

From General Management Competencies to Leadership Development: Insights from Senior Leaders in Swiss Higher Education

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This article examines the general management competencies which senior leaders in higher education institutions (HEIs) consider relevant for effectively fulfilling their positions, given the increasing complexity of the sector and the growing demands on the management of HEIs. Using the Swiss higher education context as a case study, we conducted an online survey of senior HEI leaders across different HEI types and management functions. Among the six general management competency fields from our framework model, current leaders consider leadership, strategic thinking and acting, and shaping organisational change to be most crucial, while acting within a political environment will gain greater future relevance. In sum, we identify potential for better preparation of future HEI leaders. The high homogeneity in the survey results across HEI types and levels of complexities suggest a case for a national, cross-institutional leadership development programme, as seen in other countries.

Keywords: management, leadership, higher education, competencies, empirical research

1 Introduction

Over recent decades, international New Public Management (NPM) reforms – alongside a broader shift toward increased institutional autonomy – have significantly transformed the governance of higher education (HE). A key consequence of this transformation has been the professionalisation of HE management, marked by two parallel trends: the growing involvement of academics in managerial roles and the influx of external professionals into the leadership of higher education institutions (HEIs). These developments reflect the need for a more diverse range of expertise and competencies to effectively navigate the increasing complexity of HEIs as expert organisations with multiple rationalities (e.g. Boitier & Rivière, 2016; Macfarlane, 2011).

Traditionally, HEI leaders have been selected based on their scholarly expertise and teaching excellence rather than on their leadership competencies (Grajfoner et al., 2024). Combined with unclear expectations of HEI leaders (Cardno, 2013), this procedure may result in the appointment of academic candidates who are inadequately prepared for senior leadership positions (Gonaim, 2016; Magrane et al., 2018). In their Europe-wide study, Bunescu and Estermann (2021) find that “[l]eadership training is

very seldom a requirement for accessing university leadership positions" (p. 35). Incoming leaders in HE – whether with an academic career or with an external career – often *"do not feel sufficiently prepared or supported for their leadership roles"* (Grajfoner et al., 2024, p. 1200). Thus a deeper understanding of the requirements of senior HEI leaders and the competencies they consider essential for effective leadership offers valuable insights for enhancing leadership development in academia.

This article contributes to the literature on HE management by examining leadership demands in HEIs through a national study in Switzerland. Specifically, we investigate:

- (1) which general management competencies (GMCs) senior HEI leaders consider important now and in the future,
- (2) how perceptions of competency requirements vary by institutional type and organisational complexity,
- (3) how leaders prepared for their roles, and
- (4) what competency gaps they encountered upon assuming their positions.

We focus on the competencies senior HEI leaders deem essential for general management roles – positions that require strategic vision, engagement with diverse stakeholders, and the ability to lead other leaders – setting them apart from roles centred on managing individual employees, such as professorships or research group leadership. According to Lavigne (2019) institutional characteristics affect competency requirements for senior HEI leaders. By examining variations across institutional types and organisational complexity, this study therefore accounts for differences in funding models, governance structures, and institutional missions, offering valuable insights – particularly for diverse HE systems like those in the German-speaking countries. While the HEI classification by type follows legal definitions, we define organisational complexity as a combination of size, diversity, and interdependence.

Building on the literature and practitioner insights derived from the accumulated experience within our professional networks, we developed a multidimensional GMC model encompassing the cross-functional knowledge, skills, and attitudes required by senior HEI leaders. We define senior HEI leaders as 1) those holding the *"highest individual authority"* (Badillo-Vega et al., 2021) with significant influence on their institutions, e.g. rectors (presidents, directors) or vice-chancellors and 2) those with significant area responsibilities (Lavigne, 2019), e.g. for core HEI functions (education/research/knowledge transfer), an academic unit (e.g. deans, heads of faculty, department, institute, or research centre), or a support function (e.g. directors of administration or finance, general secretaries).

To investigate our research questions, we collected publicly available data on senior HEI leaders' positions and career paths in Switzerland and conducted a representative online survey among them. This data forms part of a larger research project on HEI leadership in Switzerland (Perich et al., 2024).

The article is structured as follows: Section 2 reviews the literature and introduces the GMC model. Section 3 contextualises the study within the Swiss HE sector. Section 4 outlines the methodology, followed by findings in section 5. Section 6 discusses limitations and implications for practice, and section 7 concludes with contributions and future research directions.

2 Literature Review

2.1 Literature on HEI Management Competencies

The literature on HEI management competencies presents a range of frameworks capturing both generic and context-specific leadership requirements. While these models differ in focus, they converge on key attributes considered essential for navigating HEI complexities. For instance, Bryman (2007) identifies 13 aspects of effective leadership across the UK, the US and Australia, including open communication, strategic vision, participatory decision-making, resource provision, advocacy, fairness, a positive work environment, trustworthiness, feedback, and junior staff development. For an Australian study on academic leadership capabilities, Scott et al. (2008) categorise competencies into five interrelated dimensions: personal, interpersonal, and cognitive capabilities, as well as generic and role-specific competencies. Based on a thorough review of empirical studies, Aziz (2018) identifies three leadership clusters: leading self (personal competencies), leading others (social skills), and leading the organisation (cognitive/tactical skills). Analysing HE leadership in Moldova, Dawson et al. (2020) highlight nine common themes across various competency frameworks: leadership, HE knowledge, resource and people management, talent development, personal impact, productivity, behaviours, and values. Given the breadth and diversity of the previously identified HEI management competencies, investigating senior leaders' relevance assessment gains even more importance.

Research on HEI leadership competencies spans various organisational levels, from middle management to senior executive roles. Several studies have examined middle-level leaders such as deans and department chairs, including Gonaim (2016) who draws on studies from around the globe; Lavigne (2019) for Canada; and De Boer and Goedgebuure (2009) in Australia, Germany, Japan, the US, and the UK. Rübken (2006) explores German university presidents' career paths, however without detailing com-

petency requirements, whereas Freeman and Kochan (2013) identify personal attributes, management, and communication as key for US university presidents. In their systematic literature review, Badillo-Vega et al. (2021) conclude that *"[f]uture inquiry could consider university presidents' leadership within the complex institutional environments in which the universities are embedded"* (p. 677).

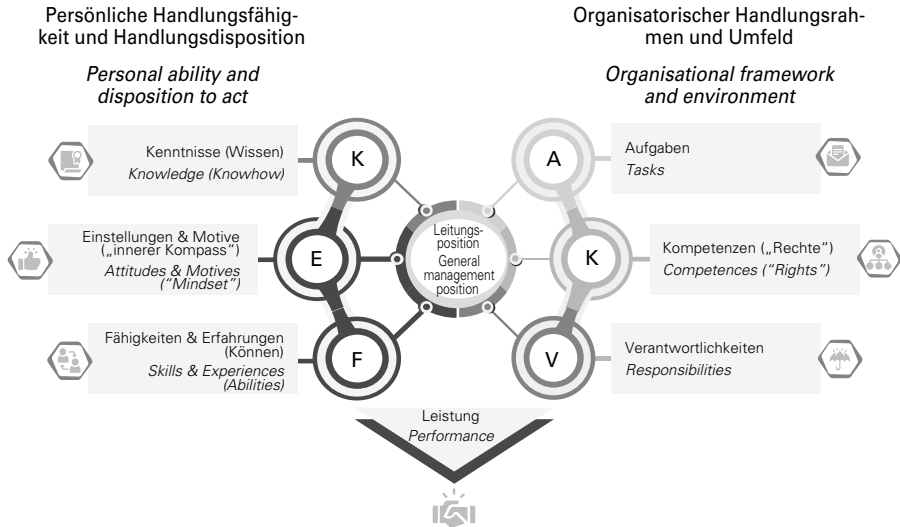
Research on senior HEI leadership in German-speaking countries remains limited. The KaWuM project identifies communication, analytical skills, and system knowledge as core competencies for German HE managers (Rathke et al., 2023). Sack's (2019) academic leadership model highlights implementation orientation, visionary thinking, change management, and intercultural competence. In Austria, Ehrenstorfer et al. (2015) identify academic excellence, professional expertise, leadership and social skills, personality traits, management skills, and organisational knowledge as key competency fields. At the European level, the NEWLEAD project underscores vision formulation, emotional intelligence, communication, networking, people management, and bridging academia with politics as essential leadership competencies (EUA, 2023). These competencies align with the three competency sets identified across 27 European countries: people management (communication, open-mindedness, conflict resolution), technical skills (financial and knowledge management), and strategic skills (decision-making, visioning, change, and crisis management) (Bunescu & Estermann, 2021).

