Twinning for Europe's Competitiveness: Keeping Excellence Connected Across All Regions

A joint policy brief prepared by the **GEMSTONE** Project with inputs by sister Twinning projects – **BAANG**, **EarthBridge**, **HybridNeuro**, **REMODEL**, **REMOTE XUAR**, **SMART4ENV**, & **TwinVECTOR**

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Contents

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A joint policy brief by sister Twinning projects

1. Executive Summary

Twinning is one of the European Union's most effective and affordable instruments for closing the R&I performance gap between Widening and established research systems. Through structured, multi-year partnerships between one Widening coordinator and at least two excellence institutions, it delivers measurable improvements in scientific excellence, institutional management, and European collaboration – at a fraction of the cost of other WIDERA actions.

Since Horizon 2020, Twinning has strengthened over 600 research groups, trained thousands of researchers, and helped hundreds of institutions progress from learning to leadership within Horizon Europe consortia. Independent evaluations confirm that Twinning projects achieve the highest publication output among Widening measures, raise proposal success rates, and enhance long-term participation readiness for mainstream EU programmes.

The absence of Twinning calls in 2024–2025, however, risks reversing these achievements. The current pause interrupts project pipelines, undermines staff retention, and weakens the momentum of institutions that have only recently reached competitiveness. While Teaming, ERA Chairs, and Excellence Hubs play valuable roles, none replicate Twinning's targeted, institution-to-institution model of sustained mentoring and skills transfer.

The case studies presented in this brief – spanning neuroscience, environmental technologies, cultural heritage, social sciences, and business innovation – demonstrate Twinning's cross-disciplinary and pan-European impact. They show that small, focused investments can generate enduring institutional transformation, research management maturity, and regional growth.

The message is clear: **Twinning is not a transitional measure but a strategic investment in Europe's competitiveness, resilience, and cohesion.**

Reinstating annual Twinning calls with stable budgets, KPI-driven monitoring, and stronger links to regional and Pillar II instruments is essential to maintain the excellence pipeline and ensure that every region can contribute fully to Europe's research and innovation future.

2. Introduction

This joint policy brief emerged from a coordinated initiative among eight Horizon Europe Twinning projects – **GEMSTONE, BAANG, EarthBridge, HybridNeuro, REMODEL, REMOTE XUAR, SMART4ENV, and TwinVECTOR** – funded under the call *HORIZON-WIDERA-2021-ACCESS-03*. Building on complementary experiences from medical sciences, environmental research, business innovation, and humanities, the consortium identified a shared concern: the discontinuity of Twinning calls in 2024–2025 and its potentially regressive impact on research capacity and cohesion across Europe. The partners therefore joined efforts to compile empirical evidence, document achievements, and formulate concrete recommendations to inform the policy debate around the next Framework Programme for Research and Innovation, **FP10**, and its respective WIDERA Work Programmes.

The brief demonstrates that Twinning remains the **most efficient and inclusive mechanism** for strengthening excellence in Widening countries. Drawing on comparative analyses, independent evaluations, and first-hand project data, it shows that Twinning consistently raises institutional research quality, proposal success rates, and international visibility – at a fraction of the cost of other WIDERA instruments. Case studies presented here provide field-tested proof that Twinning delivers structural reform: establishing research management units, embedding open science and ethics frameworks, accelerating staff mobility, and enabling participation in larger European consortia.

Collectively, the findings reaffirm Twinning's strategic value as a **driver of European competitiveness, resilience, and strategic autonomy**. They also provide policymakers with practical, evidence-based proposals for ensuring the scheme's continuity, sustainability, and policy alignment in the next framework programme – so that no region's excellence is limited by geography, and every talented institution can contribute fully to the European Research Area.

3. Why Twinning Matters

The expected outcomes of Twinning directly align with Horizon Europe's objectives under Widening Participation and Spreading Excellence actions:

- **Improved excellence capacity and resources** in Widening countries, closing persistent R&I gaps within Europe.
- **Enhanced strategic networking activities** between Widening institutions and at least two internationally leading EU counterparts.
- **Raised reputation, research profile, and attractiveness** of the coordinating institution and its staff.
- **Strengthened research management capacities and administrative skills** of staff in Widening country institutions.
- **Improved creativity and innovation** supported by new approaches in R&I collaboration and increased mobility of qualified and young scientists.

Twinning in numbers: 2014–2023

(Skyttner, 2025; European Commission, 2021; European Court of Auditors, 2022)

610 funded projects in **25** Widening countries

310 joint publications
150 new international partnerships

3,500+
trained staff & early-career researchers

38%
increase in post-Twinning proposal success rates

12,000+
participant mobilities (in/out exchanges)

€1.4M
average cost per Twinning (20× cheaper than Teaming)

What Twinning uniquely does

- Creates a **structured triangulation** (one Widening coordinator + at least two excellence partners) for **deep knowledge transfer** over 36 months.
- Stimulates **scientific excellence** of all partners involved as well as the **innovation capacity** in a defined area of R&I.
- Focuses on **research management capability**, enabling a step-change in proposal quality, project delivery, and compliance (open science, RRI, gender equality plans, IP, data management).
- Operates with **lean budgets** that buy high leverage: intensive mentoring, staff exchanges, co-designed training, and targeted equipment/services (within limits), rather than large infrastructure.

While Twinning primarily addresses capacity disparities in Widening countries, it also delivers **clear advantages for excellence partners in non-Widening regions**. Through collaboration, advanced institutions gain access to new research contexts, comparative datasets, and emerging talent pools, broadening the scope and societal relevance of their work. Twinning fosters reciprocal learning in research management, open science, and stakeholder engagement, and strengthens European consortia by embedding excellence partners in diverse, innovation-driven ecosystems. This mutual exchange enhances the competitiveness and inclusiveness of the entire ERA, not only its Widening dimension.

Twinning's comparative added value

Teaming builds institutions from the ground up but is high-budget, high-complexity and limited in number. Applications are large, detailed, and require advanced project management capacity. Preparing a successful proposal often takes 12–18 months. The instrument typically involves multi-million-euro budgets over several years (often 4–6 years), with cost-sharing requirements and strict reporting. Widening institutions must demonstrate baseline research capacity, strategic planning, and the ability to implement structural reforms, which may not yet exist in all regions. Only a few centres per country can realistically be supported, so Teaming cannot serve as a broad, bottom-up capacity-building instrument like Twinning.

