

Cross-Country Report

2025-1-TR01-KA220-VET-000357828

"EngineerTrack: Gamified Internship Tracking and Skill Enhancement App for Future Engineers"





Co-funded by
the European Union



Deliverable A1

Explicit Country by Country Comparative Report

Work Package 2 Erasmus+ KA220-VET

Table of Contents

Executive Summary

Methodology Snapshot

Methodological Limitations

Introduction

Administrative Structure of Internship Monitoring Across Countries

2.1 Overview

2.2 Greece

2.3 Germany

2.4 Italy

2.5 Serbia

2.6 Turkey

2.7 Romania

2.8 Cross-Country Structural Synthesis

Real-Time Monitoring and Feedback Mechanisms Across Countries

3.1 General Overview

3.2 Greece

3.3 Germany

3.4 Italy

3.5 Serbia

3.6 Turkey

3.7 Romania

3.8 Cross-Country Synthesis

Digital Integration and Technological Infrastructure Across Countries

4.1 General Context

4.2 Greece

4.3 Germany

4.4 Italy

4.5 Serbia

4.6 Turkey

4.7 Romania

4.8 Cross-Country Synthesis

Competency Assessment and Transversal Skills Monitoring

5.1 General Context

5.2 Perceived Importance of Transversal Skills

5.3 Current Level of Soft Skill Standardisation

5.4 Structural Implications

5.5 Stakeholder Readiness for Competency-Based Reform

5.6 Cross-Country Synthesis

Alignment with Study Programmes and Learning Outcomes

6.1 General Overview

6.2 Greece

6.3 Germany

6.4 Italy

6.5 Serbia

6.6 Turkey

6.7 Romania

6.8 Cross-Country Synthesis

6.9 Implications for EngineerTrack

Gamification, Motivation and Engagement in Professional Contexts

7.1 General Overview

7.2 Greece

7.3 Germany

7.4 Italy

7.5 Serbia

7.6 Turkey

7.7 Romania

7.8 Comparative Overview of Acceptance Levels

7.9 Cross-Country Interpretation

7.10 Strategic Implications for EngineerTrack

Cross-Country Structural Benchmark and European Added Value

8.1 Comparative Structural Benchmark

8.2 Administrative Intensity vs Digital Integration

8.3 European Added Value

8.4 Strategic Implications for Erasmus+

Risk Analysis, Feasibility and Long-Term Sustainability

9.1 Strategic Risk Analysis Framework

9.2 Mitigation Strategy

9.3 Feasibility Assessment

9.4 Long-Term Sustainability Model

9.5 Long-Term Impact Projection

9.6 Final Strategic Conclusion

Final Integrated Conclusion and Strategic European Impact Statement

10.1 Consolidated Findings

10.2 Structural Gap Identified

10.3 European Dimension of the Identified Need

10.4 Innovation Value

10.5 Feasibility and Readiness

10.6 Long-Term Strategic Impact

10.7 Final Statement



ENGINEERTRACK

Cross-Country Report

EngineerTrack – Cross-Country Comparative Report (Executive Summary)

This Cross-Country Comparative Report consolidates findings from national research conducted in Greece, Germany, Italy, Serbia, Turkey, and Romania under Work Package 2 of the EngineerTrack project. The comparative analysis draws on survey data, focus group consultations, and internship observations to examine how internship monitoring is organised and implemented across partner contexts.

Across all partner countries, internship systems demonstrate robust administrative governance. Core processes related to activation and closure—such as approvals, contractual documentation, validation forms, and final reporting—are generally well-defined and consistently applied. However, structured monitoring of learning progression during internship implementation remains limited. In most settings, oversight mechanisms concentrate on compliance and end-stage validation rather than continuous formative supervision.

A second cross-country pattern concerns the assessment of transversal competencies. Stakeholders consistently recognise communication, teamwork, adaptability, and problem-solving as essential employability factors; nevertheless, these competencies are typically assessed informally and with limited standardisation. As a result, competency evidence is uneven, comparability across institutions is weak, and opportunities for early corrective action during internships are constrained.

Digital tools are widely used in both education and industry, primarily for administrative processes and internal management. The principal limitation is not technology availability but the absence of interoperability and shared monitoring architecture between academic and workplace environments. This fragmentation reduces transparency regarding weekly progress and limits coordinated supervision among students, academic supervisors, and workplace mentors.

Overall, the evidence indicates a structural imbalance: high administrative control coexists with low visibility into day-to-day competency development. Stakeholders across all partner countries expressed clear interest in a digital approach that improves monitoring clarity and consistency without increasing administrative burden. EngineerTrack addresses this need by proposing an integrated monitoring framework centred on competency progression. Key functional directions emerging from the research include linking internship tasks to learning outcomes, enabling weekly micro-validation of progress, supporting structured documentation of transversal skills, and facilitating coordinated communication between students, academic supervisors, and workplace mentors. The cross-country findings support favourable feasibility conditions, high stakeholder readiness, and strong potential for sustainable impact aligned with Erasmus+ priorities in digital transformation and VET modernisation.

Methodology Snapshot

To ensure our findings are comparable across countries, we used a unified research approach agreed upon by all partners. Data was gathered between [insert months/year] using both numbers-based and story-based methods. In each country, we ran an online survey for students, academic supervisors, and industry mentors; held two focus groups (one with academics, one with industry); observed at least one internship; and produced a national report using a shared template.

The surveys mixed multiple-choice and open questions to spot trends and gather deeper insights. Focus groups delved into real experiences with monitoring, skill checks, and digital tools. We analyzed data first at the national level, then compared it using five key themes: admin structures, real-time oversight, digital setup, skill assessments, and links to study programs.