In addition to geographical context, institutional characteristics such as an HEI's size, age, and academic focus influence competency requirements (Engwall et al., 1999; Lavigne, 2019). However, the majority of existing research focuses on single institutional types or disciplinary contexts, thus limiting the ability to draw conclusions about differences across settings. For example, some studies examine leadership in specific HEI types, including technical universities (Cardno, 2013) and universities of applied sciences (Windlin, 2022), or focus on discipline-specific leadership e.g. in engineering (Magrane et al., 2018) and medicine (Viera & Kramer, 2020). Others explore leadership in specialised institutions such as non-university research institutes (Sack, 2019). While these studies offer valuable insights, they do not typically compare findings across institutional types. One rare exception is the Austrian study by Ehrenstorfer et al. (2015) which shows that leaders at universities prioritise academic practices and international visibility, whereas leaders at universities of applied sciences emphasise professional expertise. The two groups, however, report similar competency gaps in HR management, financial oversight, administration, and conflict resolution. In general, studies on leadership competencies and leadership development in HE (Hempsall, 2014; Maduforo et al., 2024; Simmonds & Tsui, 2010; Wolverson et al., 2005) further support the finding that HE leaders often lack sufficient training for their positions (Grajfoner et al., 2024).

Overall, despite extensive research on HEI leadership competencies, several gaps remain. While existing studies identify broad competency frameworks and leadership attributes, little research directly investigates which competencies senior HEI leaders currently prioritise and anticipate needing in the future. Furthermore, while some studies address differences between leadership roles, there is limited insight into how competency perceptions vary across institutional types and organisational complexity. Additionally, research on leadership preparation remains fragmented, often focusing on career pathways rather than the specific ways in which leaders develop the competencies required for their roles and the challenges leaders encounter upon assuming their positions. Addressing these gaps is essential for aligning leadership development with the evolving demands of HEI management.

2.2 General Management Competencies Model

This article examines the competencies that senior HEI leaders consider relevant for general management roles, which involve a strategic vision, engagement with diverse stakeholders, and leading other leaders – distinct from managing individual employees, as in professorships or research groups. Competencies encompass the knowledge, skills, and attitudes needed to effectively fulfil a specific organisational role (Boyatzis, 2008; Hellriegel et al., 2002). From a behavioural science and business management perspective, competencies are not limited to personality traits but are expressed through observable behaviour (Kaufhold, 2006). As a transactional construct, competency represents both individuals' ability to perform tasks and the organisational authorisation to do so (Becker, 1994). Furthermore, senior leaders' capacity to act is shaped by their specific organisational framework and environment, reinforcing the dynamic and institutional nature of leadership competencies. Figure 1 illustrates that senior leaders' ability to act – reflected in their observable knowledge, attitudes, and capabilities (see left side of the figure, K, E, F) – is connected to the organisational framework for action, which defines tasks, rights, and responsibilities (see right side of the figure, A, K, V), through a designated management position.

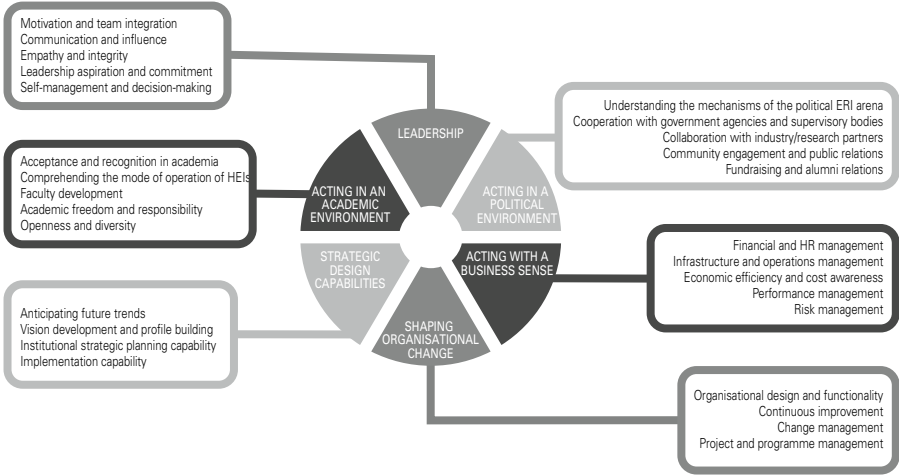
Figure 1: Theoretical conceptualisation of GMCs

Notes: Own illustration.

As section 2.1 illustrates, studies on HEI management competencies often emphasise personality traits or generic skills. Many remain abstract, overlooking the specificities and multiple rationalities of HEIs as expert organisations. This underscores the need for practice-oriented frameworks tailored to the HEI context. To identify the GMCs senior HEI leaders consider relevant, we therefore developed our own model, integrating insights from existing research, the Swiss Federal Office of Personnel's Competencies Model 21 (Eidgenössisches Personalamt, 2021), and practitioner discussions. Our model captures the full spectrum of GMCs for senior leaders in scientific organisations operating in multidimensional fields (De Boer & Goedegebuure, 2009). It emphasises leaders' roles within the organisation, defining competencies as observable tasks and behaviours rather than personality traits. The model includes 28 competencies across six fields (Figure 2), structured into three interconnected pairs, each balancing complementary aspects:

- (1) leadership (individual level) vs. shaping organisational change (organisational level);
- (2) acting in an academic environment (management of internal stakeholders) vs. acting in a political environment (management of external stakeholders);
- (3) strategic design capabilities (forward-looking and planning perspective) vs. acting with a business sense (everyday operating perspective).

Figure 2: Underlying model on GMCs of senior HEI leaders



Notes: The individual competencies are described in detail by Perich et al. (2024)¹; own illustration.

Unlike other models, ours accounts for HEIs' unique characteristics as expert organisations, shaped by academic values, decentralised structures, competing stakeholders, multiple rationalities, and strong professional autonomy (Musselin, 2006). This aligns with calls for context-sensitive leadership models (Macfarlane et al., 2024). Our model goes beyond generic leadership dispositions, reflecting the broader set of competencies essential for effective HEI leadership. By incorporating diverse reference groups and their demands, it moves beyond individual-focused frameworks, emphasising leadership as advancing the institution as a whole. Developed through practitioner consultations, it recognises the complexities of leadership in expert organisations and provides a systemic framework for identifying and developing key competencies.