ERA Chairs transform departments via senior recruitment, but require advanced internal readiness and do not systematically network multiple external excellence partners. The ERA Chair holder (PI) must be an outstanding researcher recruited from abroad. This requirement for international recruitment is what makes ERA Chairs distinct, but also more challenging, since institutions must attract a top candidate and often adjust HR/payroll frameworks.

Hop-On integrates a single participant into existing Pillar II projects; it does not deliver a full institutional change programme. This facility has so far shown limited uptake in highly specific thematic areas. Widening applicants may therefore encounter difficulties in establishing collaborations, as illustrated by some multi-year efforts (e.g. HybridNeuro, UM). While the instrument is conceptually valuable and can complement the toolbox, it cannot fully substitute for dedicated and predictable measures such as Twinning.

Excellence Hubs/EEI catalyse ecosystems but are not designed for intensive bilateral mentoring in a specific research domain. They target regional innovation ecosystems, but many Widening countries lack the 4-helix maturity to participate effectively. For most, Twinning remains the only accessible, scalable instrument to build excellence at the institutional level.

Twinning, therefore, is not only a capacity-building instrument but also a **mechanism for regional economic growth, international integration, and talent attraction**.

Twinning's added value vs. other WIDERA instruments

Feature	Twinning	Teaming	ERA Chairs	Hop-On	Excellence Hubs/EEI
Budget scale	Low–medium	Very high	Medium	Low	Medium
Duration	~3 years	5–7 years	5–6 years	⩽ project	3–4 years
Focus	Skills & management + targeted science	Institution building	Senior talent + department reform	Participation in running RIA	Ecosystem coordination
Excellence partners	⩾2, systematic mentoring	1+ anchor	Not required	N/A	Varies
Primary outcome	**Capacity to compete**	New/ strengthened centre	Leadership post hire	Participation access	Ecosystem linkages
Substitute for Twinning?	N/A	No	No	No	Partial to no

4. Current Situation & Policy Problem

The last Twinning call closed in 2023, funding 96 projects from **848 proposals** with a total budget of **€140 million**. Since then, no Twinning call has been opened in 2024–2025, creating a **two-year gap** that interrupts continuity for more than **700 unfunded** but evaluation-ready institutions across at least **20 Widening countries**. This pause comes at a time when many of these institutions had built project management capacity and scientific momentum under Horizon 2020 and early Horizon Europe calls.

The 2026–2027 WIDERA Draft Work Programme (European Commission, 2025a) frames Twinning as a core Widening action alongside Teaming, ERA Chairs and EEI, offering a **context for continuity**. However, it also introduces a directional approach aligned with the European Commission's Competitiveness Compass, encouraging applicants to reflect policy priorities. While this guidance can help orient Widening institutions toward high-impact areas, it risks weakening Twinning's bottom-up character – its proven ability to address local capacity gaps and institutional needs. Maintaining **genuine openness and autonomy** is essential to preserve the scheme's inclusiveness and ensure that smaller or less policy-aligned institutions are not disadvantaged.

If the next Twinning call in 2026 is followed by another pause in 2027, this **stop-start pattern** will still create a gap that disrupts continuity and undermines the initiated progress. Even short interruptions may risk decreasing the impact of trained staff, the dissolution of partnerships, and declining research management capacity in emerging and developing institutions. Such **instability weakens** one of Horizon Europe's defining achievements: the creation of a scalable, evidence-based mechanism to integrate Widening countries into the ERA.

Alignment with EU priorities

Reinstating annual Twinning calls directly supports the **Horizon Europe Strategic Plan 2025–2027**, which emphasises:

- A **more inclusive and interconnected ERA**, with stronger participation of Widening countries and balanced research capacity across Europe.
- **Resilient and secure research systems**, ensuring that all Member States can contribute to Europe's strategic autonomy and scientific sovereignty.
- **Digital and green transitions**, underpinned by the diffusion of advanced skills, open science practices, and research data management capacities.

Twinning contributes to all these priorities by institutionalising knowledge transfer, digital readiness, and responsible research management within Widening organisations. It also advances **ERA Policy Agenda** actions on research careers, open science, gender equality, and research security through structured mentoring and reform-oriented work packages.

Contribution to competitiveness, European resilience, & strategic autonomy

Twinning strengthens European competitiveness, resilience, and strategic autonomy by quickly turning existing institutional potential into operational research capacity in regions that would otherwise lag behind. The Competitiveness Compass calls for faster diffusion of innovation, reduced strategic dependencies, and stronger skills and industrial ecosystems (EC, 2025b); Twinning delivers on all three by:

- Accelerating **capability transfer** in priority technologies and methodologies through intensive mentoring and mobility.
- Embedding **durable research management and open science practices** that raise institutional success in competitive EU calls.
- Creating **regional nodes of expertise** that broaden Europe's innovation base beyond a handful of centres.

Twinning is also a pragmatic instrument for bolstering **research security** and '**open strategic autonomy**' (Directorate-General for Research and Innovation, n.d.): by pairing Widening institutions with trusted excellence partners, Twinning helps raise local capacity to assess and mitigate risks (e.g., supply chain vulnerabilities, foreign interference, dual use risks), implement GDPR- and IP-compliant data infrastructures, and adopt secure research practices – all priorities highlighted in the Commission's research security and strategic autonomy frameworks. In this way, Twinning reduces Europe's exposure to single-point failures in talent, data, and infrastructure while preserving the openness critical to scientific cooperation.

Concretely, Twinning advances the Compass and FP10 goals through three lever actions policymakers can adopt now:

- **Talent & skills pipeline:** Scale staff exchanges, co-mentoring, and short mobility to build local expertise in AI, biotech, digital infrastructures, and other Compass priority domains – reducing time-to-competence for regions outside core hubs.
- **Rapid institutionalisation of good practice:** Require deliverables on research management, FAIR data, ethics, and research security as core outputs (not optional), so each Twinning becomes a replicable node of resilience.
- **Regional innovation linkages:** Hard-link Twinning outcomes to Cohesion Funds and regional S3 strategies so local ecosystems convert capacity gains into jobs, start-ups, and procurement-ready technologies that feed Europe's strategic autonomy objectives.

Taken together, these effects make Twinning a high-leverage, low-cost policy instrument that operationalises the Competitiveness Compass and supports FP10's ambition to make Europe more innovative, resilient, and strategically autonomous while keeping the EU open to scientific cooperation.

