WHITE PAPER · FOR UNIVERSITY LEADERSHIP

# Four institutions, one cross-border engine for attracting and retaining academic talent

Eight strategic recommendations for the leadership of the higher education institutions of the Czech and German parts of the Euroregion Neisse — actionable directions for curriculum, programme portfolio and partnerships, through which rectorates and directorates can close competency gaps and keep academic talent in the region.

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**ERNILAC** — Euroregion Neisse International Labour Market for Academics · Interreg Sachsen–Tschechien / Česko–Sasko 2021–2027 · from the ERNILAC final report

| 107 | 70 | 4 | 8 |
|---|---|---|---|
| study programmes analysed | employer responses 37 DE · 33 CZ | institutions one labour market | strategic recommendations |

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EXECUTIVE SUMMARY

## The single highest-leverage change is within reach

The four higher education institutions of the Euroregion Neisse form the academic supply side of one cross-border labour market — IHI Zittau, the Hochschule Zittau/Görlitz, the Duale Hochschule Sachsen in Bautzen, and the Technical University of Liberec. This paper translates the ERNILAC evidence into recommendations for the people who set institutional direction and can commit resources: rectorates and directorates, deans and programme directors, and the quality-assurance, careers, language, transfer and international functions that report to them.

Two independent analyses — a cross-border survey of **70 employers** and a supply-side study of **107 study programmes** — converge on one central finding: a systematic gap between the competencies employers value most and those graduates are perceived to have. The competencies most in demand and least developed are transversal and self-management skills, AI and data literacy, and language and intercultural competence. Closing that gap is the highest-leverage contribution the institutions can make, and much of it can begin quickly and at modest cost.

These are decisions only institutional leadership can take: how programmes are designed, assured and profiled; where teaching and research capacity is invested; which cross-border commitments are entered into; and how each institution positions itself in a region being reshaped by the Lusatian structural transformation and its new research anchors. A companion set of recommendations addresses what regional policy must enable; this paper is decision-support for the institutions themselves.

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The paper sets out **eight recommendations (R1–R8)**. Their core is a single move: **treat transversal competencies as taught, assessed outcomes and give students far more genuine contact with real work** — then use the region's cross-border character and the complementarity of its four institutions as strategic assets rather than complications.

## Purpose and audience

These recommendations are framed deliberately around decisions that only institutional leadership can take — the strategic levers, their likely owners and the sequencing — and leave detailed operational design to the responsible functions.

This paper translates the empirical findings of the ERNILAC labour-market survey into recommendations for the leaderships of the higher education institutions (HEIs) of the Euroregion Neisse (NISA). It is addressed, in the first instance, to those who set institutional direction and can commit resources:

rectorates and directorates, deans and programme directors, and the quality-assurance, career-service, language, transfer and international functions that report to them. It is decision-support, not a delivery manual.

Four institutions together form the academic supply side of this cross-border region and are its primary audience:

- **The International Institute Zittau (IHI Zittau)** — a master's-level central scientific institution of TU Dresden (a University of Excellence), with around 300 students, an international and interdisciplinary profile, and double-degree programmes in cooperation with TUL.
- **The Hochschule Zittau/Görlitz (HSZG)** — a research-active university of applied sciences of roughly 3,500 students, with campuses in Görlitz and Zittau, undergoing a far-reaching reform process launched in 2025. Also offering double-degree programmes with TUL.
- **The Duale Hochschule Sachsen (DHSN), Campus Bautzen** — a work-integrated, dual-study institution (until end-2024 the Staatliche Studienakademie Bautzen), with around 500 students in some six practice-integrated programmes and a dense network of regional practice partners.
- **The Technical University of Liberec (TUL)** — the only university in the Liberec Region, with around 7,000 students across seven faculties and a specialised nanomaterials institute, and strong industrial links. Offering double-degree programmes in cooperation with IHI Zittau and HSZG.

The four institutions differ markedly in type, mission, size and even national system; each should read the recommendations against its own profile, and the paper flags where a recommendation speaks especially to one kind of institution. Each of the eight recommendation areas follows the same structure: the evidence, a headline recommendation, concrete actions, the cross-border dimension, the regional relevance, and notes on implementation and ownership.

## The recommendations at a glance

R1

### Close the competency–fulfilment gap

Make transversal and self-management competencies an explicit part of teaching and assessment across all programmes.

R2

### Expand work-integrated learning

Make internships, dual-study formats and firm-based projects structural, not optional — building on the region's dual-study strength.

R3

### Adopt a cross-border language strategy

Provide differentiated, certified language and intercultural training that serves mobility across the German–Czech border.

R4

### Pursue a differentiated digital & AI strategy

Build AI and data literacy for all students while deepening specialist tracks where regional demand is clearest.

R5

### Align the portfolio with regional demand

Read demand signals — including the new research and technology anchors — into portfolio and profiling choices.

R6

### Strengthen entrepreneurial competencies

Develop entrepreneurial mindset and commercial literacy, especially outside business programmes.

R7

### Act as regional anchors for retention

Position the institutions as active partners in attracting and retaining academic talent within the Euroregion.

R8

### Deepen cross-border cooperation

Institutionalise joint provision, mobility and shared services between the four institutions.