3 The Swiss Higher Education Sector

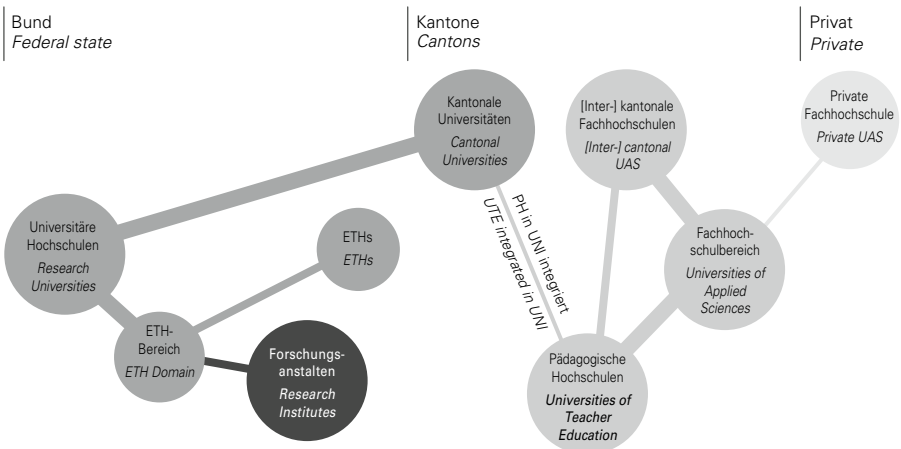
The Swiss HE sector is unique but highly relevant to other HE systems for several reasons. First, Switzerland exemplifies the global trends of expansion and diversification in HE systems (Marginson, 2016). Second, the Swiss context comprises a diverse landscape of HEIs, encompassing a great variety of institutional types and governance arrangements (Lepori et al., 2014). Third, the Swiss HE sector has undergone significant restructuring in recent years, including the reorganisation of the universities of applied sciences and the universities of teacher education. Such institutional transformations reflect broader international trends, as HE systems worldwide are consolidating institutions, redefining governance structures, and adapting to evolving educational and labour market demands (Marginson, 2016). Fourth, New Public Management

¹See Perich et al. (2024), Appendix A6 on p. 103ff., <https://doi.org/10.3929/ethz-b-000721357>.

(NPM) reforms have significantly reshaped the Swiss HE system, enhancing HEIs' autonomy and accountability (Fürst et al., 2022). Similar to NPM transitions in many other countries (Broucker & De Wit, 2015), these changes have intensified the need for managerial, competency-based leadership approaches.

Despite its modest size, Switzerland has a highly diverse and fragmented HE landscape (Figure 3) – comparable in many respects to those of Germany and Austria. This diversity underscores the importance of investigating potential variations of competency requirements by HEI type. The five HEI types analysed in this article are considered equivalent based on the 2015 Higher Education Funding and Coordination Act (HEdA)², with the majority of funding provided by the federal government and the cantons in a shared governance model. However, the different HEI types significantly vary in their specific funding models, governing bodies and mission (Swiss State Secretariat for Education, Research and Innovation SERI, 2024).

Figure 3: Institutions of the analysed Swiss HE area



Notes: Our depiction of the Swiss HE area (based on Pasternack & Maue, 2016).

- At the federal level, the ETH domain comprises the two federal institutes of technology (ETHs) and the four research institutes (RIs)³, all operating under the same governance framework. As a distinct and legally established entity, the ETH domain operates under the direct supervision of the Swiss Confederation. The academically oriented ETHs provide teaching, conduct basic research and are responsible for knowledge transfer with a focus on natural sciences and engineering, mathematics, and architecture. The research institutes conduct mission-oriented research and

²Federal Act on Funding and Coordination of the Swiss Higher Education Sector (Higher Education Act, HEdA) 30 September 2011 (Status as of 01/03/2021), <https://www.fedlex.admin.ch/eli/cc/2014/691/en>.

³See <https://ethrat.ch/en/eth-domain/portrait-eth-domain/> (access date: 11/03/2025).

provide scientific and technical services through specific user labs, while closely collaborating with the two ETHs.

- At the cantonal level, there are the ten cantonal universities (UNIs). Together, the ETHs and UNIs have around 170,000 students, representing around 60 % of all HEI students in Switzerland (FSO, 2024). Like the ETHs, the UNIs have an academic orientation and focus on basic research. They are either full universities (some with medical faculties) or multi-discipline universities.
- Also at the cantonal level, there are the nine universities of applied sciences (UAS), each governed by one or more cantons, and one private UAS. They are characterised by their focus on applied research and practice-oriented study programmes leading to professional qualifications. Most UAS offer several disciplines, ranging from engineering and information technologies, chemistry and life sciences, business and services, theatre and other arts, to social work, health, and nursing.
- The eighteen universities of teacher education (UTEs) are also each governed by one or more canton(s). As mono-disciplinary institutions, they focus on teacher training, either independently or as part of an UAS.

Altogether, the Swiss system draws a clear distinction between HEI with an academic focus and those designed to equip students with practical skills for specific professions. However, even within each HEI type, there are significant differences in terms of mission, size, history, organisation and governance structure (SERI, 2024). For example, cantonal universities with medical faculties and affiliated university hospitals face significantly higher costs and administrative complexity due to the involvement of additional stakeholders, such as public health departments and clinical partners. Similarly, the technically and scientifically oriented institutions of the ETH domain are more resource-intensive, often relying on large-scale international third-party funding and collaborative research networks involving non-university and global partners. In contrast, smaller, single-discipline universities focusing primarily on the humanities and social sciences typically operate with lower financial requirements and fewer external dependencies.

4 National Online Survey of Senior Leaders at Swiss HEIs

4.1 Data Collection

Our sample comprises all senior leaders who were working at one of the 44 Swiss HEIs (ETHs, RIs, UNIs, UASs and UTEs) and who had an overall institutional responsibility or a significant academic or non-academic area responsibility (reporting date: 1 March 2024). By analysing HEI websites, organisational charts, and governance documents (e.g. HEI statutes, function chart), we identified the relevant leadership positions for each HEI. Apart from distinguishing between those who are members

of the (extended) executive board or not, we also differentiate between the following functions (Figure 4):

- senior leaders with an overall *institutional responsibility* (rectors, presidents, directors);
- senior leaders with a significant *academic area responsibility*, either for a cross-sectional academic core function (education/research/knowledge transfer, e.g. vice rector/president for teaching or research), or for a basic academic unit (e.g. dean, head of department, large institute, academic platform, or research centre);
- senior leaders with a significant *non-academic area responsibility*, i.e. a cross-sectional support function (e.g. secretary general, directors of administration, finance, HR, or infrastructure).

Figure 4: Overview of management functions and levels of study sample

Management level		Overall responsibility N = 30 (10%)	Academic area responsibility N = 157 (50%)		Non-academic area responsibility (support responsibility) N = 125 (40%)		
(Extended) Executive Board (N = 167; 54%)	1 Rector N = 30 (10%)	Rector, President, Director					
	2 Head of a subdivision I (directly subordinated) N = 136 (44%)		Pro-rector, Vice President Academic functional responsibility (core functions T/R/KTT)	Academic subdivisional responsibility RI (Division Manager) Academic subdivisional responsibility UAS (Head of Department)	Administrative Director	Pro-rector, Vice President	
						Head of general/academic support function	
						Infrastructure responsible	
						HR responsible	
	3 Head of a subdivision II (not directly subordinated) N = 114 (36%)			Academic subdivisional responsibility ETH (Head of Department) Academic subdivisional responsibility UNI (Dean)	General Secretary	Finance responsible	
							Head of Department, Head of Staff Unit
	4 Head of other (large) subunits N = 32 (10%)			Academic head of other subunits (Head of Institute/Center/ Platform)			
	5 Professorship/Research Group						

Notes: Own illustration of study sample by management function and level with number of respondents and shares in brackets.

For larger and more complex HEIs, we included not only the members of the (extended) executive board and the heads of directly subordinated academic subunits (i. e. faculties, departments) but also other selected key positions, e.g. heads of scientific platforms and of administrative departments providing essential infrastructure and administrative services for the entire HEI (e.g. finance, HR, ICT, real estate and operations, student administration, library). These considerations yielded a national sample of 488 senior HEI leaders.

We first gathered publicly available information on the senior leaders' positions and biographies, e.g. on their websites and LinkedIn-profiles. Next, we conducted an online survey in spring 2024, gathering insights into senior leaders' characteristics, career paths, leadership development, and their assessment of competencies and gaps. A total of 312 senior leaders participated, yielding a response rate of 63,9 %.