The methodological design ensured cross-country comparability while preserving contextual specificity, enabling identification of shared structural patterns and divergences..

Methodological Limitations

Our design promoted comparability, but we should note some constraints. National samples were based on project partners and may not capture every variation in practices nationwide—this gives a focused view rather than a full national picture. Focus group data reflects personal stories and views, which are great for patterns but not hard metrics. Digital levels differ within countries, so we focused on overall trends.

Still, the agreement across six countries bolsters our conclusions' reliability.

1. Introduction

This report pulls together results from mixed-method research in Greece, Germany, Italy, Serbia, Romania, and Turkey under Work Package 2 of EngineerTrack. Each country used surveys, focus groups with academics and industry, and internship observations to gather data.

Our goals were to pinpoint shared monitoring challenges, spot patterns in digital use and skill tracking, gauge views on gamification and tools, and identify needs for the EngineerTrack App. Despite different rules, the core issues in monitoring are surprisingly alike.

2. Administrative Structure of Internship Monitoring Across Countries

2.1 Overview

Looking across the countries, internship monitoring emphasizes admin checks over teaching guidance. The process is tightly controlled at the start with approvals and contracts, and at the end with reports and sign-offs. But the middle part—where real growth happens—is often loosely structured. This setup demands a lot of paperwork but doesn't maximize learning benefits.

2.2 Greece

Greek internships involve heavy upfront bureaucracy, like approvals, insurance checks, and agreements, plus final reports. Academics often spend more time on admin than on guiding progress, with ongoing checks being casual and student-led. As one focus group participant put it, problems often surface only in the end report, making fixes impossible.

2.3 Germany

Germany has the most detailed rules, covering contracts, hours, duties, and privacy. Yet this doesn't extend to detailed skill tracking. Digital monitoring faces hurdles from data laws and worker councils, making it hard to share student progress transparently.

2.4 Italy

Italy's processes vary by school and company, with formal reports key at the end. Ongoing oversight relies on company styles, leading to patchy connections between schools and workplaces.

2.5 Serbia

In Serbia, internships are regulated primarily through the Law on Higher Education and relevant institutional rulebooks. Formal approval procedures and final validation mechanisms are generally well established, ensuring that internships are officially recognised and documented in accordance with national regulations. However, monitoring during the internship period remains largely dependent on individual supervisors and institutional practices. Continuous competency tracking is limited, with most institutions relying predominantly on final internship reports and end-stage validation documents. Structured mid-term verification mechanisms are not systematically embedded.

Stakeholder feedback nevertheless indicates a growing institutional interest in streamlined digital solutions capable of improving transparency and comparability, provided that such tools do not increase administrative workload or duplicate existing documentation requirements.

2.6 Turkey

Turkey requires signed forms and end evaluations. Monitoring is summary-focused, with digital use limited to registration in some places—no joint platforms for schools and companies.

2.7 Romania

Similar to Turkey, Romania stresses formal docs and end checks. Digital platforms help with registration, but ongoing skill tracking is inconsistent and company-dependent. There's keen interest in digital upgrades.

2.8 Cross-Country Structural Synthesis

Across all six countries, several common structural characteristics emerge:
 High administrative intensity concentrated at activation and closure stages
 Limited structured supervision during internship execution
 Weak standardisation of transversal skill assessment
 Fragmented digital integration between academia and industry
 Predominantly summative rather than formative monitoring

This pattern indicates that internship monitoring systems were originally designed to ensure legal compliance and formal recognition rather than to optimise learning progression.

The structural gap between documentation and competency development provides a strong empirical foundation for the EngineerTrack intervention.

The evidence demonstrates that the need for reform is not isolated to a specific national system but represents a shared European structural challenge.

Table 1. Cross-Country Structural Benchmark Overview

Country	Administrative Control	Continuous Monitoring	Digital Integration Level	Transversal Skill Standardisation	Monitoring Orientation
Greece	High	Weak	Partial	Low	Summative
Germany	High	Moderate	Advanced (Non-Integrated)	Partial	Summative
Italy	Medium–High	Inconsistent	Fragmented	Low–Moderate	Hybrid (Documentation-Driven)
Serbia	Medium	Weak	Limited	Low	Summative
Turkey	High	Weak	Limited	Partial	Summative
Romania	High	Weak	Partial	Low	Summative
Romania	High	Weak	Partial	Low	Summative

The benchmark overview consolidates cross-country structural patterns identified throughout the analysis. While administrative control mechanisms are consistently strong, continuous competency monitoring and integrated digital supervision remain underdeveloped. The structural asymmetry confirms the need for a coordinated competency-based monitoring framework at European level.

3. Real-Time Monitoring and Feedback Mechanisms Across Countries

3.1 General Overview

One of the most consistent findings across all partner countries is the limited presence of structured real-time monitoring during internships. In most cases, monitoring occurs at the start through approval procedures and at the end through final reports and validation forms. The in-between period—where actual learning, adaptation, and professional development take place—relies largely on informal supervision, personal initiative, and ad-hoc communication. This creates a structural gap: while internships are formally recognized, the learning journey is rarely documented in a continuous, systematic way. Stakeholders in every country acknowledged that issues are often spotted too late for corrective action, and they expressed strong interest in solutions that enable early progress tracking.

3.2 Greece

In Greece, academics rely primarily on students' final reports and company confirmations for performance insights. Occasional check-ins depend on student initiative or specific concerns, resulting in a reactive system. If a student is assigned repetitive or low-impact tasks, this often only becomes apparent at the end, limiting preventive interventions.

3.3 Germany

Germany offers a somewhat more structured approach, with recommendations for weekly meetings or check-ins in some institutions. However, these interactions do not always translate into documented competency progression. Industry representatives noted that student performance is often assessed through autonomy and task quality, but without shared digital records, academic supervisors have limited visibility. Additionally, legal and data protection considerations sometimes discourage continuous digital tracking systems, especially if they resemble behavioral monitoring.