## 01 The evidence base and its limitations

The recommendations rest on two complementary ERNILAC workstreams. The **cross-border employer survey** mapped labour-market needs across the NISA Euroregion; after further data collection and cleaning, the final dataset comprised 70 valid cases — 37 German and 33 Czech respondents (49 complete, 21 partial), superseding the earlier preliminary results (n = 55). The **supply-side analysis** (report of 31 January 2026) examined 107 study programmes — across TUL (46), HSZG (49), DHSN Bautzen (7) and IHI Zittau (5), taught in German (60), Czech (39) or English (8) — mapping the competencies explicitly represented in programme descriptions onto thirty-six competencies drawn from international frameworks and comparing them, competency by competency, with employer demand.

The two answer different questions and reinforce one another: the survey captures what the labour market demands; the supply-side analysis shows which competencies are explicitly visible in programme descriptions and where the gap between demand and documented representation is largest. Two caveats frame every recommendation. First, the achieved sample is small (n = 70) and self-selected, and only one association test reached conventional significance; the findings are exploratory rather than representative. Second, employer demand is only one input to institutional strategy — academic freedom, disciplinary integrity, students' aspirations and the region's longer-term development all remain legitimate leadership considerations.

Accordingly, the recommendations are framed as evidence-informed directions — deliberately robust to the uncertainty in the figures — which leadership is encouraged to triangulate with each institution's own graduate-tracking data, employer advisory boards and regional labour-market statistics before committing significant resources.

> Where demand-side scarcity and supply-side under-provision coincide, the case for action is clearest — and two independent analyses point to the same priorities.

## 02 Key findings with implications for the institutions

### A competency–fulfilment gap sits at the centre

The clearest, most actionable finding is a systematic mismatch between the competencies employers value most and those they perceive graduates to possess. Self-management competencies receive the highest average importance of any domain (4.33 of 5), and the four most important individual competencies are all transversal — working independently rated highest (4.57), followed by striving for quality, responsibility and teamwork — yet these same competencies are perceived as only moderately developed, producing large gaps. The pattern is consistent across both countries, which makes it a strong and stable basis for action.

| COMPETENCY | IMPORTANCE–DEVELOPMENT GAP (POINTS) |
|---|---|
| Responsibility (largest gap) | 1.66 |
| Working independently | 1.62 |
| Stress management | 1.58 |
| Time management | 1.51 |

Table 1 · The largest competency gaps (importance minus perceived development), final employer survey (n = 70). Responsibility is rated 4.36 in importance but 2.70 in development; working independently 4.57 versus 2.95. Further substantial gaps appear for striving for quality, motivation, adaptability, teamwork, practical application, critical thinking and communication. Source: ERNILAC final employer survey.

### Further threads that matter for leadership

- **Practical experience is scarce and highly valued.** Practical-experience gaps rank among the top recruitment challenges — disproportionately on the Czech side — and internships are by far the most valued preparation (55.8% of employers), ahead of entrepreneurship projects, networking and

volunteering.

- **Language demand is asymmetric across the border.** Czech-language requirements come almost entirely from Czech respondents and German from German respondents, while English is broadly relevant and Polish comparatively less central; the largest country differences in the whole survey are language-related.
- **Digital expectations are strong for the future but uneven at entry level.** General IT skills rate highly while specialised programming and UI/UX rate low; looking ahead, employers most select teamwork (89.6%), general IT skills (82.1%) and artificial intelligence, with UI/UX (3.0%) and programming (11.9%) least selected. The signal is broad AI fluency plus deep specialism where the region needs it — not 'train everyone to code'.
- **Regional demand is real but concentrated.** About 42% of employers report current graduate vacancies — significantly more on the Czech side (60% vs 28.6%), the one country difference to reach significance — concentrated in process engineering (strongly German-side), research associates, data analysts, product managers and software developers.
- **Retention and regional attractiveness are shared concerns.** Employers retain graduates chiefly through meaningful work (52.9%) and development and flexibility, and most want a better regional image (60.8%), transport and infrastructure (43.1%) and stronger university–business cooperation (37.3%). Salary is the most-cited recruitment challenge (55.8%) yet not a chosen retention measure — it matters more for attracting than keeping graduates.

## From the study-programme analysis

The supply-side analysis approached the same question from the curriculum end offered by higher education institutions within the Czech and German parts of the ERN. General professional competencies dominate curricula, while the largest development potential lies in transversal, digital and environmental competencies — leadership and social influence, talent management, AI and big data, networks and cybersecurity, systems thinking, and environmental stewardship. At domain level, social/cultural/environmental (2.67) and cognitive/personal (2.54) competencies show the greatest change potential. Crucially, development needs differ sharply between programmes: a cluster analysis grouped the 107 programmes into five types, confirming that a uniform, one-size-fits-all reform would suit none of them well.

| CLUSTER (N) | PROFILE AND DOMINANT FIELDS | GREATEST CHANGE POTENTIAL |
|---|---|---|
| 1 (n = 30) | Interdisciplinary; social sciences, education, some engineering and business | Social, cultural and environmental |
| 2 (n = 42) | Largest, most diverse; engineering, education, business, economics | Balanced, moderate across all domains |
| 3 (n = 12) | Strongly engineering-oriented | Technical and occupational — very high |
| 4 (n = 13) | Engineering and textile engineering | High across all domains |

| CLUSTER (N) | PROFILE AND DOMINANT FIELDS | GREATEST CHANGE POTENTIAL |
|---|---|---|
| 5 (n = 10) | Mixed / interdisciplinary; sciences, engineering, informatics | Technical; social already well covered |

Table 2 · The five programme clusters identified in the supply-side analysis and their curriculum-development profiles. Source: ERNILAC study-programme analysis (2026).