4.2 Measures

To answer our research questions, we surveyed the senior HEI leaders on the importance of each of the GMCs in our model and on the competency gaps they experienced when assuming their current senior leadership positions (Table 1). We also asked them to identify the main sources from which they primarily developed the competencies they consider relevant for their leadership position. If they acquired these competencies through internal or external continuing education or leadership development programmes, we asked them to provide more information on the specific programmes.

Table 1: Survey questions and variables on GMCs

Thematic category	Question	Scale
Importance of GMCs	For each of the 28 competencies in figure 2: How important are these competencies to your role today?	1 (Not important) to 5 (Extremely important)
	For each of the 28 competencies in figure 2: How do you anticipate the importance of these competencies will change over the next 5–10 years?	–1 (Less important), 0 (Neutral), 1 (More important)
Competency gaps	Reflecting on the transition into your current senior leadership role, which specific competency areas presented the greatest challenges for you? In which areas would you have benefited from more focused preparation or training?	Open question (five text fields)

continued on the next page

Table 1, continued

Thematic category	Question	Scale
How they developed their competencies	From which of the following sources have you primarily developed the competencies necessary for your current senior leadership position? – Directly within my current position, through hands-on experience (on the job) – Through professional experiences prior to my current position – Throughout my academic career – Via internal or external continuing education or leadership development programmes – Through personal coaching or mentorship – Introductory phase with my predecessor or job shadowing	Multiple choice but limited to a maximum of three answers
Continuing education and leadership development programmes	Which continuing education/leadership development programmes have you completed? – (Executive) MBA/MPA – MAS/CAS on leadership, HE management, etc. – Specific leadership development programmes – Leadership courses offered/initiated by your own HEI – Conferences and networking events	Multiple choice with open fields for specification (for those who indicated that they developed their competencies through continuing education or leadership development programmes)

Additionally, we analysed the extent to which the perceived competency requirement profiles differ among senior leaders from HEIs of different types and organisational complexity levels. We define organisational complexity as the product of three factors: the number of elements (size), their diversity (variety), and the interdependence between them (interconnectedness) (Perich, 1992).⁴ Notably, the HEI type does not necessarily correspond with the level of organisational complexity. For example, the HEIs with a very high level of organisational complexity include the two ETHs, but also the four largest UNIs and the University of Applied Sciences and Arts Western Switzerland (HES-SO).

4.3 Sample Description

Overall, the group of respondents is representative of the entire sample with respect to HEI type, management functions and levels, as shown by the comparisons in Table 2. A total of 488 senior leaders from all five HEI types were included in our sample. Senior leaders from UNIs account for 45,1 % of the sample, which adequately reflects this HEI type's size and complexity. While the proportions of respondents from different HEI types are similar to those in the overall sample, there is a slight overrepresent-

⁴For more information on the indicators and data we used to calculate an organisational complexity index, see Perich et al., 2024, p. 10ff. (Section 2.2: <https://doi.org/10.3929/ethz-b-000721357>) and p. 96ff. (Appendix A5: <https://doi.org/10.3929/ethz-b-000721357>)

tation of the ETHs and a slight underrepresentation of the UNIs. Our respondents also adequately represent the management functions (overall responsibility, academic area responsibility or non-academic area responsibility) and management levels (share of members of the extended executive board). However, senior leaders with academic area responsibilities are slightly underrepresented (50,3 % compared to 55,3 %), while those with non-academic area responsibilities are somewhat overrepresented (40,1 % compared to 35,7 %).

Table 2: Comparison of sample and respondents

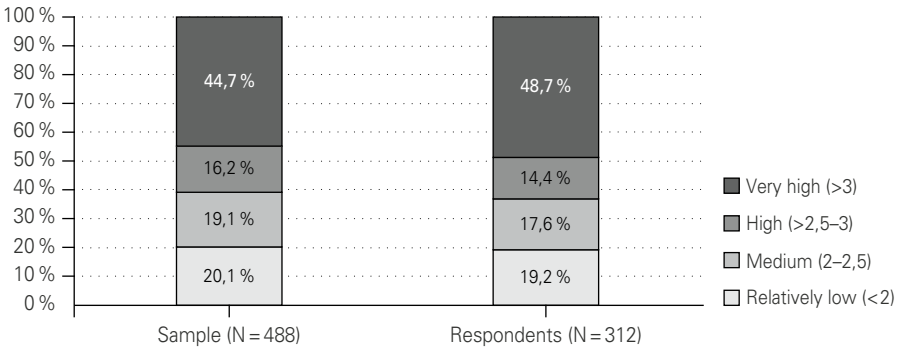
Higher education institution (HEI) (type)	Number (total)		Members of the (extended) executive board		Overall responsibility		Academic division responsibility		Non-academic division responsibility	
Sample										
Universities of applied sciences (10)	138	28,3 %	108	78,3 %	10	7,2 %	84	60,9 %	44	31,9 %
Universities of teacher education (18)	18	3,7 %	18	100,0 %	18	100,0 %		0,0 %		0,0 %
Cantonal universities (10)	220	45,1 %	93	42,3 %	10	4,5 %	120	54,5 %	90	40,9 %
Federal institutes of technology (2)	76	15,6 %	17	22,4 %	2	2,6 %	45	59,2 %	29	38,2 %
Research institutes in ETH domain (4)	36	7,4 %	24	66,7 %	4	11,1 %	21	58,3 %	11	30,6 %
All HEIs (44)	488	100,0 %	260	53,3 %	44	9,0 %	270	55,3 %	174	35,7 %
Respondents										
Universities of applied sciences (10)	86	27,6 %	68	79,1 %	9	10,5 %	49	57,0 %	28	32,6 %
Universities of teacher education (12)	12	3,8 %	12	100,0 %	12	100,0 %	0	0,0 %	0	0,0 %
Cantonal universities (10)	129	41,3 %	57	44,2 %	5	3,9 %	61	47,3 %	63	48,8 %
Federal institutes of technology (2)	60	19,2 %	13	21,7 %	1	1,7 %	33	55,0 %	26	43,3 %
Research institutes in ETH domain (4)	25	8,0 %	17	68,0 %	3	12,0 %	14	56,0 %	8	32,0 %
All HEIs (38)	312	100,0 %	167	53,5 %	30	9,6 %	157	50,3 %	125	40,1 %

Notes: (Extended) executive board includes both core members and members with advisory function.

Regarding organisational complexity (Figure 5), the respondents demonstrate a slight overrepresentation of very complex HEIs (48,7 %), while the other groups are slightly underrepresented (14,4 %, 17,6 %, and 19,2 %, respectively).⁵

⁵Further analyses show that the respondents are also representative in terms of gender and language regions.

Figure 5: Shares of respondents by the HEI's organisational complexity



Notes: Figure based on data about HEIs' organisational complexity separately for all contacted senior leaders ('sample') and for the respondents; organisational complexity measured by ten indicators, as described in Perich et al., 2024⁶.

For a more comprehensive understanding of the profile of senior HEI leaders, Table 3 presents data on the respondents' gender, age, career path, experience in different sectors, leadership experience (before the current position), and whether they were internally or externally recruited for the current position.

Table 3: Selected respondent characteristics

Gender	Age	Career path	Previous career experiences	Previous relevant leadership experience	Recruitment into current position
Female: 32,1 %	30–39 years: 0,6 %	Academic: 48,7 %	In HEI sector: 83,7 %	Yes: 60,9 %	Internal: 55,4 %
Male: 67,9 %	40–49 years: 18,6 %	Professional: 51,3 %	In public sector: 31,1 %	No: 39,1 %	External: 44,6 %
	50–59 years: 53,5 %		In private sector: 51,9 %		
	60–69 years: 26,3 %		Abroad: 51,0 %		
	No answer: 1,0 %				

Notes: Figures are based on survey data and show the share of respondents (N=312) for each category.