3.4 Italy

In Italy, real-time monitoring practices vary widely between institutions and companies. Some supervisors maintain regular contact with interns, while others rely almost entirely on final reporting mechanisms.

The absence of a shared monitoring platform means that communication between universities and companies is not always systematic. When issues arise, they are addressed individually rather than within a structured framework.

As a result, the quality of internship supervision depends strongly on local initiative rather than institutional design.

3.5 Serbia

Serbia demonstrates similar characteristics. Supervision during internships exists in practice, but it is rarely formalised through structured documentation tools.

Academic institutions typically rely on final validation reports. Continuous monitoring mechanisms are limited, and there is no integrated platform ensuring that academic supervisors have visibility over weekly progress.

This lack of transparency can reduce the comparability of internship outcomes between students and institutions.

3.6 Turkey

In Turkey, the monitoring model is predominantly summative. The internship report remains the central evaluation instrument.

Although supervisors may guide interns during daily activities, there is limited documentation of incremental skill development. Continuous feedback loops between university and company are not structurally embedded.

This reinforces a model where internship success is measured at the end, rather than progressively assessed.

3.7 Romania

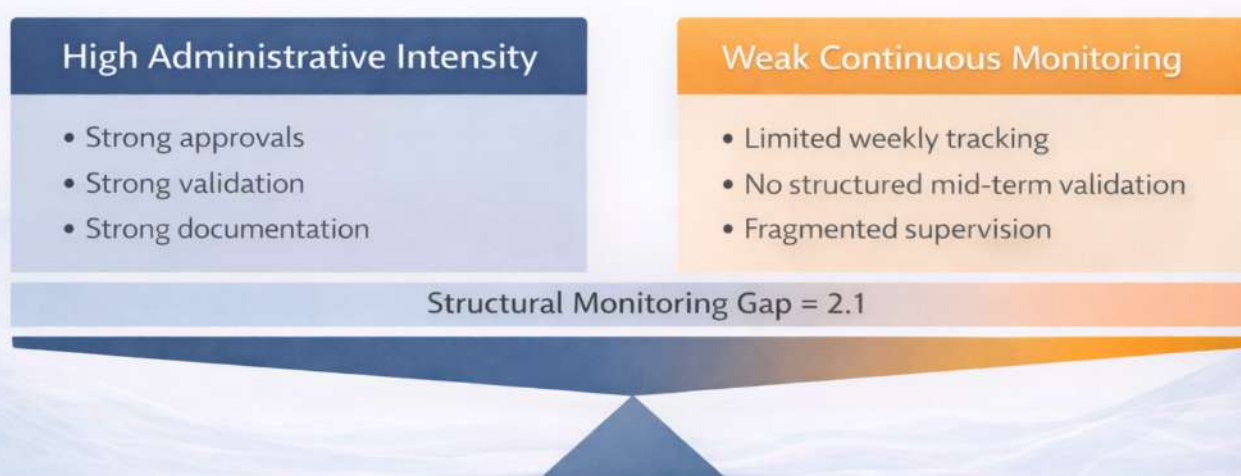
Romania presents a comparable structure, emphasizing formal documentation and validation at completion. Informal supervision occurs within companies, but academic oversight during the internship remains limited. Communication among stakeholders relies on emails or phone calls rather than structured digital systems, which hinders early detection of misalignments between tasks and expected learning outcomes.

3.8 Cross-Country Synthesis

Comparing all six countries reveals common patterns: continuous monitoring is weak or inconsistent, weekly progress documentation is rarely standardized, and feedback loops between academia and industry are not systemically integrated. Intervention mechanisms during internships are limited, and monitoring remains largely summative. Stakeholders did not defend this absence as adequate; instead, they described it as a key limitation.

This shared recognition bolsters the case for a structured digital solution that documents weekly progress, identifies issues early, enhances transparency among students, supervisors, and academic advisors—all without increasing administrative burden. Improving real-time monitoring is not just a technological upgrade but a structural necessity for enhancing internship quality and learning outcomes across partner countries.

Structural Imbalance in Internship Monitoring Systems



The visual representation confirms structural imbalance identified across partner countries: **administrative compliance** is strong, while continuous competency monitoring remains underdeveloped.

4. Digital Integration and Technological Infrastructure Across Countries

4.1 General Context

Digitalisation has significantly influenced collaboration models between higher education institutions and industry partners across Europe. In all six partner countries, universities and companies operate digital platforms for administrative management, student registration, internal coordination, and project documentation. However, digital integration within internship monitoring remains structurally limited. Existing systems are primarily designed for administrative control rather than continuous competency supervision. Academic platforms and company-based digital systems function independently, without shared monitoring architecture or interoperability mechanisms that enable coordinated oversight. The core limitation therefore does not lie in technological capacity but in system design.

Digital tools are present and functional; nevertheless, they are not structurally connected in a way that supports real-time monitoring of student progression during internships. As a result, transparency, comparability, and early intervention capacity remain constrained.

This structural fragmentation reinforces the broader pattern identified throughout the comparative analysis: administrative processes are partially digitalised, while continuous formative monitoring is rarely embedded within an integrated digital ecosystem.

4.2 Greece

In Greece, digital setups handle the basics well, like signing up for internships or submitting forms online, and a lot of back-and-forth happens through emails or school portals. That said, there's nothing dedicated that lets academics and companies team up to watch progress as it unfolds. So while it streamlines the paperwork side, it doesn't do much to support the actual teaching and learning during the internship—it's more about ticking boxes than building skills.