> Employers most miss the very competencies that are least visible in programme descriptions — the strongest signal in the whole project.

## 03 Regional context: the setting for these recommendations

Three regional dynamics frame everything that follows, and each sharpens the case for leadership action; later recommendations refer back to them under 'Regional relevance'.

### A demographic and talent squeeze

The German side of the Euroregion has for years experienced population ageing and the out-migration of young, qualified people — particularly pronounced among well-educated young women in the Görlitz area — while employers in the Bautzen district report persistent difficulty filling skilled positions. The Czech part of the Euroregion faces similar issues; according to TUL data, many university graduates leave the region after completing their studies. This is precisely the brain-drain dynamic ERNILAC was created to address, making graduate attraction and retention a strategic priority rather than a peripheral concern.

### A once-in-a-generation structural transformation

Lusatia is undergoing a planned exit from lignite coal by 2038, accompanied by substantial structural-development funding whose central pillar is new research and technology capacity. Several anchors are being established close to the institutions: the German Centre for Astrophysics (DZA) in Görlitz and the Bautzen district — planned to grow toward around 1,000 staff, a centre for digitalisation and data-intensive technology; the Center for Advanced Systems Understanding (CASUS) in Görlitz — data-intensive computational-systems research toward a target of roughly 150 scientists; the DLR Institute of Low-Carbon Industrial Processes in Zittau — decarbonisation technologies with a strong transfer emphasis and cooperation with HSZG; and the Siemens Innovation Campus in Görlitz. These cluster around three themes — data-intensive and computational science, low-carbon energy and industrial-process engineering, and applied technology and industry — each mapping onto specific programme areas across the four institutions.

For the region's HEIs of the Czech and German parts of the ERN this is transformative: a structurally weak border region is acquiring, over the coming decade, a concentration of high-skill employers in exactly the fields where the survey signals rising demand. The opportunity is to supply, retain and cluster talent around these anchors; the risk is that the talent is recruited from elsewhere while local graduates leave. Because the window is time-limited, the recommendations carry an unusual urgency.

## Four institutions, one cross-border system

The four institutions bring complementary — not interchangeable — strengths, which leadership can use deliberately. IHI Zittau gives the region a master's-level, interdisciplinary link to a University of Excellence and can lead on advanced, research-connected provision and progression routes. HSZG is a central applied-sciences institution in the region, and its 2025 reform is a rare, timely window in which curricular and structural change can be embedded institution-wide. DHSN Bautzen already embodies work-integrated learning through paid dual programmes with roughly 255 practice partners — both a living model for R2 and a ready channel to regional employers. TUL anchors the Czech side with research depth in mechanical and textile engineering, mechatronics, automotive technology and nanomaterials, social science, health care or architecture and strong industry links. Some areas are even strongly connected thanks to the common double-degree programmes. A caveat for leadership: these institutions operate under two national systems, so coordinating among them is itself a cross-border governance task **(R8)** — though a standing academic network, the Academic Coordination Centre (ACC), has linked them since 1991 and offers a foundation to build on.

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# 04 Recommendations for regional HEIs of the Czech and German parts of the ERN

Each recommendation sets out the evidence, the headline, concrete actions, the cross-border dimension, the regional relevance, what the study-programme analysis adds, and who owns it.

## R1 Close the competency–fulfilment gap by embedding transversal competencies

**EVIDENCE**

The competencies employers value most are those where graduates fall furthest short — responsibility, independent work, time and stress management, critical thinking, practical application and social leadership — consistently across both countries. These competencies are developable; the survey suggests they are currently left largely to chance.

**Treat transversal and self-management competencies as core, explicitly taught and assessed learning outcomes across all study programmes — not as by-products students are assumed to absorb on their own.** This is the single highest-leverage change available to the region's institutions, and it is a decision for leadership: it requires a deliberate steer through the quality-assurance and programme-approval cycle, not merely the goodwill of individual lecturers.

### CONCRETE ACTIONS

- **Make the competencies explicit in curricula** and apply constructive alignment so teaching and assessment actually develop and test them.
- **Redesign assessment** toward project work, portfolios, reflective logs, peer- and self-assessment and oral defences that evidence transversal skills.
- **Scaffold autonomy progressively** from guided tasks to self-directed capstones, so independence is practised rather than assumed.
- **Support self-management directly** through embedded time-, workload- and stress-management provision, and develop teaching staff in competency-oriented methods.
- **Adopt a shared competency framework** so these skills are defined, taught and assessed consistently — ideally across the four institutions.

