digital elements understandable for all through targeted communications.	
		CT2	Master the concepts and architectures of information systems and digital services, technical environments, digital tools, and their uses	
		CT3	Master quality management concepts.	
		CT4	Master information system security and the current legislation on information systems and digital services.	
		CT5	Ability to identify and consider digital developments, as well as the regional and national IT and digital ecosystem.	
		CT6	Proficiency in the English language is mandatory.	
	CG	Project Management and Change Management Skills (<i>Compétences gestion CG</i>)		
		CG1	Master the methodology for managing complex projects.	
		CG2	Ability to lead cross-functional work groups, plan, and estimate workloads, costs, and deadlines.	
	CG3	Master change management, negotiation, and conflict management techniques.		
<i>Domain of Personal Qualities</i>	QP	QP1	Ability to develop a strategic vision, be creative, and have a sense of innovation.	
		QP2	Curiosity about new technologies and their potential applications.	
		QP3	Proven managerial competence in leading significant teams, including experienced managers; ability to unite teams and delegate.	
		QP4	Proven experience in project management.	
		QP5	Strong relational, adaptability, and persuasion skills	
		QP6	Confirmed communication skills.	
		QP7	A strong aptitude and preference for teamwork.	
		QP8	Listening, facilitation, and negotiation skills.	
		QP9	Initiative and the ability to be a driving force.	
		QP10	Analytical and synthesis skills.	