4.3 Germany

Germany's got some of the most sophisticated digital infrastructure around, with things like time-tracking apps, specialized internship software, and HR systems that big companies swear by. However, these tools don't automatically sync up with what universities are using for supervision. Plus, with tough GDPR rules and input from works councils, there's a lot of caution around anything that might feel like over-monitoring. In the end, the focus stays on meeting legal and operational needs rather than diving deep into how students are developing competencies on the job.

4.4 Italy

Italian universities and companies both lean on digital platforms, but they're often operating in silos. You might upload internship docs to a school portal on one side, while the company tracks intern tasks through their own internal system on the other. There's no single spot where everything comes together—like student updates, mentor notes, and academic reviews all in one place. This fragmentation keeps things from flowing smoothly and makes oversight feel disjointed.

4.5 Serbia

Serbia tends to keep it straightforward with digital communication—think emails, shared Google Docs, or simple file exchanges for passing along info. It's handy for day-to-day stuff, but there's no broader system tying it all together for internship monitoring. A lot of processes still mix in manual steps or hybrid approaches, so while it's practical, it lacks the organization to make everything consistent and efficient across the board.

4.6 Turkey

In Turkey, digital tools pop up in specific spots, like registering for internships or filing reports at certain schools. But the heart of monitoring still revolves around traditional documents, often needing physical sign-offs or heavy paperwork. Universities and companies aren't linked through any unified platform, so the digital side helps with bits and pieces but doesn't transform how oversight happens—it's still very much anchored in old-school methods.

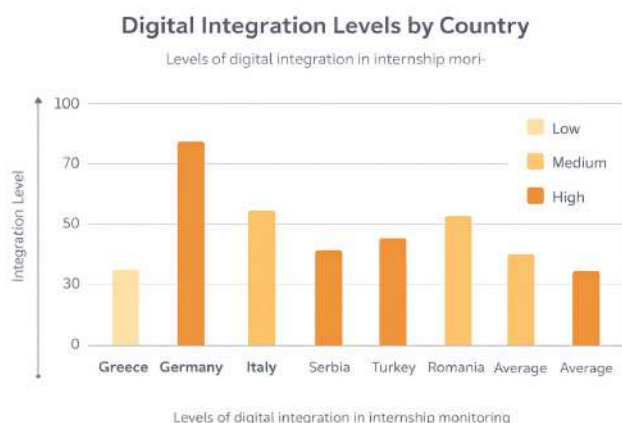
4.7 Romania

Romania has made strides with partial digitalization, especially in university admin tasks like online platforms for learning and enrollment. Communication flows digitally too, but when it comes to internships, the emphasis is still on wrapping things up at the end with reports and validations. There's no integrated system that connects student logs from the company side with academic evaluations, so the digital elements stay mostly administrative rather than helping track real development over time.

4.8 Cross-Country Synthesis

The comparative analysis reveals a clear and consistent pattern:

- Digital tools exist in all partner countries
- Administrative processes are partially digitalised
- Communication is largely digital
- Continuous internship monitoring is rarely digitalised
- No country operates a fully integrated internship monitoring ecosystem



This distinction is critical.

The challenge is not technological capacity. It is structural design.

Stakeholders across countries did not express resistance to digital solutions. On the contrary, many highlighted the potential value of a shared platform — provided that it simplifies processes rather than adds additional layers of reporting.

The research therefore confirms that the development of the EngineerTrack App does not require building digital culture from scratch. Instead, it requires connecting existing digital environments into a coherent monitoring framework. The added value lies in integration, standardisation and transparency

5. Competency Assessment and Transversal Skills Monitoring

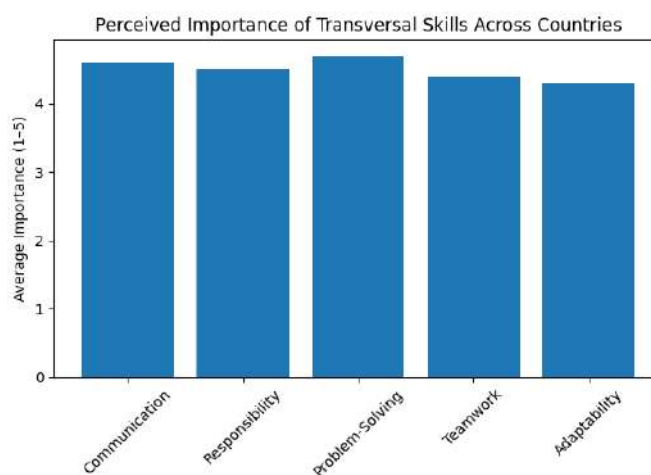
5.1 General Context

Across the board in our six countries, a consistent pattern emerged across all six partner countries: while technical skills get at least some kind of evaluation during internships, the so-called transversal or soft skills—like teamwork, communication, or adaptability—are handled in a much looser way. It often comes down to a supervisor’s personal take, without much structure or consistency. This patchwork approach makes it tough to compare what students are actually gaining from their experiences, whether within the same country or across borders. While transversal skills are recognised, their assessment remains structurally inconsistent, but the assessments feel ad-hoc, varying from one mentor to another, which undermines the overall value of the internship as a building block for real-world employability.

5.2 Perceived Importance of Transversal Skills

Survey and focus group data across all partner countries indicate strong consensus regarding the importance of transversal competencies in internship contexts. Academic and industry stakeholders consistently identified communication, responsibility, problem-solving, teamwork, and adaptability as essential competencies for employability and professional integration.