5 Empirical Evidence on Research Questions

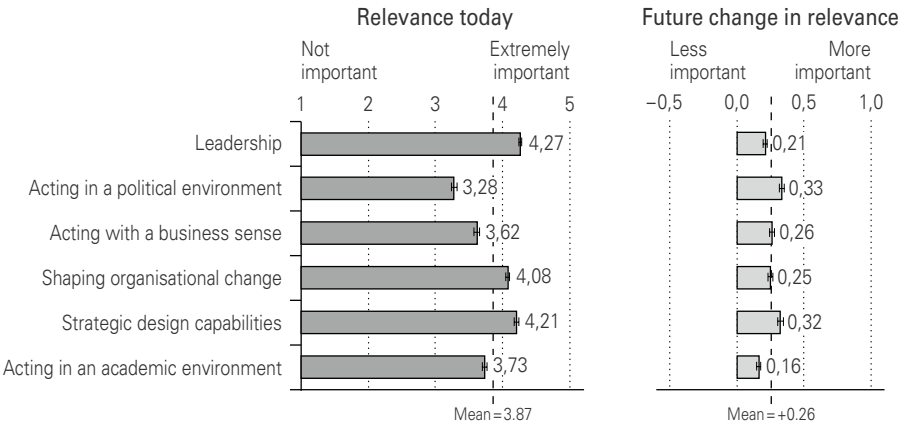
5.1 Competency Requirements Perceived by Senior HEI Leaders

The results show that the competency profiles which senior HEI leaders consider relevant for their current positions are broad and demanding. The left part of Figure 6 demonstrates that all GMC fields are rated, on average, at least somewhat important. However, leadership (4,27), strategic design capabilities (4,21), and shaping organisa-

⁶See Perich et al., 2024, p. 10ff. (Section 2.2: <https://doi.org/10.3929/ethz-b-000721357>) and p. 96ff. (Appendix A5: <https://doi.org/10.3929/ethz-b-000721357>).

tional change (4,08) are considered above average in importance. As the right part of Figure 6 illustrates, none of the competency fields is expected to lose importance over the next five to ten years. However, the respondents anticipate strategic thinking and acting to gain even more significance, and competencies in acting within a political environment – which currently have the lowest importance rating – will become more relevant for senior HEI leaders.

Figure 6: Importance of GMC fields today and in the next 5–10 years

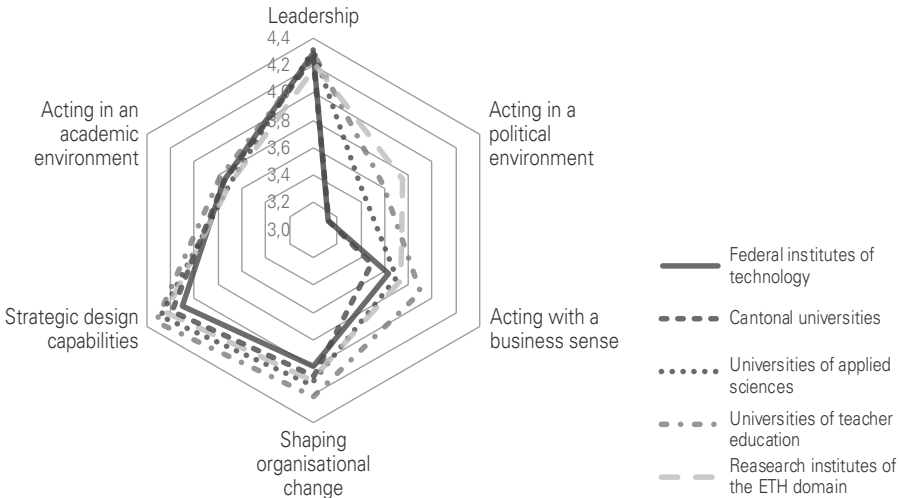


Notes: Figure based on survey data (N = 312); mean values per competency fields are calculated based on respondents' assessment of the individual GMCs; error bars show standard errors; detailed results are presented in Appendix A1 and A2.

Within the three most important competency fields, certain individual competencies rank particularly high, including communication and influence (4,49), motivation leadership and team integration (4,35), empathy and integrity (4,35), and implementation capability (4,32). The respondents foresee the highest future increase in importance for competencies in fundraising and alumni engagement (0,46), community engagement and public relations (0,43), economic awareness and cost efficiency (0,42), and anticipating future trends (0,42).

Examining the differences among respondents from various HEI types in Figure 7, we find only slight variations. Respondents across all different types of HEIs agree on the high importance of leadership and shaping organisational change. Furthermore, there is no significant discrepancy in their perceptions of the relevance of acting in an academic environment and strategic thinking and acting. However, respondents from ETHs and UNIs perceive GMCs related to acting in a political environment and acting with a business sense to be less relevant than those from other HEI types.

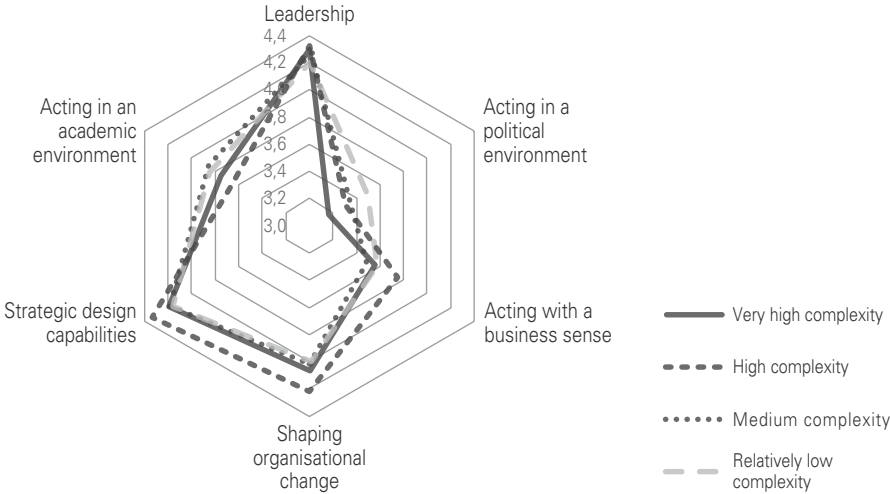
Figure 7: Heterogeneity among HEI types regarding today's importance of GMC fields



Notes: Figure based on survey data (N=60 for ETHs, N=129 for UNIs, N=86 for UASs, N=12 for UTEs, N=25 for RIs); mean values per competency field are calculated based on respondents' assessment of the individual GMCs for each HEI type; figure shows only part of entire scale ranging from 1–5.

Regarding the varying levels of organisational complexity of HEIs, our results indicate similarly consistent patterns (Figure 8). Again, respondents from HEIs across all different complexity levels acknowledge the high relevance of leadership competencies. However, those from HEIs with lower complexity find acting in a political environment more important, while those from highly complex HEIs place greater emphasis on shaping organisational change and strategic thinking and acting.

Figure 8: Heterogeneity among HEIs with different organisational complexity regarding today's importance of GMC fields



Notes: Figure based on survey data (N=152 for very high complexity, N=45 for high complexity, N=55 for medium complexity, N=60 for relatively low complexity); mean values per competency field are calculated based on respondents' assessment of the individual GMCs for each category of organisational complexity; figure shows only part of entire scale ranging from 1–5.