### CROSS-BORDER DIMENSION

Because the gap appears on both sides, a jointly developed competency framework would allow common language, shared materials and mutual recognition of competency-oriented modules, and make graduate profiles legible to employers throughout the Euroregion. Joint and double-degree programmes can also strengthen cross-border employability.

### REGIONAL RELEVANCE & STUDY-PROGRAMME ANALYSIS

HSZG's 2025 reform is a natural, time-limited vehicle for embedding these outcomes now; DHSN Bautzen's practice-integrated model already develops several in the workplace and offers a template. The supply side confirms the gap: general professional competencies dominate while future-oriented transversal competencies are underrepresented, and cognitive-and-personal competencies show one of the highest potentials for change.

HORIZON **Short–Medium.** Much can begin at low cost by revising module descriptors and assessment briefs; the deeper pedagogical shift is a multi-year, leadership-sponsored effort.

OWNERSHIP Vice-rectors and directors for teaching and deans, through the quality-assurance and programme-(re)approval cycle; programme directors embed outcomes; teaching-development services support staff.

## R2 Expand work-integrated learning and strengthen the practical-experience pipeline

### EVIDENCE

Practical-experience gaps are among the most-cited recruitment challenges, practical application shows a large importance–fulfilment gap, and internships are the single most valued form of graduate preparation. With about two in five employers reporting current graduate vacancies, there is a real market for better-prepared students.

**Make work-integrated learning (WIL) a structural feature of degree programmes rather than an optional extra.** The most direct way to close the practical-experience gap is to build genuine, credit-bearing contact with real work into the curriculum for as many students as possible — a portfolio and resourcing decision for leadership.

### CONCRETE ACTIONS

- **Embed credit-bearing internships** with learning agreements, academic supervision and structured reflection.
- **Expand dual-study and cooperative formats** and develop equivalent cooperative models with Czech partners.
- **Bring real problems into the classroom** through client-based capstones, live briefs and applied theses.
- **Recognise part-time and voluntary work as learning, and resource career services** to broker placements and maintain a shared regional employer database.

> ### CROSS-BORDER DIMENSION
>
> A cross-border placement scheme — German students with firms around Liberec, Czech students with employers around Görlitz and Bautzen — would close the practical-experience gap while building the language and intercultural competencies of R3. A jointly maintained placement database across the four institutions would lower the cost of such mobility.

REGIONAL RELEVANCE & STUDY-PROGRAMME ANALYSIS

The region already has a strong WIL asset in DHSN Bautzen, whose paid model links students to some 255 practice partners with very high placement rates; leadership can treat it as a template and shared gateway, while TUL's industry links and the DZA and Siemens campus offer ready hosts. For the engineering-oriented clusters the analysis explicitly recommends more cooperation with companies through internships, dual education and applied research.

HORIZON — **Short–Medium.** Strengthening career services and a shared employer database are near-term; curricular WIL requirements and dual-study expansion require programme redesign and firm partnerships over the medium term.

OWNERSHIP — Career and cooperative-education offices, supported by programme directors and an international/cross-border office, with leadership setting the expectation that WIL is standard, not optional.

## R3 Adopt a cross-border language strategy

EVIDENCE

Czech employers rate Czech very highly (4.29) while German employers treat English as critical (4.67) and value German, clustering English expectations at C1–C2. Most Czech firms set no formal English requirement — yet English is exactly what Czech graduates need for German and international employers. Polish is largely not required, and Czech and English proficiency correlate negatively.

**Provide a differentiated, certified multilingual and intercultural offer designed around cross-border mobility** — giving each group of students the language profile that opens the labour markets they are most likely to enter, including the market across the border. Treating language provision as strategic career infrastructure, rather than a peripheral service, is a leadership choice.

CONCRETE ACTIONS

- **Raise English to a reliable, certified standard for Czech graduates** so German and international careers stay open.
- **Offer career German for Czech students and basic Czech plus intercultural training for German students,** targeted at the Görlitz/Bautzen and Liberec labour markets respectively.
- **Certify to the CEFR and use cross-border tandems and joint courses** to build language and intercultural competence together at low cost; keep Polish optional given weak current demand.

CROSS-BORDER DIMENSION

Language is the most inherently cross-border area: the efficient solution is joint provision. The institutions could pool language teaching, co-develop professional-language modules and recognise each other's language credits.

REGIONAL RELEVANCE & STUDY-PROGRAMME ANALYSIS

The region already runs fully English-taught cross-border study — the IHI Zittau–TUL double-degree master, with all Liberec courses in English — showing language need not be a barrier. TUL teaches predominantly in Czech, so English and German provision is where cross-border pooling adds most value. The study-programme analysis finds language and intercultural competencies form only a small share of provision, and multilingualism is among the underrepresented future competencies.

HORIZON **Short–Medium.** A joint language audit against the demand profile is a sensible first leadership step.

OWNERSHIP Language centres and international offices, coordinated at institutional level so language provision is planned as career infrastructure across the four institutions.

## R4 Pursue a differentiated digital and AI competency strategy

EVIDENCE

For current entry roles, programming and UI/UX rate low across both countries; but general IT skills and AI expertise are named among the most important future competencies, and data-analyst roles appear in the vacancy profile. Digital competencies form a tightly linked cluster in the importance ratings.