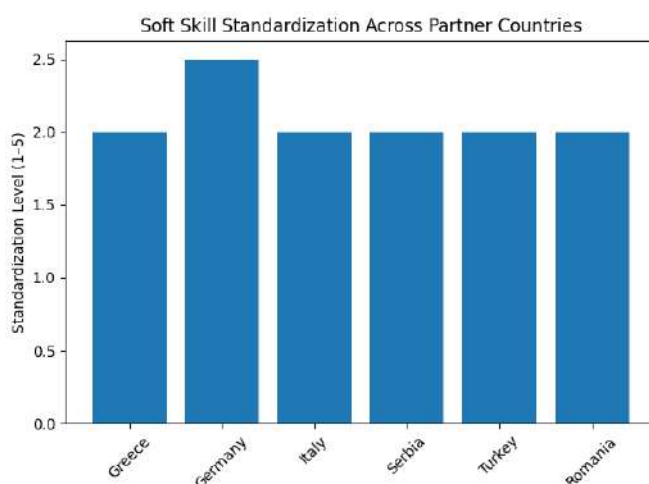
Across all countries, these skills received average importance scores above 4 out of 5, reflecting broad alignment between educational and industry perspectives. The findings confirm that transversal skills are not peripheral attributes but central components of labour market readiness and sustainable career development within European professional environments.



5.3 Current Level of Soft Skill Standardisation

Even though everyone agrees on how important these skills are, the way they’re actually measured and standardized is pretty underwhelming—hovering between 2 and 2.5 on a 5-point scale overall. In places like Greece, Serbia, and Romania, it’s mostly informal feedback from supervisors without any set guidelines.

Germany and Turkey do a bit better with some partial structures in place, but nothing nationwide or uniform. Italy’s setup varies wildly depending on the institution, which adds to the inconsistency. Practically speaking, this means two students doing similar internships could end up with wildly different evaluations, all based on subjective views rather than clear, comparable criteria.

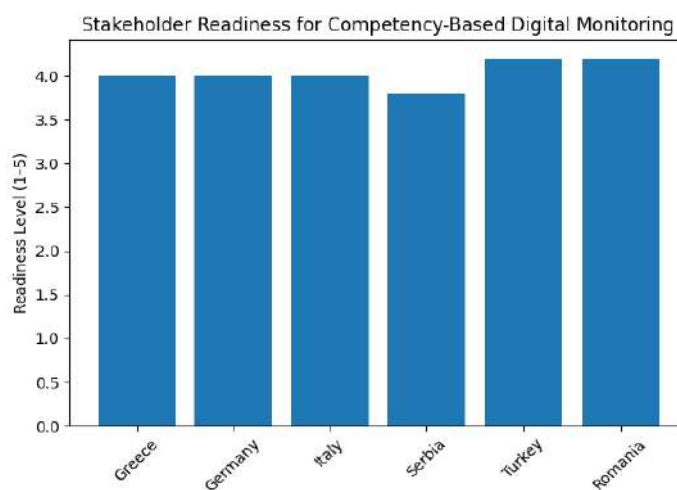


5.4 Structural Implications

This lack of solid standards has some real knock-on effects. For students, it means less clarity on what they're improving and how to showcase it. Institutions struggle to compare outcomes fairly, which weakens links to employability profiles. On a bigger scale, it complicates things like cross-border recognition of skills, especially in a European context where mobility is key. From an Erasmus+ angle, this is a missed opportunity for better transparency in learning outcomes and smoother transitions into the workforce.

5.5 Stakeholder Readiness for Competency-Based Reform

The good news is that people are ready for change. Readiness levels for shifting to a more competency-focused digital approach scored close to or above 4 out of 5 in every country, as long as it streamlines things and fits with local rules. Stakeholders emphasized that any new system should cut down on paperwork duplication, stay professional, and meet legal standards—showing they're open but practical about it.



5.6 Cross-Country Synthesis

Transversal skills are consistently recognised as essential across all partner countries; however, their evaluation remains largely informal and insufficiently standardised, limiting transparency and comparability. At the same time, stakeholder readiness for reform is high, creating favourable conditions for the introduction of structured assessment frameworks, regular monitoring mechanisms, and improved documentation capable of making these competencies more visible and systematically comparable.

6. Alignment with Study Programmes and Learning Outcomes

6.1 General Overview

Ensuring alignment between internship activities and academic learning outcomes within a student's programme is a critical quality dimension in Erasmus+ projects. The findings indicate that while formal alignment is established at the outset through approvals and agreements, continuous verification during the internship often remains limited. Although initial documentation confirms relevance to the field of study, structured monitoring to ensure tasks continue to reflect intended learning outcomes is frequently insufficient. The emphasis therefore remains on completion rather than sustained progression, increasing the risk of misalignment being identified only at a late stage.

6.2 Greece

In Greece, the approval process does a good job of ensuring internships relate to the student's studies upfront. But after that, structured check-ins are rare, so if the company shifts to less relevant tasks—like routine admin instead of skill-building—academics might not catch it until the final report. This creates a disconnect between what was planned and what actually happens on the ground.

6.3 Germany

Germany sets clear learning objectives right from the start, with strong documentation requirements that help outline expectations. However, discussions in our focus groups highlighted a potential gap between academic theory and real-world practice. Students gain valuable experience, but it doesn't always map directly back to curriculum specifics, and without ongoing tracking, those links aren't documented well enough to show clear progress.

6.4 Italy

Italian internship agreements formally lock in alignment with studies at the beginning, getting institutional sign-off. But the day-to-day reality varies a lot based on the host organization—some offer projects that tie in perfectly, while others stick interns with support roles that don't build on academic knowledge. Without consistent monitoring, universities have limited insight into whether the experience stays on track.

6.5 Serbia

Serbia's approvals aim to keep things relevant to the program, but once the internship starts, it's largely up to the company supervisor to maintain that focus. Without built-in checks or shared systems, it's hard to guarantee that learning outcomes are being addressed throughout, leading to potential inconsistencies.