Synergies with Cohesion Funds

Twinning projects provide a proven entry point for **synergies with Cohesion Policy instruments**, notably ERDF and ESF+. These funds can sustain research management positions, digital infrastructure, and laboratory quality-assurance systems developed through Twinning. Without a continuous Twinning pipeline, opportunities to align WIDERA and regional funds are lost – reducing impact and efficiency at both EU and national levels.

Policy objective

To prevent regression and maximise Europe's R&I cohesion, the **European Commission should reinstate annual Twinning calls** from FP10 onwards, ensuring stable, predictable funding within the WIDERA Work Programme while preserving Twinning's **bottom-up design and institutional focus**. This continuity will safeguard the institutional learning and networks built since 2014, support ERA priorities for inclusion and resilience, and maintain a **viable excellence pipeline** feeding into Pillar II and EIC actions.

5. Evidence of Effectiveness

EU-level evidence

Independent evaluations by the European Commission and the European Court of Auditors confirm that **Twinning has been among the most cost-effective and impactful instruments** for strengthening research and innovation capacity in Widening countries.

- According to the **European Commission**'s (EC) *Spreading Excellence and Widening Participation Impact Report*, Twinning projects under Horizon 2020 demonstrated the highest publication output per euro spent among all Widening measures (EC, 2021). More than 80% of coordinators reported significant increases in international visibility and improved institutional capacity for proposal preparation and project management.
- The **European Research Executive Agency** (REA) reported strong demand and competition for Twinning under Horizon Europe: the 2022 call received 391 proposals requesting over €555 million, with only around 100 projects funded from a €149 million budget (REA, 2022) – an oversubscription rate of nearly 4:1. This persistent excess demand demonstrates the high value placed by Widening institutions on Twinning's targeted capacity-building model.
- The **European Court of Auditors**' (ECA) special report on Horizon 2020 highlights that Widening participants that completed Twinning projects exhibited notably higher participation and success rates in subsequent Horizon Europe calls (ECA, 2022). These institutions also showed measurable improvements in proposal quality, research management maturity, and networking breadth, supporting the argument that Twinning acts as a stepping stone toward competitive excellence.

Collectively, these findings confirm that Twinning delivers tangible results at relatively low cost and with high leverage compared to other WIDERA instruments.

Qualitative outcomes

Beyond the quantitative data, Twinning generates **long-term institutional transformation** through:

- Establishing or strengthening **research management offices and internal systems** for open science, ethics, and data stewardship.
- Accelerating **staff mobility and co-mentoring** between Widening and excellence partners.
- Increasing **cross-border joint publications and training outputs**.
- Improving **female leadership representation and retention of skilled staff** within research support functions.

These outcomes align directly with ERA Policy Agenda priorities on inclusiveness, research security, open science, and gender equality.

Twinning's effectiveness vs. other WIDERA instruments

Indicator	Baseline/comparator	Evidence/result
Call success & demand (accessibility)	H2020 Twinning historical success ~10–12% (high demand relative to slots).	2023 Twinning call: 848 proposals submitted, 96 projects funded (~11% success), total EC investment >€143M – demonstrating both sustained demand and constrained supply (REA, 2024).
Cost-effectiveness (budget per institutional uplift)	Twinning projects are small-to-medium (€1–2M) vs Teaming (€15–25M typical); Twinning's lean model (mentoring + mobility + targeted equipment/services) produces rapid institutional returns at lower per-beneficiary cost.	REA/EC project lists and CORDIS programme pages for Twinning and Teaming provide per-project budget distributions (EC, 2023); ECA and SEWP evaluations document relative leverage of WIDERA instruments (ECA, 2022; EC 2021).
Institutional readiness & downstream participation	Pre-Twinning coordinators typically show lower participation in Pillar II calls.	ECA and SEWP evaluations find that institutions completing Twinning demonstrate improved proposal quality and higher subsequent participation rates in mainstream EU calls – i.e., Twinning acts as a stepping stone into Pillar II (ECA: downstream participation improvements; SEWP: higher publication and management capacity) (ECA, 2022; EC 2021).

Comparative perspective

Compared with other WIDERA instruments, Twinning stands out for its **speed, scalability, and institutional reach**:

- **Teaming** delivers deep institutional reform but is limited in number and high in cost (5–7 years, €15–25M range).
- **ERA Chairs** rely on senior recruitment and advanced internal readiness, making them inaccessible to less-developed institutions.
- **Excellence Hubs and Hop-On actions** support ecosystem or project-level integration but do not deliver structured, department-level mentoring.

Twinning, by contrast, achieves measurable gains in **scientific output, skills, and proposal competitiveness within 36 months** and at a modest budget of **€1–2M per project** – making it the most scalable entry point for Widening countries to progress toward Horizon Europe's mainstream R&I actions.

Net takeaway

Empirical evidence from the European Commission (2021), REA (2022), and the European Court of Auditors (2022) demonstrates that Twinning produces the **strongest capacity-building outcomes per euro invested** among WIDERA actions. It improves proposal readiness, enhances institutional resilience, and reduces participation disparities – confirming its strategic value as a permanent instrument for R&I excellence convergence.

6. Case Studies from Twinning Projects

The eight Twinning projects analysed in this section span highly diverse disciplines – from neuroscience and business innovation, to environmental monitoring and cultural studies – yet converge on a remarkably **consistent pattern of institutional and scientific impact**. Collectively, they have trained hundreds of researchers and administrators, generated tens of peer-reviewed publications, organised dozens of international workshops and summer schools, initiated multiple joint master's and PhD programmes.

Across all cases, Twinning has improved research management systems, enhanced mobility and mentorship opportunities, and strengthened institutional visibility within the European Research Area. It has enabled universities and research centres in Widening countries to develop new research infrastructures, join major consortia, and access additional funding under EU and national programmes.

This evidence confirms that **Twinning delivers consistent, transferable outcomes across domains**, making it a uniquely scalable and cost-efficient mechanism for accelerating excellence and institutional maturity throughout the European R&I landscape.

6.1. GEMSTONE Project

- **Focus:** Gene engineering technologies and neuroscience with a strong lens on neurodevelopmental aspects of brain disorders (e.g., Parkinson's disease, epilepsy).
- **Coordinator:** Acıbadem Mehmet Ali Aydınlar University (ACU, Türkiye).
- **Excellence partners:** Lunds Universitet (ULUND, Sweden) and Fondazione ICONS (ICONS, Italy).