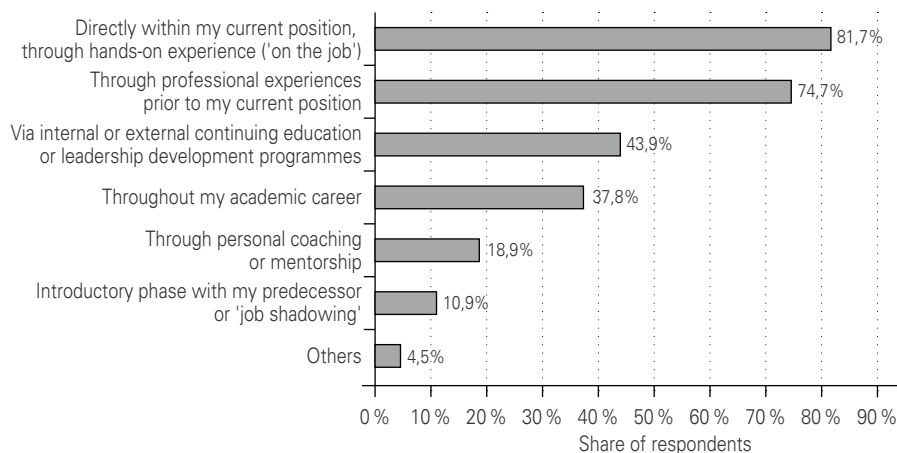
5.2 Where Senior HEI Leaders Developed Their Competencies

Senior HEI leaders acquired the majority of relevant GMCs on the job, both in their current (81,7 %) and previous positions (74,7 %) (Figure 9). Furthermore, 37,8 % of respondents acquired relevant competencies during their academic careers, 18,9 % through personal coaching and mentorship, and 10,9 % during their introductory phase with their predecessor.

Overall, 43,9 % of the respondents gained relevant competencies in internal or external leadership development programmes. This share is especially high for respondents from the UASs (54,7 %), the UTEs (66,7 %) and the RIs (56,0 %). The most frequently mentioned development activities fall into two categories. First, internal leadership courses or programmes delivered by respondents' own institution were cited by 46,0 %. Second, 44,5 % of the respondents reported participating in specialised leadership development programmes offered across multiple institutions and typically delivered by another HEI, an external provider, or through inter-institutional cooperation (for example, HEM Executive for UASs and UTEs, H.I.T. High Potential University Leaders Identity & Skills Training Programme for women at UNIs and ETHs, or Advanced Academic Leadership Programme for the ETH domain institutions). Additionally, 20,4 % of respondents developed their competencies through an Executive Master of Business Administration (MBA) or Master of Public Administration (MPA),

and 27,7 % through a Master of Advanced Studies (MAS) or Certificate of Advanced Studies (CAS) on leadership or HE management (such as the CAS Leadership and Governance in HEIs or the CAS Academic Leadership, mainly targeting lower- or middle-level HEI leaders). Moreover, 48,9 % of respondents stated having further developed their competencies at conferences and networking events.

Figure 9: Sources from which the respondents primarily developed the competencies necessary for their current senior leadership position



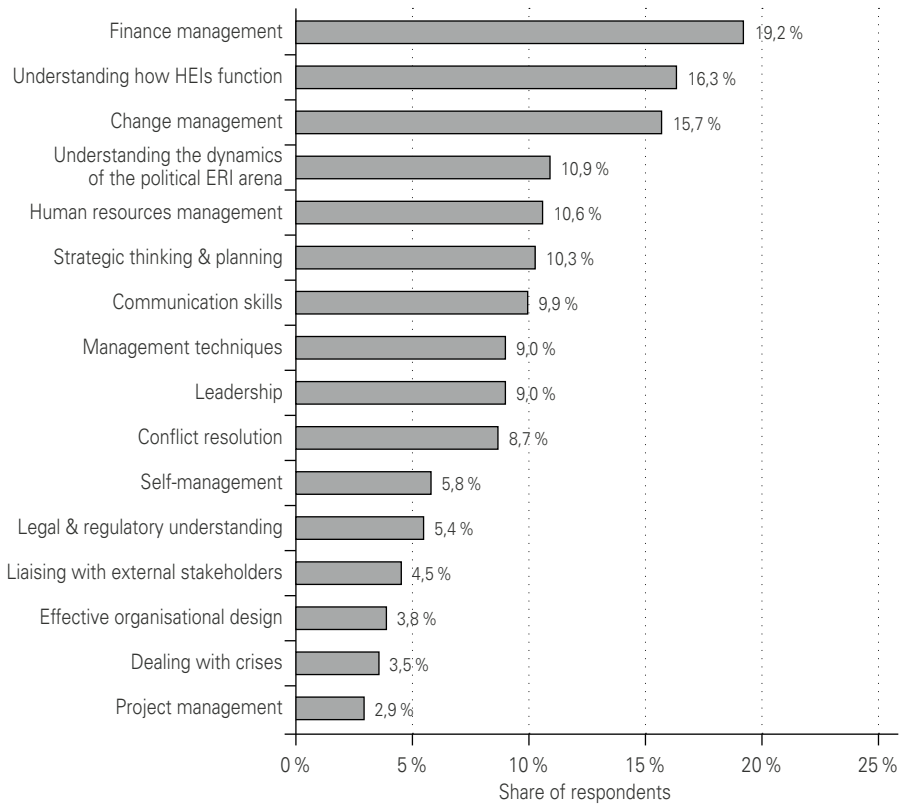
Notes: Figure based on survey data (N = 312); percentages show shares of respondents who indicated that they developed the competencies necessary for their current leadership position from the respective source.

5.3 Competency Gaps Perceived by Senior HEI Leaders

Regarding perceived competency gaps, 80 % of the respondents identify specific competencies with which they were insufficiently equipped when starting their current leadership positions. We grouped their answers to this open question into 16 competency categories, which closely align with the competencies in our model (Figure 10). The most frequently mentioned competencies for which respondents wished they had received more targeted preparation fall into two categories: fundamental management knowledge (e.g. finance management mentioned by 19,2 %, change management by 15,7 %, human resources management by 10,6 %, and general management techniques by 9,0 %) and competencies for navigating the complex HEI environment (e.g. understanding how HEI function, mentioned by 16,3 %, and understanding the dynamics of the political education, research, and innovation landscape, mentioned by 10,9 %). Although acting with a business sense is not considered as the most relevant GMC field today (see section 5.1), senior HEI leaders expect that it becomes relatively more relevant in future, especially regarding economic awareness and cost efficiency. Additionally, around one-tenth of respondents mention to have lacked

competencies in communication, conflict resolution, and leadership, which are considered highly relevant for their current positions.

Figure 10: Categories of competencies for which respondents wished more targeted preparation when starting their position



Notes: Figure based on survey data (N = 312); percentages show shares of respondents who listed the respective competency in an open question on the competencies in which they felt most challenged when starting the current position and would have benefited from more preparation/training.

The competency gaps most frequently mentioned by respondents do not reveal any significant discrepancies across different HEI types and organisational complexities. Above-average mentions come from respondents in UTEs regarding management techniques and understanding the ERI arena, from UASs respondents regarding finance and change management, and from RIs of the ETH domain regarding finance management.

6 Discussion

Our national survey of Swiss HEIs finds that senior HEI leaders perceive a broad and demanding set of competencies. Moreover, the high relevance attributed to all competency fields supports our GMC model. Leadership, strategic thinking, and organisational change emerge as the most critical areas. These findings align with previous research, which highlights the importance of management and communication (Ehrenstorfer et al., 2015; Freeman & Kochan, 2013; Rathke et al., 2023), strategic skills (Bunescu & Estermann, 2021; Sack, 2019), leadership and social skills (Bunescu & Estermann, 2021; Ehrenstorfer et al., 2015; Sack, 2019), organisational knowledge and change management (Ehrenstorfer et al., 2015; Sack, 2019), and knowledge of the higher education and science system or stakeholder management (Rathke et al., 2023; Sack, 2019). Respondents anticipate that all competency fields will gain importance, particularly strategic thinking – especially anticipating future trends – and navigating the political environment, including fundraising, public relations, alumni and community engagement.