6.6 Turkey

In Turkey, the scope and duration are clearly defined in formal docs, ensuring initial alignment. But evaluations happen mostly at the end through reports, so any drifts from the plan—like tasks not matching goals—aren't caught early. This retrospective style limits the chance to make adjustments mid-way.

6.7 Romania

Romania follows suit with approvals tying internships to academic needs at the outset. However, tracking during the placement is minimal, relying on final confirmations. Transversal skills and core competencies aren't mapped out progressively, leaving room for gaps between theory and practice.

6.8 Cross-Country Synthesis

Overall, formal alignment is solid at the approval stage, but verifying it ongoing is weak, with monitoring skewed toward the end. This affects everything from transparency in student progress to cross-border recognition, making it harder to prove measurable gains or ensure fair comparisons.

6.9 Implications for EngineerTrack

This is where a digital system could make a real difference—linking tasks directly to learning outcomes, allowing weekly validations, and sending alerts if things veer off course. It shifts alignment from a one-time check to an active process, boosting quality, transparency, and ties to employability in line with Erasmus+ goals.

7. Gamification, Motivation and Engagement in Professional Contexts

7.1 General Overview

Gamification emerged as a debated theme across partner consultations.—stakeholders see the value in boosting student motivation and consistent reporting, but they're wary about keeping it professional, especially in engineering fields. The key isn't whether engagement matters (it does), but how to add elements that encourage without turning internships into games. Most drew a line between fun, competitive features and practical tools like progress trackers that visualize achievements in a straightforward way.

7.2 Greece

Greek participants were open to subtle gamification, like markers showing progress or completed milestones, as long as it encourages steady updates without overcomplicating things. But they pushed back hard on anything competitive, like leaderboards, worrying it could add stress or unfair comparisons among students.

7.3 Germany

In Germany, industry reps liked the idea of clear performance indicators tied to real competencies, seeing them as a way to structure feedback. Academics, though, cautioned against elements that might harm team spirit or seem unequal. The bottom line was that any gamification needs to be professional, transparent, and fully compliant with labor and data laws.

7.4 Italy

Italians showed enthusiasm for motivational tools that make expectations clearer and hold students accountable, especially if they lighten the admin load. Companies noted that progress visuals could help interns take more ownership, but again, no support for scoring systems that pit people against each other.

7.5 Serbia

Serbia had a balanced view, warming to simple things like badges for hitting milestones that make progress feel official. The catch was keeping it user-friendly—stakeholders stressed that nothing should add complexity to already busy supervision roles.

7.6 Turkey

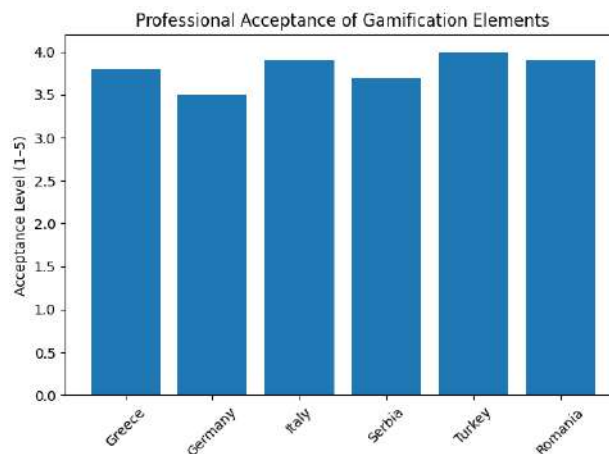
Turkey leaned positive toward gamified elements like points for skill achievements, as long as they're based on genuine performance, not just activity. It needs to tie back to outcomes, reinforcing real growth rather than superficial engagement.

7.7 Romania

Romanians were quite supportive of digital tracking with visual progress cues, provided they align with learning goals and cut down on duplicate reporting. Like elsewhere, the emphasis was on a clean, professional look without any overly playful vibes.

7.8 Comparative Overview of Acceptance Levels

Based on our qualitative wrap-up, acceptance for these elements scores between 3.5 and 4 out of 5 when kept professional—showing solid interest but with clear boundaries.



7.9 Cross-Country Interpretation

Professional acceptance is strongest for structured progress indicators such as milestone tracking, competency-linked badges, and validated feedback mechanisms. In contrast, competitive elements including leaderboards, public rankings, or features perceived as entertainment-oriented or intrusive received limited support. The findings indicate that gamification should be positioned as a structured instrument for professional development rather than as a competitive or recreational feature.

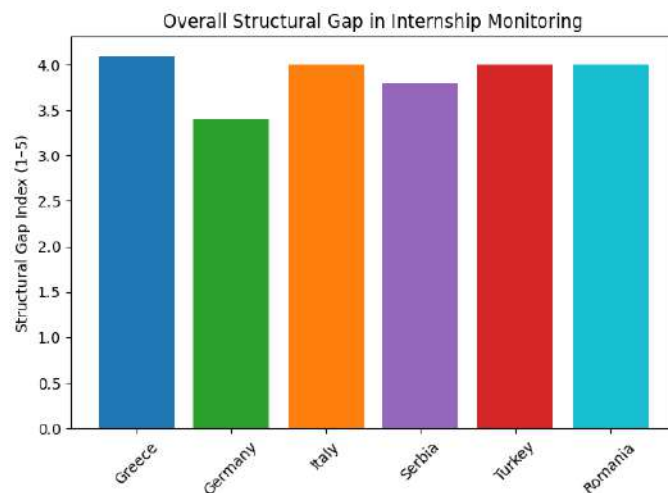
7.10 Strategic Implications for EngineerTrack

For EngineerTrack, this means focusing on milestone tracking linked to competencies, ditching any ranking features, and designing a sleek, pro interface. Done right, it could ramp up reporting consistency, give students more ownership, clear up ambiguities, and fit seamlessly with GDPR and other standards.