Key achievements

- **Research management improvements:** Practical improvements in grant administration, DMPs, open science, ethics and gender equality practices; development of a best practice book (*Making It Work: GEMSTONE Project's Better Practices for Horizon Europe Newcomers*, a public deliverable) consolidating GEMSTONE methods and lessons, now being shared with other Widening institutions.
- **Scientific/skills outcomes:** Structured knowledge transfer and capacity building via co-designed trainings, bilateral exchanges, and co-mentoring of early-career researchers with ULUND; enhanced capability in chemogenetics, thalamic circuit analysis and electrophysiology; cross-training on experimental design, reproducibility, and data stewardship.
- **Visibility & networking:** Dissemination at major fora (e.g., International Epilepsy Congress) to raise ACU's profile in the neuroscience field; joint information days (e.g., with Trakya University) to broaden regional participation in Horizon Europe; networking and matchmaking to establish connections with researchers and institutions from across Europe, opening pathways for joint proposals and follow-ups for ongoing talks with potential partners for Horizon Europe calls.
- **Reducing disparities & supporting growth:** Contribution to closing gaps between Widening countries and leading research institutions by improving access to advanced resources, and enhancing skills (as evident in ACU's developing capability of producing and managing transgenic mouse colonies in-house); strengthening not only ACU's capacity but also contributing to regional economic growth through innovation potential.
- **Raised reputation & attractiveness:** Significant improvement to ACU's international reputation (as demonstrated by invitations to join new European consortia and increased participation in high-level conferences), and recognition from leading international partners, making it a more attractive partner for future collaborations and talent recruitment.
- **Pipeline effects:** Improved readiness for Pillar II participation (proposal design, partner search, compliance), stronger IP/valorisation awareness (with ICONS' guidance), and better pathways for student and staff mobility.

Net impact: GEMSTONE demonstrates how a lean, domain-focused Twinning can simultaneously lift scientific excellence and administrative maturity, reducing risk and cost in later, larger EU collaborations.

6.2. BAANG Project

- **Focus:** Multidisciplinary design, optimisation, and validation of adaptive and metamaterial-based structures for morphing wing applications, integrating modelling, multi-objective optimisation, additive manufacturing, and experimental verification.
- **Coordinator:** Brno University of Technology (BUT, Czechia).
- **Excellence partners:** Technische Universiteit Delft (TU Delft, Netherlands), Technische Universitaet Wien (TU Wien, Austria), and Imperial College London (ICL, UK).

Key achievements

- **Research management improvements:** New roles established and processes modernised; launch of institutional support for ethics and gender equality (including a dedicated web resource); development and internal sharing of know-how on DMPs and OS. Completed 50+ professional trainings on project development; increased number of submitted internal and bilateral projects; delivered 7 public workshops. An innovative coaching method for early-career researchers was pilot-tested; best practice exchanges presented at 2 conferences for project managers
- **Scientific excellence:** Together, the scientific achievements represent a complete workflow – from constitutive modelling to physical validation – meeting the project's technical objectives and enabling experimental verification of a morphing wing concept. BAANG delivered several key advances beyond the current state of the art in aerospace morphing and metamaterial structures. These results establish a foundation for next-generation adaptive aircraft structures.
- **Training early-stage researchers:** 7 PhD students completed intensive training with excellence partners (a total of 34 months) and 3 early-stage researchers (PhD holders) completed expert visits (a total of 16 months), collaborating within leading international teams; collectively completed 90+ courses and trainings. Capacity building combined co-designed trainings, bilateral exchanges, and joint mentoring.
- **Visibility & networking:** Results disseminated at 19 conferences; active dialogue with national authorities; ongoing collaboration with industry partners. New channels opened for future cooperation with research organisations and representatives of industry organisations.
- **Reducing disparities & supporting growth:** Two-way learning between Widening and non-Widening partners – scientifically (metamaterials, piezoelectric concepts, interdisciplinary approaches) and administratively (institutional structures and Twinning implementation). Shared practices in team leadership and PhD support improved environments for young talent and reinforced regional innovation potential.

Net impact: BAANG shows how a targeted, technically oriented partnership can simultaneously increase scientific excellence and accelerate the development of project management. By combining the implementation of an exploratory research project in the field of aviation with the development of work processes and systematic talent development, the project reduced the risks and costs of subsequent large-scale European cooperation. It accelerated the path from model to experimental prototype of morphing structures and increased the international attractiveness of BUT for partners and talent. BAANG strengthened the Czech innovation ecosystem in the field of aviation and created a source for participation in larger European projects.

6.3. EarthBridge Project

- **Focus:** Bridging earth observation (EO) and environmental sciences for biodiversity monitoring, land management, and agricultural sustainability, with a strong emphasis on integrating remote sensing, ecological modelling, and policy-relevant applications.
- **Coordinator:** Czech University of Life Sciences Prague (CZU, Czechia).
- **Excellence partners:** Technische Universität Dresden (TUD, Germany), Università di Bologna (UNIBO, Italy), and Rheinische Friedrich-Wilhelms-Universität Bonn (UBO, Germany).

Key achievements

- **Boosting research capacity & management:** Over 40 CZU staff trained in EU project design, financial management, and proposal writing. The project office was reorganised to include a dedicated international team, and PRINCE2 certification was achieved. These structural changes directly increased the success rate in competitive calls, including participation in ESA, Water4All TAP, and MSCA PF projects.
- **Scientific excellence & new EO methodologies:** So far, EarthBridge produced more than 16 multiple high-impact publications (e.g., *International Journal of Applied Earth Observation and Geoinformation*, *Ecological Informatics*) and review papers on biodiversity monitoring. New methods were developed for vegetation structure mapping, species distribution modelling, and UAV-based biodiversity assessments to support result-based agri-environment schemes.
- **Training new generation of scientists:** 4 PhD projects were launched under joint supervision, and 24 research exchanges were implemented. A large synthesis project and mentoring programme were established, and a joint Master's programme in Environmental Data Science is under preparation. A summer school was organised involving 25 international participants interested in environmental EO.