When assuming their leadership roles, respondents frequently reported competency gaps in finance, human resources, and change management. This is notable given the growing importance of business acumen, particularly in risk/crisis management and financial oversight, suggesting a need for more targeted preparation. Additionally, around one-tenth of respondents felt challenged by communication, leadership, or conflict resolution, despite recognising their high importance. Many also found understanding the HEI landscape and political environment challenging, highlighting the need for better preparation in these areas.

Most respondents developed their leadership competencies on the job, aligning with Rathke et al.'s (2023) findings for German HE managers. Only 40 % participated in formal leadership programmes, a notably low share that mirrors the NEWLEAD survey across European HEIs (Bunescu & Estermann, 2021). Given the role of structured programmes in fostering leadership skills (Ehrenstorfer et al., 2015; Magrane et al., 2018), this limited participation underscores a gap in institutionalised leadership development.

Despite differences in mission, funding, and complexity, competency requirements were surprisingly similar across HEI types, which aligns with what Ehrenstorfer et al. (2015) show for a small sample of two Austrian HEIs. Our findings suggest that leaders across HEIs could benefit from shared leadership development and exchange. Cross-institutional leadership development programmes could enhance such exchange among senior leaders at different career stages, given previous findings that leadership development programmes are valuable both before assuming leadership roles (Gonaim,

2016) and throughout a leader's career (Hempsall, 2014), Considering the high similarities across HEIs, such programmes could also serve as bridge-builders, fostering collaboration among senior leaders from different institutions.

Our findings may be subject to social desirability bias, as self-reported data lacks external validation. Leaders may over- or underestimate their competency gaps based on perception rather than objective measures. Nonetheless, the high consistency in survey responses and the representativeness of our sample enhance the validity and generalisability of our findings. Future research could incorporate external validation methods, such as 360-degree evaluations, to triangulate self-assessments with perspectives from faculty, staff, and stakeholders. Additionally, our cross-sectional study only captures a single point in time, whereas longitudinal research could track how competency needs evolve with institutional changes.

While this article examines variations between organisational types and complexity levels, future research should explore differences based on career paths, management levels, and functional roles (Perich et al., 2024). Complementing quantitative findings with qualitative interviews would provide a deeper understanding of HE leadership challenges and inform more effective leadership strategies (Perich et al., 2024).

Further studies should also assess the applicability of our findings beyond Switzerland. Research could explore whether similar competency gaps exist in structurally comparable HE systems, such as Germany and Austria, as well as in market-driven systems like the US and UK. Examining HE systems undergoing rapid change, particularly in emerging regions, would offer additional insights into how competency requirements vary across governance and funding models.

7 Conclusions and Future Research Questions

Our study shows that despite the diversity of the Swiss HE system, senior HEI leaders share a consistent perception of general management competency requirements. Across HEI types and organisational complexities, leadership, strategic thinking, and organisational change are considered most critical. Leaders anticipate all competency fields will gain importance, particularly strategic thinking – anticipating trends – and navigating the political landscape, including fundraising and public relations. These growing demands underscore the need to strengthen these competencies for leaders to effectively manage HEIs as expert organisations with multiple rationalities.

At the same time, many senior HEI leaders report feeling unprepared when assuming their roles. They particularly highlight gaps in fundamental management knowledge – finance, human resources, and change management – along with leadership skills

and stakeholder navigation. These findings emphasise the need for targeted leadership development, providing crucial evidence to inform training efforts, particularly for general management positions.

Most senior HEI leaders developed their competencies on the job, with only 40 % participating in formal leadership programmes. While these programmes contribute to management competency development, our findings reveal significant potential for their expansion and enhancement to better support HEI leaders in meeting the demands of their roles.

Moreover, our findings indicate that leadership development for senior HEI leaders can be fostered through a national, cross-institutional programme. Additionally, mentoring, supervision and coaching as well as networking opportunities may foster collaboration across HEI types (Graifoner et al., 2024). Established programmes in other countries may serve as best practices, e.g. Israel's 'Leadership in Academia Programme'⁷, the Netherlands' UNL executive programme for university leaders ('Governing the University in the 21st Century')⁸ or Sweden's SUHF programme for leaders in academia⁹. The recently announced EUA Leadership Development Programme¹⁰ also demonstrates the growing demand for such programmes, even at a supranational level.

Taken together, this study underscores the broad and demanding competency requirements for senior HEI leaders, which are expected to become even more complex in the future. To equip current and future leaders for the growing challenges of HEIs' multi-rational environments, policymakers must prioritise structured leadership development. A proactive approach to leadership preparation can help prevent future leaders from encountering the same competency gaps as their predecessors. In a fragmented HE system, cross-institutional collaboration offers a valuable opportunity to strengthen leadership capacity on a broader scale.

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⁹<https://suhf.se/in-english/suhf-at-a-glance/> (access date: 22/05/2025).

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Appendix

A1: Detailed Results on Today's Relevance of GMCs

General management competency	N	Mean									
		Total	By HEI type					By complexity level of HEI			
			ETH	UNI	UAS	UTE	RI	Relatively low complexity	Medium complexity	High complexity	Very high complexity
Leadership	312	4,27	4,29	4,26	4,30	4,30	4,17	4,21	4,24	4,34	4,29
Motivation and team integration	312	4,35	4,35	4,32	4,43	4,50	4,16	4,28	4,35	4,42	4,36
Communication and influence	312	4,49	4,52	4,50	4,50	4,58	4,28	4,40	4,51	4,49	4,51
Empathy and integrity	312	4,35	4,32	4,37	4,36	4,33	4,28	4,28	4,29	4,40	4,38
Leadership aspiration and commitment	312	3,95	4,07	3,94	3,93	3,92	3,80	3,82	3,89	4,09	3,98
Self-management and decision-making	312	4,23	4,20	4,19	4,28	4,17	4,32	4,28	4,18	4,31	4,20
Acting in a political environment	309	3,28	3,13	3,13	3,45***	3,60**	3,75***	3,49	3,39	3,31	3,16***
Understanding the mechanisms of the political ERI arena	312	3,59	3,53	3,43	3,75	3,40	4,00	3,65	3,55	3,69	3,55
Cooperation with government agencies and supervisory bodies	312	3,43	3,13	3,24	3,65	4,42	3,84	3,67	3,60	3,76	3,17
Collaboration with industry/research partners	311	3,03	2,90	2,74	3,32	2,83	3,88	3,27	3,22	3,02	2,86
Community engagement and public relations	312	3,53	3,35	3,40	3,65	4,25	3,88	3,75	3,58	3,49	3,43
Fundraising and alumni relations	309	2,85	2,71	2,82	2,87	3,09	3,16	3,14	2,98	2,59	2,77
Acting with a business sense	310	3,62	3,63	3,51	3,69	3,90	3,74	3,58	3,73	3,75	3,55
Financial and HR management	312	3,78	3,68	3,74	3,86	4,00	3,80	3,70	3,91	3,96	3,70
Infrastructure and operations management	310	3,33	3,47	3,20	3,24	3,50	3,88	3,19	3,33	3,44	3,35
Economic efficiency and cost awareness	310	3,88	3,90	3,69	4,03	4,25	4,12	3,93	4,11	4,00	3,74
Performance management	310	3,54	3,53	3,43	3,72	3,83	3,32	3,41	3,75	3,71	3,46
Risk management	310	3,56	3,58	3,50	3,59	3,92	3,60	3,66	3,58	3,64	3,50