8. Cross-Country Structural Benchmark and European Added Value

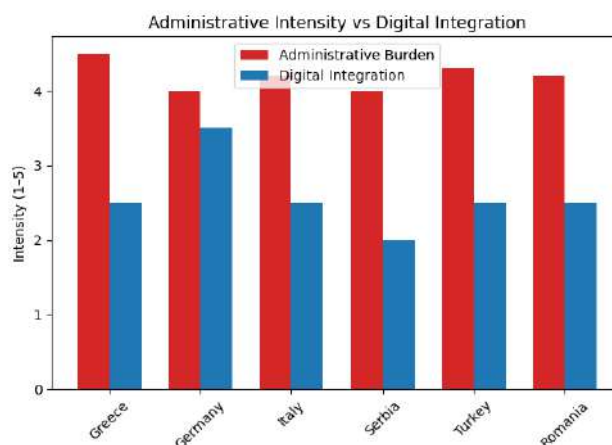
8.1 Comparative Structural Benchmark

Our analysis shows that the weaknesses in internship monitoring aren't unique to any one country—they're a common thread across Greece, Germany, Italy, Serbia, Turkey, and Romania. We created a Structural Gap Index based on factors like heavy admin, poor real-time tracking, inconsistent soft skills, and fragmented tech. Germany demonstrates comparatively lower structural gap scores.



8.2 Administrative Intensity vs Digital Integration

A significant imbalance emerges when comparing administrative intensity (scoring between 4 and 4.5) with digital integration levels (between 2 and 3.5). The findings indicate that regulatory and documentation requirements are comparatively strong, while integrated digital monitoring mechanisms remain underdeveloped. This structural asymmetry contributes to inefficiencies and limits the potential for transparent, coordinated internship supervision.



8.3 European Added Value

Since these structural challenges extend across national contexts, a coordinated transnational response is justified. Rather than isolated country-level adjustments, the shared nature of the findings supports an integrated approach capable of standardising monitoring practices, improving comparability of outcomes, reducing administrative fragmentation, and strengthening cooperation between higher education institutions and industry partners at European level.

8.4 Strategic Implications for Erasmus+

This ties straight into Erasmus+ priorities like going digital, updating vocational training, linking to job markets, and making learning outcomes clearer. By moving from paper-heavy checks to competency tracking, EngineerTrack helps build a more modern, transparent system that supports mobility and employability across Europe.

9. Risk Analysis, Feasibility and Long-Term Sustainability

9.1 Strategic Risk Analysis Framework

The implementation of a cross-country digital monitoring solution requires structured risk assessment. Based on partner consultations and comparative analysis, four primary implementation risks were identified:

- Resistance to digital transition
- GDPR and regulatory constraints
- Increased perceived supervisor workload
- Low adoption rate beyond pilot phase

To assess these risks, a Probability–Impact model was applied.

Risk Severity Formula

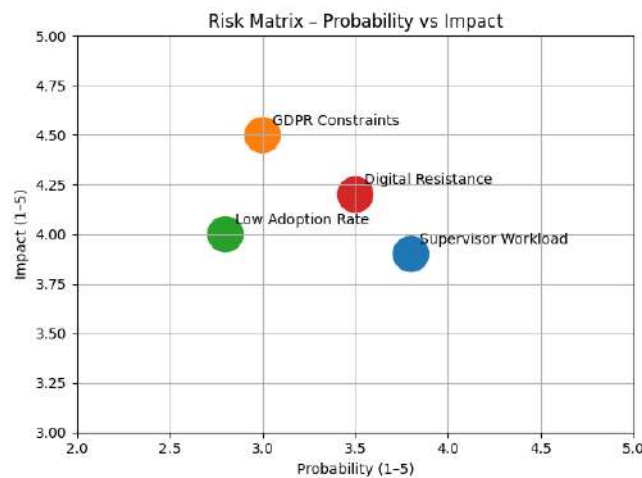
Risk severity was estimated by combining probability and impact levels on a 1–5 scale:

$$RS = \text{Probability} \times \text{Impact}$$

Where:

- Probability is measured on a 1–5 scale
- Impact is measured on a 1–5 scale

This structured approach allows prioritisation of mitigation strategies based on objective evaluation rather than perception



The matrix demonstrates that GDPR constraints and digital resistance represent the highest combined risk levels. However, none of the risks exceed a critical threshold ($RS > 20$), confirming manageable implementation conditions.

9.2 Mitigation Strategy

Each identified risk is addressed through targeted mitigation measures:

1. Digital Resistance

Mitigation:

- Intuitive interface design
- Replacement (not duplication) of paperwork
- Pilot-phase onboarding sessions

2. GDPR and Legal Constraints

Mitigation:

- Privacy-by-design architecture
- Minimal data collection principles
- National compliance review in each partner country

3. Supervisor Workload Concerns

Mitigation:

- Weekly micro-validation model (≤ 3 minutes confirmation)
- Automated progress summaries
- Structured competency grids to reduce subjective reporting

4. Low Adoption Rate

Mitigation:

- Integration compatibility with existing LMS systems
- Dissemination through partner networks
- Policy-level dialogue for institutional endorsement

The mitigation design is proactive rather than reactive, reinforcing implementation feasibility.

9.3 Feasibility Assessment

Feasibility is supported by three structural indicators identified in previous sections:

- High stakeholder readiness (average > 4.0)
- Existing digital infrastructure in all countries
- Recognised structural weaknesses in current systems

The implementation does not require cultural transformation, but structural integration. This significantly reduces adoption barriers.