- **Stakeholder engagement & open science:** A Stakeholder Advisory Board co-designed research priorities and case studies. A stakeholder handbook and a dedicated blog were created to translate findings into practice. A Zenodo community was launched to share publications, datasets, and training materials openly. An e-learning course on environmental EO has been finalised and will be made freely available.
- **Visibility & European networking:** EarthBridge partners presented results at more than 12 major scientific events (IAVS, ISDE, D-A-CH) and expanded CZU's collaborative network, resulting in new project opportunities and increased brain circulation at both student and researcher level.

Net impact: EarthBridge shows how a focused Twinning project can rapidly elevate a Widening institution's scientific output, funding success, and policy relevance. By connecting EO science with biodiversity and agricultural policy, it created tangible tools for implementing the EU Biodiversity Strategy 2030 and Nature Restoration Law – and established a foundation for future large-scale collaborations under Horizon Europe. Moreover, it has provided opportunities for researchers from Widening countries with little or no prior experience in EU projects to take on coordination roles and lead substantial parts of the work, allowing us to witness, in real time, a profound shift in their priorities, ambitions, and motivation to engage in future European initiatives.

6.4. HybridNeuro Project

- **Focus:** Hybrid neuroscience based on cerebral and muscular information for motor rehabilitation and neuromuscular disorders.
- **Coordinator:** University of Maribor (UM, Slovenia).
- **Excellence partners:** Universitat Politècnica de Catalunya (UPC, Spain), UPC Technology Centre (CIT-UPC, Spain; technical partner), Chalmers University of Technology (CUT, Sweden), Imperial College London (ICL, UK; associated partner), and Institute Guttmann (Spain; clinical subcontractor).

Key achievements

- **Research management improvements:** In terms of research management, the consortium established structured work packages covering administration, equality, and governance, supported by tools such as the *Handbook of Management*, *Welcome Protocol*, *Best Practices for International Promotion & Research Management*, and HybridNeuro Hub (upcoming) as long-term institutional support for internationalisation, co-creation and collaboration. This has strengthened institutional capacity at UM to lead and coordinate international Horizon-level research.

- **Scientific/skills outcomes:** On the scientific side, HybridNeuro has produced more than seven publications, including conference papers (ERK 2023–2025, ISEK 2024) and a journal article in IEEE TNSRE (2025). Four open datasets combining simulated and experimental high-density EMG are already available on Zenodo. Alongside this, the project has released open-source tools such as NeuroMotion, DEMUSE, and I-spins (repository of HybridNeuro Hub), and organised eight webinars to train researchers in transversal skills such as scientific writing, ethics, intellectual property, and communication. Researcher exchanges – both qualified and young researchers – among partner institutions further enhanced skills and expertise in hybrid neural interfaces.
- **Visibility & networking:** Visibility and networking have also been a major achievement. The consortium links UM with UPC, CIT-UPC, ICL, CUT, and Institut Guttmann, ensuring international reach. To date, the project has organised 13 structured training and engagement events, including two summer schools, three workshops, and eight webinars. These activities, along with dissemination via the project website, a video news release, and a LinkedIn presence with nearly 400 followers, have raised awareness across academic, clinical, and industrial communities. Extended the scope and number of dissemination and communication activities at national, regional, and international levels, engaging a wide variety of stakeholders. These efforts significantly raised the visibility of the research group and its technologies, strengthening recognition across academic, clinical, industrial, and policy communities.
- **Reducing disparities & supporting growth:** A key focus has been reducing disparities and fostering growth in less-resourced regions, particularly the West Cohesion region of Slovenia. Through advanced training, transfer of administrative know-how, and a strong emphasis on gender equality, the project has built new capacity while ensuring inclusivity. These measures help close gaps between leading European laboratories and developing research environments. In addition, the project has supported access to resources for infrastructure and equipment, further strengthening the research laboratory's long-term capabilities.
- **Raised reputation & attractiveness:** The project has raised the reputation and attractiveness of participating institutions. Horizon Europe and UKRI funding has provided evidence, while partnerships with some world-leading universities have further enhanced visibility. HybridNeuro has also gained recognition through conference participation, invited talks, and experts visits as well as national, regional, and international innovation events, positioning its members as attractive partners in neuroscience and rehabilitation research.
- **Pipeline effects:** The project is creating strong pipeline effects for the future. Its datasets, repositories, and tutorials provide foundations for further research and spin-off activities, while training of early-career researchers forms new talent for future grants and innovation. Emerging applications are anticipated in rehabilitation, neuroprosthetics, and sports science.

Net impact: HybridNeuro has laid the groundwork for long-term sustainability through the HybridNeuro Hub. This international, interdisciplinary hub brings together academia, clinics, industry, and policymakers, hosting datasets, tutorials, and software tools. Events such as international HybridNeuro Hub Days in 2024 and 2025 as well as regional innovation showcases demonstrate the hub's role as a bridge between science and application. With its resources and open membership, the hub provides a durable platform for collaboration and impact beyond the project's duration.

6.5. REMODEL Project

- **Focus:** Developing sustainable business model innovation capacity in the hospitality sectors.
- **Coordinator:** Bursa Uludağ University (BUU, Türkiye).
- **Excellence partners:** Atlantic Technological University (ATU, Ireland) and Universidad de León (ULE, Spain).

Key achievements

- **Strengthening research & management capacity:** REMODEL has significantly enhanced BUU's capacity in EU project management, reporting, and research coordination. Throughout the project, the research team gained advanced skills in Horizon Europe procedures, quality assurance mechanisms, open access requirements, and effective dissemination strategies through the preparation of deliverables in collaboration with international partners.
- **Implementation-oriented output:** The *Sustainable Business Model Innovation Methodology* developed within the scope of the project has been successfully applied to the hospitality sector. Pilot studies conducted on hotels and restaurants operating in the public and private sectors have bridged the gap between theoretical knowledge and application in the field of business innovation.
- **Scientific outputs:** The training activities carried out within the scope of the project have increased the research capacity of all BUU academic staff and researchers, in addition to the project personnel. The information obtained within the scope of the project has been disseminated through conferences and academic publications.
- **Policy impact & capacity transfer:** The project outputs have directly contributed to the capacity of local governments in Türkiye to develop policies on sustainable development and innovative business models. The Policy Recommendations Brief prepared within the scope of the project and shared with policymakers has provided them with a roadmap that they can use in this area.
- **Education & sustainable learning impact:** The project has strengthened knowledge sharing between universities and industry representatives, while enabling young researchers to gain skills in business model innovation. The training sessions organised within this scope have created sustainable capacity development in the long term.