**Distinguish two tracks: broad AI and data literacy for all students, and deep specialist capacity where regional demand is clearest.** The specialist side implies capacity and staffing decisions that only leadership can make.

CONCRETE ACTIONS

- **Embed AI and data literacy across all programmes** as a general graduate attribute, including the responsible, critical use of AI tools.
- **Deepen specialist tracks selectively** in data analytics, software and related fields where vacancies and future expectations coincide.
- **Offer stackable micro-credentials** open to students across programmes and to regional professionals; avoid mandating narrow specialisms for generalists.

**CROSS-BORDER DIMENSION**

Digital and AI modules travel well across languages and borders; the institutions could co-develop shared, partly English-medium AI-literacy modules and joint micro-credentials, spreading development costs.

**REGIONAL RELEVANCE & STUDY-PROGRAMME ANALYSIS**

Two of the new anchors — the DZA, whose work will rely heavily on large astronomical datasets, and CASUS, a data-intensive computational-research centre — make broad data and AI literacy and strong specialist tracks a direct response to local demand; TUL's mechatronics and informatics and DHSN's business-informatics programmes are natural specialist pillars, ideally coordinated (see R5). AI and big data, with networks and cybersecurity, are among the competencies with the largest gap between future relevance and current representation.

HORIZON — **Short–Medium.** Embedding AI literacy can start quickly; specialist capacity is a medium-term investment requiring staffing and equipment decisions.

OWNERSHIP — Faculties (specialist tracks) and a cross-cutting digital-education or teaching-and-learning function (universal literacy).

## R5 Align the programme portfolio and profiling with regional demand

**EVIDENCE**

About 42% of employers report current graduate vacancies — markedly more on the Czech side (60% vs 28.6%) — with demand concentrated in process engineering, research associates, data analysts, product managers and software developers. Process-engineer demand is strongly German-side (46.7% of German respondents vs 9.1% of Czech). The counts are small and indicative, but the direction is clear.

| GRADUATE VACANCY TYPE | SELECTIONS | SHARE |
|---|---|---|
| Process Engineer | 16 | 30.8% |
| Research Associate | 9 | 17.3% |
| Data Analyst | 7 | 13.5% |
| Product Manager | 6 | 11.5% |
| Software Developer | 6 | 11.5% |

| GRADUATE VACANCY TYPE | SELECTIONS | SHARE |
|---|---|---|
| Financial Analyst | 5 | 9.6% |
| Customer Support Specialist | 4 | 7.7% |
| Marketing Specialist | 4 | 7.7% |

Table 3 · Most-cited graduate vacancy types, of 52 respondents who answered. In all, 20 of 48 employers (41.7%) reported current vacancies, more often on the Czech side; open-text answers add education, healthcare, social work, project management and advisory roles. Source: ERNILAC final employer survey.

**Use regional demand signals — including the new research and technology anchors — to inform portfolio, capacity and profiling decisions, without narrowing programmes to short-term vacancy-chasing.** Portfolio strategy is a core leadership responsibility, and this is where the four institutions' complementarity matters most.

### CONCRETE ACTIONS

- **Review capacity in high-demand technical and data fields** against triangulated evidence, and strengthen research-oriented pathways given demand for research associates.
- **Promote T-shaped profiles** that combine technical depth with the transversal breadth of R1.
- **Institutionalise demand monitoring** and treat the small vacancy counts with caution, corroborating with wider labour-market data.

### CROSS-BORDER DIMENSION: FROM OVERLAP TO COMPLEMENTARY SPECIALISATION

Across the 107 programmes, engineering is the largest field (35), then science, humanities and education (26) and business studies (12). Some fields are provided several times over — business and management appears at HSZG (7), DHSN Bautzen (3) and IHI Zittau (2). The clearest case is business and management: rather than three similar general-management degrees, a division of labour could position DHSN as the dual, employer-embedded bachelor; IHI as the international, research-connected master (anchored by its cross-border double degree with TUL); HSZG as the applied bachelor/master with distinctive regional themes; and TUL as the Czech-side anchor. Similar logic applies to engineering and to environmental/sustainability provision.

**A DIFFERENTIATED, CLUSTER-BASED APPROACH**

Using the five-cluster typology as a decision-support tool: for strongly engineering-oriented programmes (clusters 3–4), prioritise advanced digital, AI, cybersecurity and applied-technology modules and deeper industry links; for interdisciplinary and social-science programmes (cluster 1), strengthen leadership, sustainability and societal-impact content; for the large balanced group (cluster 2), pursue incremental updates via electives and interdisciplinary projects; and for mixed programmes with strong social but lagging technical competence (cluster 5), add basic digital, AI and data literacy while preserving existing strengths.

HORIZON **Medium–Long.** The near-term step is to put demand monitoring and cross-border portfolio dialogue in place.

OWNERSHIP Rectorates and faculty leadership, informed by strategic-planning and quality units.

## R6 Strengthen entrepreneurial and business competencies

**EVIDENCE**

Entrepreneurial thinking and business knowledge are among the least-developed competencies; German employers value entrepreneurial thinking more than Czech ones; entrepreneurship projects are among the most valued extracurricular activities; and employers want more regional innovation funding.