9.4 Long-Term Sustainability Model

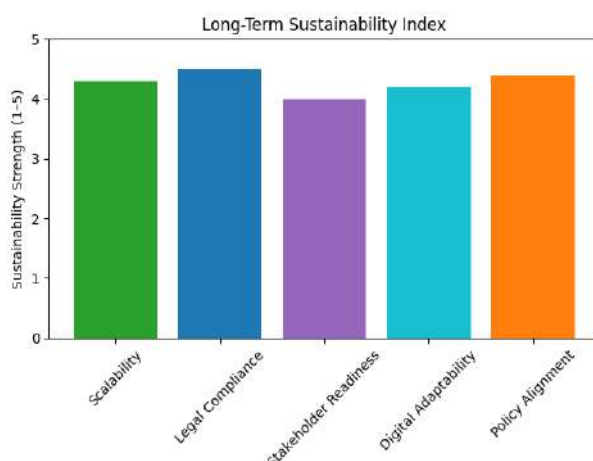
Sustainability was assessed across five core dimensions:

- Scalability
- Legal Compliance
- Stakeholder Readiness
- Digital Adaptability
- Policy Alignment

Sustainability Index Formula

$$\begin{aligned} &\text{Sustainability was assessed by averaging scores across five structural dimensions.} \\ &= \frac{\sum \text{Dimension Scores}}{\text{Number of Dimensions}} \end{aligned}$$

This index allows long-term projection of structural viability.



All sustainability dimensions score above 4.0, indicating strong long-term structural viability.

Particularly strong dimensions include:

- Legal compliance adaptability
- Policy alignment with Erasmus+ priorities
- Scalability across institutional contexts

9.5 Long-Term Impact Projection

If implemented at scale, EngineerTrack can contribute to:

- Reduced administrative duplication
- Increased transparency of learning outcomes
- Standardised transversal skill validation
- Enhanced cross-border internship recognition
- Improved employability profiling

The sustainability model confirms that the intervention is not dependent on temporary project funding. It is structurally compatible with institutional digital transformation strategies.

9.6 Final Strategic Conclusion

The consolidated risk assessment and feasibility analysis indicate manageable implementation conditions, high stakeholder readiness, and strong sustainability prospects across partner countries.

Overall, the evidence supports the conclusion that EngineerTrack represents a structurally viable and scalable intervention capable of operating effectively within diverse European educational and regulatory environments.

10. Final Integrated Conclusion and Strategic European Impact Statement

10.1 Consolidated Findings

The cross-country analysis conducted across Greece, Germany, Italy, Serbia, Turkey and Romania confirms a consistent structural pattern in internship monitoring systems.

Across all partner countries:

- Administrative procedures are strong and well-established
- Formal approval mechanisms exist
- Digital tools are partially implemented
- Real-time monitoring remains weak
- Transversal skill assessment is insufficiently standardised
- Monitoring is predominantly summative rather than formative

The research demonstrates that current internship systems were primarily designed to ensure compliance and formal recognition. They were not designed to systematically track learning progression.

This distinction highlights the structural imbalance between formal recognition mechanisms and systematic learning progression monitoring.”

10.2 Structural Gap Identified

The structural gap identified across partner countries can be summarised as:

High Administrative Control
Low Continuous Competency Monitoring
Limited Transparency of Learning Progression

This gap does not reflect institutional weakness. It reflects historical design priorities.

However, in the context of:

- Digital transformation
- Increasing cross-border mobility
- Labour market transparency
- Competency-based education frameworks

This structural imbalance becomes increasingly visible.

10.3 European Dimension of the Identified Need

The comparative nature of the research strengthens the European relevance of the findings.

The structural challenges identified are not country-specific. They appear across diverse regulatory, cultural and economic contexts.

This confirms that the problem is systemic rather than local.

As a result, the solution benefits from a transnational design approach.

The European added value of EngineerTrack lies in:

- Standardising competency-based monitoring principles
- Supporting transparency across institutional borders
- Enhancing comparability of internship outcomes
- Contributing to employability frameworks
- Strengthening university-industry cooperation

The project therefore aligns clearly with Erasmus+ objectives related to digital transformation, VET modernisation and labour market relevance.

10.4 Innovation Value

The innovation of EngineerTrack does not lie solely in technology. It lies in structural repositioning.

The project shifts internship monitoring:

From →Document Validation

To →Learning Progression Tracking

From →End-Stage Reporting

To →Continuous Micro-Validation

From →Informal Transversal Skill Feedback

To →Structured Competency Mapping

This transformation strengthens both quality assurance and educational transparency.

10.5 Feasibility and Readiness

The data confirm favourable implementation conditions:

- Stakeholder readiness remains consistently high
- Digital infrastructure already exists in all partner countries
- Identified risks are manageable
- Sustainability indicators are strong

The project does not require disruptive systemic change. It builds on existing structures and integrates them into a more coherent framework.

This increases the likelihood of adoption beyond the project lifecycle.

10.6 Long-Term Strategic Impact

If scaled effectively, EngineerTrack can contribute to:

- Improved monitoring transparency
- Reduced administrative duplication
- Standardised transversal skill validation
- Enhanced cross-border internship recognition
- Increased institutional cooperation efficiency
- Strengthened employability documentation

In the longer term, the model can support policy dialogue on internship quality standards and digital supervision frameworks.

10.7 Final Statement

The cross-country evidence confirms that internship monitoring systems across partner countries remain structurally compliance-oriented and insufficiently competency-driven.

The need for reform is clear, shared and well-documented.

EngineerTrack responds to this need with a structured, feasible and scalable solution that aligns with Erasmus+ priorities and strengthens the European dimension of internship quality.

The findings presented in this report provide a solid empirical foundation for implementation and further development.



Co-funded by
the European Union