Net impact: REMODEL has strengthened BUU's research management and EU project implementation capacity, thereby achieving a permanent gain in institutional competence. The sustainable business model innovation approach developed within the scope of the project has offered innovative solutions that integrate environmental and economic sustainability in the hospitality sector. REMODEL has contributed to increasing the capacity for sustainable business model development in Widening countries by disseminating this transformation model, created at the local level, through networks and partnerships across Europe.

6.6. REMOTE XUAR Project

- **Focus:** Development of innovative methodologies and ethical standards for remote ethnography of the Xinjiang Uyghur Autonomous Region (XUAR), combining digital, archival, and satellite data with cross-border collaboration among diaspora researchers; building institutional capacity for conducting responsible research in restricted-access and politically sensitive environments.
- **Coordinator:** Palacky University Olomouc (UP, Czechia).
- **Excellence partners:** Université Libre de Bruxelles (ULB, Belgium) and Julius-Maximilians-Universität Würzburg (WU, Germany).

Key achievements

- **Data management improvements:** REMOTE XUAR implemented a formal Data Management Plan and a set of security and governance measures (including TLP classification, pseudonymisation workflows, joint processing agreements, NDAs, and a Data Protection Impact Assessment) to enable sharing of sensitive collections under controlled access. The project delivered multiple data-security trainings and established routines for secure collaboration (NextCloud pilot storage, Cryptomator demos), strengthening UP's institutional capacity for handling high-risk research material.
- **Scientific/skills outcomes:** The consortium ran intensive methodology trainings (several multi-day workshops and a summer school) and weekly methodological fora that trained participants in remote-ethnographic techniques (social media research, remote interviewing, remote sensing) and set up a mentor–mentee programme for early-career researchers. These activities advanced competence in mixed remote methods and ethical reflection on researching inaccessible and politically sensitive contexts.
- **Database & technical outputs:** A pilot design for an XUAR research database was produced, and the pilot implementation is underway. The data-preparation pipeline (pseudonymising, collection building, documentation, access-level tagging) has been specified and already partially populated. After the project, the database will continue to be further filled with data, which, depending on its nature, will be shared with (not only academic) experts in the field.

- **Methodological guideline:** Drawing directly on project experience, the consortium produced the *Methodological Guideline on Remote Ethnography*, a comprehensive handbook that consolidates lessons learned from fieldwork with Uyghur diaspora communities and remote research practices. The handbook provides actionable recommendations for conducting ethnographic studies in restricted or high-risk contexts, offering a model transferable to other disciplines and geopolitical settings.
- **Visibility & stakeholder engagement:** REMOTE XUAR has an active public presence (project website, X/Twitter, blog) and has produced opinion pieces plus a large number of short online outputs and media cooperation, increasing visibility in academic and public fora. Team members have convened panels at international conferences and maintained ongoing engagement with Uyghur diaspora organisations, NGOs, broadcasters, and cultural groups across Europe and Central Asia.
- **Capacity building & networking:** Short-term staff exchanges, regular colloquia, and a sustained Signal group for methodological exchange have created an enduring network of scholars and practitioners in XUAR studies – boosting UP's national and international profile and enabling follow-on grant preparation (e.g., ERC and national calls drawing on RX methods).

Net impact: REMOTE XUAR shows that Twinning can effectively build methodological excellence and responsible research governance in a highly sensitive humanities/social-science domain. The project strengthened UP's ability to collect, curate, and share complex, high-risk datasets; trained a new cohort of researchers in remote ethnography; and fostered durable academic and non-academic networks (diaspora organisations, media, NGOs). These outcomes improve the coordinator's readiness to participate in larger Pillar II projects and generate policy-relevant outputs while maintaining high standards of ethics and data security.

6.7. SMART4ENV Project

- **Focus:** Smart environmental solutions for climate change challenges.
- **Coordinator:** The Scientific and Technological Research Council of Türkiye (TUBITAK, Türkiye).
- **Excellence partners:** Università Politecnica delle Marche (UNIVPM, Italy), Fundación Universitaria Balmes (UVIC-UCC, Spain), Sustainable Innovation Technology Services (SITES, Ireland), and Norwegian University of Life Sciences (NMBU, Norway).

Key achievements

- **Project management skills:** Preparation of project manual including the Quality Assurance Plan and Data Management Plan; establishing the project decision structure and project management meetings; IPR Management Plan and open science practices; establishing a living Internal Communication Platform for information sharing in international projects of TUBITAK Marmara Research Centre (TUBITAK-MAM); PMP certification programmes; Microsoft's business analytics integrated platform (Power BI) to connect, visualise, and share all project data of TUBITAK-MAM.
- **Scientific capacity:** Research on six lab/pilot and field-scale case studies related to four research avenues with partners related to smart environmental solutions; the *Multidisciplinary Research Agenda* for future research; preparation and realisation of summer schools, workshops, open/info days, science cafes, mobility, and on-site training programs; analysis of research management capabilities and preparation of an action plan for strengthening capacity-building activities; open access scientific publications and presentations in national/international conferences; collaboration with Gebze Technical University on five interdisciplinary student assignments.
- **International networking & reputation:** New memberships of RTD platforms relevant to climate change and environmental research, initiated since the start of the project; online information exchange meetings with related projects; collaboration agreements with international key research stakeholders.
- **Stakeholder engagement:** Online survey to understand and define actors and practices of smart environmental solutions; focus groups for prioritisation of gaps, challenges, and recommendations for smart environmental solutions; MOOC online courses; technical visits; newsletters; public deliverables.
- **Knowledge transfer to stakeholders:** Summer school and innovation workshops, national outreach workshop, seminars.
- **Administrative staff skills:** Trained administrative staff through participation of training and workshops, MOOC courses and on-site trainings for administrative staff, workshops given by partners for sharing of best practices of research management.
- **Sustainability:** Increased participation in national/international competitive projects, international joint project proposals submitted with project partners, new collaborative agreements signed with regional private sector actors, meetings held with policymakers to present the project and discuss further cooperation opportunities and potential funds.
- **Dissemination & communication:** Development of Dissemination, Exploitation and Communication Strategy (DCS), preparation of promotional kits, management of social media accounts.