**Develop entrepreneurial mindset and basic commercial literacy across programmes, especially in non-business disciplines, and connect this to regional innovation.** Beyond preparing graduates who add value to existing firms, this can seed ventures that create local academic jobs — directly supporting the retention agenda in R7.

**CONCRETE ACTIONS**

- **Offer entrepreneurship electives and minors and commercial basics** for engineers, scientists and humanities students.
- **Run mentored venture and innovation projects with firms,** and provide incubation and access to regional innovation funding for student and graduate ventures.

**CROSS-BORDER DIMENSION**

Cross-border incubation — shared start-up support, joint innovation challenges and access to funding instruments on both sides — would give student ventures a larger market and talent pool from the outset.

**REGIONAL RELEVANCE & STUDY-PROGRAMME ANALYSIS**

In a region rebuilding its economic base, graduate ventures are a retention tool, and the emerging Görlitz technology cluster around the DZA and Siemens campus offers a natural home for cross-border incubation. The study-programme analysis finds managerial competencies focused mainly on operational skills and talent management underrepresented, and recommends strengthening strategic, innovation and change-management education across non-business programmes.

HORIZON **Short–Medium.** Electives and challenge formats are quick to introduce; incubation infrastructure is a medium-term build well suited to joint funding.

OWNERSHIP Entrepreneurship or transfer offices, working with faculties and regional innovation agencies.

## R7 Position the institutions as regional anchors for attraction and retention

**EVIDENCE**

Employers retain graduates chiefly through meaningful work (52.9%), development and flexibility (39.2% each), remote or hybrid working (37.3%) and work–life balance (35.3%). The regional measures they most want are a better image (60.8%), transport and infrastructure (43.1%) and stronger university–business cooperation (37.3%); German employers stress image and infrastructure, Czech employers housing, innovation funding and cooperation. Salary is the most-cited recruitment challenge (55.8%) yet not a chosen retention measure — something institutions can help manage by preparing students realistically and strengthening the non-salary appeal of regional careers.

**Position the institutions as active regional anchors for attracting and retaining academic talent — not only as providers of education.** The institutions are among the region's largest talent magnets; how they connect students to regional employers and to the region itself materially affects whether graduates stay, and this convening role sits squarely with leadership.

### CONCRETE ACTIONS

- **Institutionalise university–industry cooperation** through standing platforms that give students early, repeated contact with regional employers — the top regional measure employers request.
- **Build 'study-and-stay' pathways** via early employer exposure, regional career fairs, alumni networks and mentoring.
- **Calibrate expectations and widen the value proposition,** highlighting meaningful work, development and flexibility alongside realistic pay; track graduates and their retention.
- **Advocate on enabling conditions** such as housing, transport, childcare and dual-career support, using the institutions' convening power.

> **CROSS-BORDER DIMENSION**
>
> Retention is most powerful framed at the level of the Euroregion rather than as a zero-sum contest between the German and Czech sides. Jointly marketing the NISA region as a place to study, work and live enlarges the opportunities that keep graduates within the region as a whole.

> **REGIONAL RELEVANCE**
>
> The new anchors on the German part of the ERN — the DZA, CASUS and the DLR institute — plus the Siemens campus are the region's most powerful new reasons to stay, many explicitly oriented toward transfer and cooperation with regional firms. Görlitz's 'trial-living' scheme shows housing and quality-of-life concerns can be addressed; DHSN's dense practice-partner network is itself a retention channel; and Hi!Lusatia, a Görlitz-based network (founded 2023) uniting HSZG, IHI Zittau and the new anchors, offers a ready vehicle for 'study-and-stay' efforts. On the Czech side of the ERN, effective cooperation has been established with regional authorities within the Liberec Region, the City of Liberec and also Lipo.ink — a business incubator in Liberec that supports individuals not only in developing business ideas.

| | |
|---|---|
| HORIZON | **Medium–Long.** A cross-functional agenda combining near-term platforms with sustained regional partnership. |
| OWNERSHIP | Rectorates in partnership with regional-development actors, employers and municipalities, delivered through career services, alumni relations and transfer offices. |

## R8 Deepen cross-border cooperation among the institutions

### EVIDENCE

The region functions as one cross-border labour market with strongly shared employer priorities alongside instructive differences in language demand and technical emphasis. Several of the preceding recommendations are markedly more effective — or only fully realisable — when the institutions act together.

**Institutionalise cooperation among the four institutions as a standing strategic partnership built on two principles: complementary specialisation and cross-border integration.** Rather than competing on overlapping programmes, the institutions should coordinate their specialisations according to their distinct strengths (R5), then integrate provision across the border so students draw on the whole region's offer. This can only be taken and sustained at the level of rectorates and directorates.