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A1, continued

General management competency	N	Mean									
		Total	By HEI type					By complexity level of HEI			
			ETH	UNI	UAS	UTE	RI	Relatively low complexity	Medium complexity	High complexity	Very high complexity
Shaping organisational change	311	4,08	4,00	4,07	4,13	4,21	4,10	4,00	4,14	4,21*	4,05
Organisational design and functionality	311	4,21	4,13	4,20	4,24	4,17	4,32	4,19	4,25	4,31	4,17
Continuous improvement	311	4,14	4,10	4,15	4,14	4,33	4,08	4,12	4,16	4,27	4,10
Change management	311	4,14	4,07	4,06	4,28	4,42	4,08	3,98	4,25	4,31	4,11
Project and programme management	311	3,84	3,68	3,88	3,87	3,92	3,92	3,73	3,87	3,96	3,84
Strategic design capabilities	311	4,21	4,11	4,19	4,29*	4,33	4,24	4,16	4,25	4,34*	4,19
Anticipating future trends	311	4,20	4,20	4,08	4,33	4,42	4,24	4,19	4,22	4,22	4,18
Vision development and profile building	311	4,16	4,07	4,18	4,17	4,17	4,20	4,10	4,24	4,24	4,13
Institutional strategic planning capability	311	4,18	3,93	4,20	4,27	4,42	4,32	4,12	4,22	4,42	4,13
Implementation capability	311	4,32	4,25	4,32	4,41	4,33	4,20	4,22	4,33	4,49	4,31
Acting in an academic environment	305	3,73	3,75	3,75	3,69	3,78	3,69	3,83	3,64	3,65	3,74
Acceptance and recognition in academia	310	3,72	4,03	3,81	3,47	3,33	3,60	3,57	3,56	3,41	3,93
Comprehending the mode of operation of HEIs	312	4,24	4,20	4,26	4,28	4,33	4,04	4,25	4,16	4,29	4,25
Faculty development	307	3,36	3,28	3,31	3,43	3,83	3,40	3,59	3,51	3,33	3,23
Academic freedom and responsibility	309	3,49	3,42	3,55	3,40	3,42	3,64	3,83	3,36	3,27	3,46
Openness and diversity	312	3,82	3,80	3,78	3,87	4,00	3,76	3,90	3,62	3,93	3,82

Notes: Table is based on data from the survey question regarding today's importance of each competency on a scale from 1 (not important) to 5 (extremely important) and shows the mean for the entire sample (total) for each group by HEI type and organisational complexity; for the competency fields: *, **, *** denote significance at the 10%, 5%, and 1 %-level, respectively, compared to either the ETH respondents or those with relatively low organisational complexity; ETH=Federal Institute of Technology, UNI=Cantonal university, UAS=University of applied sciences, UTE=University of teacher education, RI=Research Institute of the ETH domain.

A2: Detailed Results on Future Change in Relevance of GMCs

General management competency	N	Mean									
		Total	ETH	UNI	UAS	UTE	RI	Relatively low complexity	Medium complexity	High complexity	Very high complexity
Leadership	270	0,21	0,21	0,23	0,20	0,13	0,26	0,16	0,24*	0,22	0,23
Motivation and team integration	280	0,26	0,19	0,29	0,23	0,25	0,35	0,21	0,35	0,27	0,24
Communication and influence	281	0,29	0,28	0,28	0,24	0,33	0,52	0,29	0,24	0,33	0,29
Empathy and integrity	281	0,22	0,13	0,26	0,27	0,08	0,13	0,15	0,33	0,23	0,20
Leadership aspiration and commitment	273	0,12	0,22	0,17	0,01	-0,17	0,27	0,02	0,10	0,05	0,20
Self-management and decision-making	271	0,20	0,23	0,18	0,25	0,17	0,05	0,12	0,20	0,24	0,22
Acting in a political environment	261	0,33	0,33	0,33	0,32	0,37	0,41	0,36	0,36	0,27	0,33
Understanding the mechanisms of the political ERI arena	272	0,25	0,27	0,24	0,21	0,17	0,41	0,27	0,29	0,10	0,27
Cooperation with government agencies and supervisory bodies	273	0,21	0,16	0,24	0,16	0,18	0,41	0,26	0,32	0,15	0,17
Collaboration with industry/research partners	270	0,32	0,34	0,32	0,33	0,25	0,32	0,28	0,39	0,33	0,31
Community engagement and public relations	272	0,43	0,42	0,41	0,43	0,67	0,36	0,47	0,33	0,39	0,46
Fundraising and alumni relations	274	0,46	0,46	0,41	0,48	0,58	0,55	0,50	0,47	0,41	0,45
Acting with a business sense	265	0,26	0,26	0,27	0,25	0,42	0,27	0,29	0,30	0,23	0,26
Financial and HR management	271	0,24	0,24	0,24	0,22	0,25	0,36	0,27	0,35	0,13	0,22
Infrastructure and operations management	267	0,10	0,17	0,10	0,00	0,33	0,24	0,16	0,08	0,00	0,13
Economic efficiency and cost awareness	273	0,42	0,50	0,37	0,40	0,67	0,45	0,44	0,43	0,40	0,42
Performance management	273	0,24	0,18	0,25	0,26	0,42	0,09	0,24	0,33	0,27	0,19
Risk management	274	0,33	0,22	0,36	0,38	0,42	0,19	0,36	0,30	0,33	0,33

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A2, continued

General management competency		N	Mean									
			Total	ETH	UNI	UAS	UTE	RI	Relatively low complexity	Medium complexity	High complexity	Very high complexity
Shaping organisational change		259	0,25	0,30	0,29	0,17*	0,31	0,24	0,21	0,20	0,25	0,29
		270	0,28	0,36	0,27	0,24	0,25	0,27	0,30	0,16	0,34	0,30
		267	0,22	0,28	0,29	0,12	0,33	0,09	0,08	0,16	0,22	0,30
Continuous improvement		277	0,38	0,42	0,39	0,30	0,42	0,50	0,36	0,34	0,43	0,39
Change management		265	0,13	0,13	0,21	0,01	0,25	0,10	0,12	0,13	0,02	0,17
Project and programme management		263	0,32	0,39	0,36	0,26**	0,39	0,29	0,29	0,29	0,28	0,38
Strategic design capabilities		274	0,42	0,43	0,47	0,38	0,55	0,19	0,39	0,32	0,38	0,48
Anticipating future trends		270	0,29	0,29	0,33	0,24	0,27	0,29	0,24	0,30	0,29	0,30
Vision development and profile building		273	0,34	0,48	0,37	0,23	0,36	0,32	0,24	0,36	0,26	0,40
Institutional strategic planning capability		269	0,28	0,35	0,28	0,18	0,36	0,38	0,31	0,16	0,20	0,33
Implementation capability		261	0,16	0,16	0,16	0,17	0,33**	0,15	0,20	0,21	0,11**	0,16
Acting in an academic environment		273	0,01	0,02	-0,02	0,00	0,25	0,05	0,02	0,10	-0,02	-0,02
Acceptance and recognition in academia		272	0,17	0,19	0,15	0,15	0,42	0,10	0,22	0,24	0,10	0,14
Comprehending the mode of operation of HEIs		266	0,20	0,19	0,20	0,18	0,42	0,19	0,26	0,24	0,05	0,20
Faculty development		269	0,10	0,10	0,09	0,08	0,17	0,14	0,16	0,12	-0,03	0,10
Academic freedom and responsibility		275	0,37	0,28	0,37	0,44	0,42	0,26	0,37	0,37	0,43	0,35
Openness and diversity												

Notes: Table is based on data from the survey question regarding the future importance of each competency on a scale from -1 (less important) to 1 (more important) and shows the mean for the entire sample (total) for each group by HEI type and organisational complexity, for the competency fields. *, **, *** denote significance at the 10 %, 5 %, and 1 %-level, respectively, compared to either the ETH respondents or those with relatively low organisational complexity. ETH=Federal institute of technology, UNI=Cantonal university, UAS=University of applied sciences, UTE=University of teacher education, RI=Research institute of the ETH domain.

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