Net impact: SMART4ENV creates project management and administrative skills step up especially for international projects, as well as new knowledge and research on smart environmental solutions, and enables knowledge exchange that will stimulate innovation in digital technologies to address environmental problems related to climate change.

6.8. TwinVECTOR Project

- **Focus:** Development of world-class next-generation batteries – enhancing the scientific, analytical and administrative capacity to support sustainable battery research in Central Europe.
- **Coordinator:** Tomas Bata University in Zlín (TBU, Czechia).
- **Excellence partners:** Austrian Institute of Technology (AIT, Austria), Karlsruhe Institute of Technology (KIT, Germany), Technical Research Centre of Finland (VTT, Finland), and Bavarian Research Alliance (BayFOR, Germany).

Key achievements

- **Research & development:** TwinVECTOR achieved a tangible scientific outcome – the development of a modified solid polymer electrolyte reinforced with bacterial cellulose. This renewable material improves safety, stability, and environmental performance while maintaining operational reliability. The innovation demonstrates the project's contribution to the EU's Green Deal and sustainable materials development.
- **Developing scientific & analytical capacity:** The project improved TBU's research capacity through workshops, staff and researcher exchanges, and an R&D Roadshow, improving expertise in battery assembly, electrochemical testing, and experimental design. It also strengthened TBU's analytical capacity by integrating Life Cycle Assessment (LCA) and Techno-Economic Analysis (TEA) into research workflows – enabling evaluation of environmental, economic, and social performance across the battery life cycle.
- **Strengthening administrative & project management skills:** TwinVECTOR significantly improved TBU's administrative and project management capabilities. Staff participated in training, mentoring, and in partner-led workshops to enhance competences in EU proposal writing, coordination, financial administration, and research management. These activities ensured TBU's long-term ability to coordinate international research projects.
- **Networking & European collaboration:** The project created a durable cooperation network with major European R&D organisations in the battery sector. Regular partner visits, staff exchanges, and joint events built a sustainable collaboration network that supports the integration of Central Europe into the ERA. Notable activities included the Enterprise Europe Network Battery & Hydrogen Brokerage Event, a Bavarian Roadshow visiting key research centres (TZE Landshut, TUM, TH Ingolstadt), online event with BayBatt, and regular collaborative meetings such as KIT's Jour Fixe sessions and the interactive Sustainability Theatre, AIT's practical workshops and VTT´s hands-on lab mentoring.
- **Education & stakeholder engagement:** TwinVECTOR supported knowledge transfer beyond academia through public seminars, workshops, and a summer school on techno-economics and business modelling of energy storage technologies. These events engaged students, researchers, and industry stakeholders, promoting awareness of sustainable battery technologies and their role in Europe's clean energy transition.

- **Policy impact:** TwinVECTOR has generated policy-relevant impacts by actively linking battery research with societal priorities and policy frameworks at the European level. Through its leadership in the BEPA Task Force on Social Sciences and Humanities (SSH), the project has contributed to shaping discussions on how societal dimensions – such as social acceptance, skills, and just value chains – can be systematically embedded in Europe's battery innovation agenda. TwinVECTOR's activities have also fed into the Strategic Energy Technology (SET) plan by emphasising R&I that respond to society.

Net impact: TwinVECTOR transformed TBU into an emerging excellence research centre in sustainable battery R&I. The project built human, institutional, and scientific capacity through targeted training, analytical integration, and international collaboration. By linking Central Europe with leading European R&D institutions, TwinVECTOR strengthened the inclusiveness of the ERA, advanced the goals of the EU Green Deal, and created lasting conditions for innovation, collaboration, and participation in future Horizon Europe projects.

Reference links of the analysed Twinning projects

Project	Web page	CORDIS link
GEMSTONE Project	gemstoneproject.eu	doi.org/10.3030/101078981
BAANG Project	baang.eu	doi.org/10.3030/101079091
EarthBridge Project	earthbridge.eu	doi.org/10.3030/101079310
HybridNeuro Project	hybridneuro.feri.um.si	doi.org/10.3030/101079392
REMODEL Project	projectremodel.eu	doi.org/10.3030/101079203
REMOTE XUAR Project	remote-xuar.com	doi.org/10.3030/101079460
SMART4ENV Project	smart4env.com	doi.org/10.3030/101079251
TwinVECTOR Project	twinvector.eu	doi.org/10.3030/101078935

7. Policy Options & Actionable Recommendations

The strength of the European Research Area lies in its **unity of purpose and diversity of talent**. Twinning turns that principle into practice: it builds bridges where borders once limited collaboration. And behind every Twinning project is a **story of transformation** – an early-career researcher gaining access to world-class mentorship, a regional university developing the capacity to lead European consortia, a community discovering its own innovation potential.

Europe's competitiveness begins where opportunity meets talent. For a decade, **Twinning has turned potential into performance** – giving hundreds of institutions the skills, confidence, and partnerships they need to compete at the European level. Yet this success story risks interruption just as the global race for knowledge accelerates.

Comparative policy options for the future of Twinning

Option	Description	Pros	Cons/Risks
1. Status quo	Twinning calls with multi-year gaps	Investing in other WIDERA tools/schemes.	Risk of backsliding; loss of human capital; weakens Widening participation in Pillar II.
2. Merge into Excellence Hubs/EEI	Integrate Twinning into broader Excellence Hubs/EEI initiatives	May benefit from larger ecosystem; administrative consolidation.	Dilutes targeted mentoring; lacks depth at department/ unit level; ecosystem actions may be too broad – only feasible with 100% financing.
3. Reinstate Twinning ***(recommended)***	Annual Twinning calls with KPI-driven monitoring	Preserves pipeline from skills transfer to excellence; builds competitive capacity; proven model.	Requires stable funding & administrative oversight; demands skilled staff for management.
4. Twinning+ ***(enhanced)***	Twinning (as Option 3) + capped budgets for excellence partners; ring-fenced funds for research management & outbound mobility	Strengthens incentives for excellence partners; boosts research management professionalisation; supports mobility; enhances long-term sustainability.	More complex funding structure; requires careful budgeting and monitoring.

We, therefore, **recommend reinstating annual Twinning calls (from 2027–2028 and beyond) with a stable budget and predictable calendar**, maintaining a bottom-up topic plus one policy-priority topic when appropriate. Reinstating annual Twinning calls is not a procedural adjustment; it is a strategic choice to keep every corner of Europe connected to excellence, resilience, and shared prosperity.