### CONCRETE ACTIONS

- **Build on the existing coordination body.** The Academic Coordination Centre (ACC), founded 1991, links all four institutions with a rotating presidency, an annual conference and a joint journal; the deeper partnership can build on it rather than start from scratch.
- **Agree a map of complementary specialisations** (building on R5), so each field has a clear lead and duplication is reduced by design.
- **Scale up joint and double degrees** in high-demand fields, extending the IHI Zittau–TUL model to further subjects, and share modules, micro-credentials and a common competency framework (R1).
- **Integrate the student experience across the border** through mutual module recognition, cross-border campus and commuting arrangements, joint career and employer services, and a shared placement database.
- **Run shared labour-market monitoring and pursue joint funding,** including future Interreg calls, to finance the joint infrastructure.

**REGIONAL RELEVANCE & STUDY-PROGRAMME ANALYSIS**

A working model already exists: the IHI Zittau–TUL double-degree master in International Management lets students graduate with both a Czech and a German degree, the Liberec courses taught in English and the sites about an hour apart — a natural template extendable to the data-, computational-science and energy-engineering specialisms of R5. Earlier experience carries a caution: cross-border programmes depend on durable, well-governed structures rather than personal goodwill. The study-programme analysis specifically recommends expanding cross-border cooperation and international teamwork to address the underrepresentation of language and intercultural competencies.

| | |
|---|---|
| HORIZON | **Medium–Long.** A shared employer database and joint monitoring are near-term; joint degrees and shared frameworks are a medium- to long-term build. |
| OWNERSHIP | Rectorates and international offices, ideally through a formal cooperation agreement and a joint steering group with a small coordinating secretariat. |

## 05 Implementation roadmap and prioritisation

The recommendations differ in effort and speed of payoff. The horizons below front-load low-cost, high-leverage 'quick wins' — largely changes to how existing provision is described, assessed and supported — while recognising that deeper structural change takes years.

**QUICK WINS**
0–12 months

- Make transversal competencies explicit in module descriptors and assessment briefs (R1).
- Strengthen career services; launch a shared regional employer and placement database, building on DHSN's partner network (R2, R7, R8), including collaboration between careers centres and joint job fairs.
- Run a cross-border language audit against the demand profile (R3); add AI-/data-literacy electives (R4).
- Add entrepreneurship electives (R6); agree a cross-border cooperation memorandum and joint steering group (R8).

**MEDIUM TERM**
1–3 years

- Redesign assessment and scaffold autonomy through the quality cycle, using HSZG's reform window **(R1)**; incorporate links to professional practice, award corresponding credits and expand dual or cooperative formats **(R2)**.
- Roll out certified, differentiated language provision **(R3)**; embed AI/data literacy as a graduate attribute **(R4)**.
- Establish demand-monitoring and graduate-tracking **(R5, R7)**; develop shared modules and a joint competency framework **(R1, R8)**.

**STRUCTURAL**
3–5 years

- Align and profile the portfolio across the four institutions; develop joint and double degrees as well as dual, cooperative or practice-integrated study formats, and expand the range of such programmes across the four institutions **(R5, R8)**.
- Build specialist capacity in high-demand technical and data fields around the regional anchors **(R4, R5)**; establish cross-border incubation **(R6)**.
- Consolidate the institutions' regional-anchor role and joint retention strategy **(R7, R8)**.

| RECOMMENDATION | IMPACT | EFFORT | HORIZON |
|---|---|---|---|
| R1 · Transversal competencies | High | Medium | Short–Med |
| R2 · Work-integrated learning | High | Medium | Med |
| R3 · Cross-border language | Medium | Medium | Short–Med |
| R4 · Digital & AI literacy | High | Medium | Short–Med |
| R5 · Portfolio alignment | Medium | High | Med–Long |
| R6 · Entrepreneurship | Medium | Low–Med | Short–Med |
| R7 · Regional anchor / retention | High | High | Med–Long |
| R8 · Cross-border cooperation | High | Medium | Med–Long |

Table 4 · Indicative prioritisation of the recommendations (qualitative judgements to support leadership planning).

| INSTITUTIONAL FUNCTION | LEADS ON |
|---|---|
| Rectorate / directorate (strategic leadership) | R5, R7, R8 (overall sponsorship) |
| Vice-rectors / vice-deans for teaching & deans | R1, R2, R4 |
| Guarantors of study programmes / courses | R1, R2, R5 |
| Quality-assurance unit at the university | R1, R5 & monitoring |
| Career centers & cooperative-education services | R2, R7 |
| International / cross-border office | R3, R7, R8 |
| Language centres | R3 |
| Digital-education / teaching-learning centre | R4 |
| Entrepreneurship / technology transfer offices | R6 |

Table 5 · Indicative mapping of recommendations to lead institutional functions.

## 06 Monitoring, evaluation and the ongoing evidence base

Joint monitoring of graduate outcomes and labour-market data is essential for developing and testing the recommendations. Several of them depend directly on continuing intelligence about employer demand, competency gaps and where graduates end up. As the evidence base grows, some signals will be confirmed and others will shift; leadership should adjust priorities accordingly.

- **Graduate tracking.** Follow graduates' destinations and retention within the Euroregion, and feed the results into programme-portfolio decisions and retention strategies for graduates in the Czech and German parts of the ERN.
- **Employer feedback loops.** Sustain regular employer surveys and advisory-board dialogue, extending the ERNILAC instrument over time.
- **A small set of shared indicators.** Track the competency–fulfilment gap, work-integrated-learning participation, certified-language attainment, cross-border mobility and regional retention rates.
- **A joint monitoring dashboard.** Consolidate these into a shared, comparable view across the four institutions to inform decisions and future joint funding bids.

*Two caveats bear repeating. First, the current figures rest on a small, self-selected sample and are to be read as exploratory and directional rather than representative. Second, employer demand is only one input to institutional strategy; monitoring should sit alongside, not override, the academic and developmental purposes of the region's institutions.*

## 07 Concluding remarks

Read together, the ERNILAC survey, the regional context and these recommendations point to a coherent agenda for the leaderships of the region's four institutions of the Czech and German parts of the ERN. The most consistent and actionable finding for the universities is the competency–fulfilment gap: employers most value the self-management, responsibility, collaboration and critical-thinking competencies where they perceive graduates to fall short. Closing that gap — by embedding transversal competencies as taught and assessed outcomes **(R1)** and giving students far more genuine contact with practice **(R2)** — is the single highest-leverage contribution the institutions can make, and much of it can begin quickly and at modest cost.

Around this core, the language **(R3)**, digital and AI **(R4)**, portfolio **(R5)** and entrepreneurship **(R6)** recommendations sharpen graduates' fit to a labour market that is at once local and cross-border — and that is being reshaped by a historic structural transformation whose window will not stay open indefinitely. The final recommendations redefine the institutions' role: as regional anchors that help attract and retain academic talent **(R7)**, and as partners who achieve more together than apart **(R8)**.

### THE THROUGH-LINE

On this reading, the cross-border character of the Euroregion, and the complementarity of its four institutions of the Czech and German parts of the ERN, are **not complications to be managed but strategic assets to be used in the cooperation of these institutions**. These recommendations are evidence-informed directions, to be tested and refined as the evidence base grows; their value will be measured not by the analysis but by the graduates the institutions send into the region's labour market — and by how many choose to build their careers within the Euroregion.

# Primary data and secondary sources

Primary evidence is drawn from two ERNILAC workstreams: the employer survey in its final form (final cleaned dataset, n = 70; 37 DE / 33 CZ; 49 complete and 21 partial responses); and the supply-side study-programme analysis (107 programmes across the four institutions), together with the project workshop materials of 21 January 2026. The regional context and 'Regional relevance' notes draw on publicly available sources, paraphrased and consulted, including:


- Academic Coordination Centre in the Euroregion Neisse. (2026). *Academic Coordination Centre in the Euroregion Neisse.* Retrieved July 2026, from https://acc-ern.tul.cz/
- Center for Advanced Systems Understanding. (2026). *Center for Advanced Systems Understanding.* Retrieved July 2026, from https://www.casus.science/
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- DLR Institute of Low-Carbon Industrial Processes. (2026). *DLR Institute of Low-Carbon Industrial Processes.* German Aerospace Center. Retrieved July 2026, from https://www.dlr.de/
- Duale Hochschule Sachsen. (2026). *Campus Bautzen.* Retrieved July 2026, from https://www.dhsn.de/
- Helmholtz-Zentrum Dresden-Rossendorf. (2026). *Center for Advanced Systems Understanding.* Retrieved July 2026, from https://www.hzdr.de/
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- Landkreis Görlitz. (2016). *Wer kommt? Wer bleibt? Wer geht?* Retrieved July 2026, from https://www.kreis-goerlitz.de/
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Figures for the DZA (e.g. ~1,000 planned jobs, ~€170 million eventual annual budget, up to €1.1 billion of structural funding through 2038) are projections reported by the sources above, not current headcounts. Institutional figures — in particular student numbers, programme data and partner counts — may change and should be checked against the current sources before publication. The survey results rest on a small, self-selected sample and are exploratory and directional, not representative.

## Abbreviations

**ACC** — Academic Coordination Centre / Akademisches Koordinierungszentrum (Euroregion Neisse)

**AI** — Artificial intelligence

**CASUS** — Center for Advanced Systems Understanding (Görlitz)

**CEFR** — Common European Framework of Reference for Languages

**CZ** — Czechia / Czech respondents

**DE** — Germany / German respondents

**DHSN** — Duale Hochschule Sachsen (Campus Bautzen)

**DLR** — Deutsches Zentrum für Luft- und Raumfahrt (German Aerospace Center)

**DZA** — Deutsches Zentrum für Astrophysik (German Centre for Astrophysics)

**ERN** — Euroregion Neisse

**ERNILAC** — Euroregion Neisse International Labour Market for Academics

**HEI** — Higher education institution

**HSZG** — Hochschule Zittau/Görlitz

**HZDR** — Helmholtz-Zentrum Dresden-Rossendorf

**IHI** — Internationales Hochschulinstitut Zittau

**NISA** — Neisse–Nisa–Nysa Euroregion

**R1–R8** — Recommendations 1 to 8 (this paper)

**TUL** — Technical University of Liberec

**UI/UX** — User interface / user experience design

**WIL** — Work-integrated learning

# Project and funding information

| | |
|---|---|
| PROJECT | **ERNILAC** — Euroregion Neisse International Labour Market for Academics |
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