Budget & eligibility

- **Target €1.2–2.0M per project** (up from historical lower range) to reflect inflation and ensure sufficient mobility/training volume; **maintain research-cost cap (e.g., ⩽30%)**.
- **Allow limited funding (e.g., ⩽15%) to excellence partners** for staff time in mentoring, QA of SOPs, and co-teaching – helps sustainability and accountability.
- **Earmark ⩾20% for research management capacity** (grant admin, open science, DMPs, ethics/RRI, project finance, AI skills in admin, gender equality & inclusiveness) **and ⩾15% for mobility** (incoming/outgoing).
- **Consider a small reserve for digital infrastructure interoperability & regulatory/ IPR protection** (e.g., FAIR data systems, GDPR-compliant repositories, lab QA software, regulatory, IP & valorisation, technical advisory); often critical but underfunded.
- **Clarify that excellence partner funding is capped and auditable** to avoid the perception of 'reverse Widening.'

Design & outputs

- **KPI-driven design** (see 'Suggested core KPIs' below): require baseline, targets, and quarterly dashboards.
- Prioritise **joint outputs** (trainings, SOPs, data standards), proposal-ready consortia, and uptake of gender & open science policies.

Synergies & pipeline

- Hard-link Twinning outcomes to **Hop-On, Pillar II, and EIC calls** (e.g., through matchmaking vouchers, proposal bootcamps with NCPs/excellence partners, early innovation workshops for further development) and to **EEI/Excellence Hubs** where relevant.
- Encourage **regional fund synergies** (ERDF/ESF+) for sustaining staff posts, lab QA, and digital/QA infrastructure post-grant.
- Promote pathways **from collaborative research to innovation**, maturing Twinning's early-stage, high-risk research results into proof-of-concept prototypes and technology feasibility studies through cooperation with innovation-driven partners.

Inclusiveness & mobility

- Fast-track solutions for **visa and HR bottlenecks**.
- Promote **virtual-first modules** that convert into in-person exchanges.
- Include **family-friendly mobility and remote-friendly co-mentoring**.

Sustainability

- Support and prioritise **activities that are designed for continuity** beyond the project lifetime (such as lab quality-assurance certification, strategy development, and institutional process improvements).
- Encourage host institutions to demonstrate a **light, realistic commitment** to maintaining key outcomes (e.g., established RMA roles, open access practices, and data management standards) to ensure that the excellence built through Twinning continues to grow after project completion.

Implementation & monitoring

- **Topic structure: (A) Twinning – Bottom-up** (all domains); **(B) Twinning – Policy Priority** (e.g., Green Deal, digital health, AI).
- **Consortium:** 1 Widening coordinator + ⩾2 excellence partners from different MS/AC; optional non-academic partners (industry, hospitals, NGOs) for valorisation/skills, and exploiting the potential of innovations, protecting intellectual property (IP).
- **Monitoring: Baseline** (M0), **Mid-term** (M18), **Final** (M36) with 12-month post-project follow-up.

Suggested core KPIs

- **Excellence & outputs:** Peer-reviewed publications (including open access), uptake of training assets (downloads of MOOCs/tutorials, dataset citations, technical deliverables), SOPs, training hours, joint doctoral co-supervisions, invitations to coordinate/lead international networks or panels.
- **Participation readiness:** Co-authored grant proposals submitted/won, share of proposals clearing thresholds, evaluation comments improved, number of credible coordinator roles attempted, external funding leveraged post-Twinning (from national, ERDF/ESF+, or private sources).
- **Research management maturity:** Time-to-grant metrics, DMP/GEP compliance, audit findings, repository use, IP cases handled, exploitation plans.
- **People & mobility:** Staff exchanges (in/out), early-career researchers' career outcomes, new training assets, gender balance in leadership, return/retention rates, % of Twinning-trained staff retained beyond the project, number of institutional policies/processes embedded (e.g., permanent RMA roles, open science policies, QA certifications).
- **Ecosystem effects:** Stakeholder outreach (national/regional/international), dissemination events, website traffic, social media growth, media mentions, new or cross-sectoral partnerships, industry MOUs, patient/public engagement where relevant.

8. Key Messages to Policymakers

Twinning remains **indispensable for Widening countries**. The results of projects such as GEMSTONE, BAANG, EarthBridge, HybridNeuro, REMODEL, REMOTE XUAR, SMART4ENV, and TwinVECTOR provide **compelling evidence** that Twinning not only improves scientific excellence but also reduces disparities, enhances Europe-wide collaboration, and contributes to economic growth. Reinstating Twinning is therefore critical to achieving the objectives of Horizon Europe and ensuring no country is left behind in Europe's R&I landscape.

- **Reinstate annual Twinning calls without interruption.** Guarantee a stable, predictable Twinning line in FP10 and its respective WIDERA Work Programmes. Annual continuity is essential to preserve the momentum, staff expertise, and networks built under Horizon 2020 and Horizon Europe.
- **Anchor Twinning as a permanent excellence instrument in FP10.** Recognise Twinning as a proven, cost-effective mechanism for raising institutional competitiveness, strengthening research security, and enhancing Europe's strategic autonomy. Include it as a distinct, recurring action under FP10's excellence and Widening objectives.
- **Adopt a KPI- and outcome-driven design.** Couple Twinning funding with measurable institutional development indicators (e.g., staff mobility, proposal success rate, open science compliance, ethics readiness) and transparent progress dashboards to demonstrate return on investment.
- **Link Twinning outcomes to regional and European innovation ecosystems.** Facilitate synergies with Cohesion Funds (ERDF/ESF+), Excellence Hubs, and Pillar II consortia to sustain results beyond the grant period. Encourage Member States and regions to co-fund post-Twinning activities that translate new capacity into innovation and jobs.
- **Invest in people as Europe's strategic resource.** Prioritise staff exchanges, co-mentoring, and institutional training within Twinning budgets to keep research talent circulating across Europe. This human-centred investment strengthens the European Research Area and safeguards Europe's competitiveness.

Twinning is Europe's bridge between talent and opportunity – a low-cost, high-impact instrument that ensures no region is left behind in building the continent's scientific and innovation future.

Twinning is not merely a support measure – it is Europe's strategic investment in inclusive excellence. Its continuity in FP10 is essential to ensure that every talented institution can contribute to Europe's competitiveness, resilience, and shared future.

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Notes

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