

Expert group joint opinion

Evaluation Procedure: Assessment of Study Field

Higher Education Institution: Transport and Telecommunication Institute

Study field: Transport Services

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Summary of the Assessment of the Study Field and the Relevant Study Programmes

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The subject of the work undertaken was a quality assessment of the “Transport Services” study field and its two study programmes, namely the professional bachelor study programme “Transport and Logistics” and the academic master study programme “Intelligent Transport and Smart Logistics” taught at the Transport and Telecommunication Institute, Riga, Latvia. The Transport and Telecommunication Institute (hereafter referred to as the “TSI”) was established in 1999 and accredited in 2002. The TSI provides several study programmes, both undergraduate and postgraduate, ranging from computer sciences and electronics, to robotics, aviation engineering, transport and logistics, and management. The study programmes are realised as parts of five study fields one of which is the “Transport Services” study field which has been a subject of the given evaluation. At the time of this writing, the total number of students graduated at the TSI exceeds 8900.

With respect to the number of students enrolled, the “Transport Services” study field may be considered the third most contributing study field implemented at the TSI. As has been the case with many other study fields in Latvia and elsewhere in the EU, in recent years the “Transport Services” study field has been susceptible to declining number of students enrolled. As such, the TSI has come up with a strategic development document entitled “TSI Strategy 2020-2025, Future without Borders” which outlines the need for increased number of international students as one of its priorities. In this regard, even though the aims of the study field may hence be seen as adequately defined through this and other such strategic objectives set forth in the TSI “Strategy 2020-2025” document, the expert group maintains the development priorities were not articulated in a streamlined manner. This, coupled with the inconsistent SWOT analysis presented, has failed to provide a sound backdrop for identifying most important areas of future improvements hence more effort would need to be invested in streamlining TSI’s strategic academic and research goals, and identifying key factors influencing their reaching.

In addition to the questionable strategic development goals and improvement opportunities, the expert group also finds the formal organisational structure not entirely matching the real operating practices and seeming too complex to facilitate effective academic and business operations. Operational and academic efficiency has been further inhibited by the vaguely defined outcomes of both study programmes and study courses making the assessment system for validating to what level the expected learning outcomes have been met rather unsubstantiated by concrete and measurable evidence. Despite the efforts invested in greater stakeholder engagement and ISO 9001 quality compliance, there is insufficient evidence that consistent improvement of the study field has been ensured. While procedures for programme development and feedback mechanisms from students, employers, and graduates are defined, the integration of student feedback into decision-making lacks consistency. In addition, the mechanisms for student complaints and suggestions exist, but their efficiency and feedback loop closure need improvement. The TSI also gathers and analyses statistical data from annual surveys to enhance its programmes, but possibility to derive actionable insights from mainly quantitative feedback is rather limited.

With respect to the resources needed for the provision of the “Transport Services” study field and the corresponding study programmes, the expert group maintains the TSI has demonstrated strong alignment of the rationale behind both the study field and the study programmes with market needs and current industry trends, thus contributing to high rates of graduate employment. Being timely and topical, and corresponding to the needs of both local and international transport and logistic

sectors, both study programmes taught within the “Transport Services” study field have a potential to generate enough student interest and hence secure long-term financial stability.

Even though the TSI outlines poor interest among industry professionals to change their career paths to full-time academics as one of its major weaknesses, stating uncompetitive remuneration as a key inhibiting factor, the expert team finds TSI’s academic staff fully capacitated to carry on further development of the study field as well as the realisation of the study programmes assessed. The scientific and research output of the academic staff is adequate which is demonstrated through respectable scientific publications in indexed international databases, a number of research initiatives and projects financed by the industry, as well as through promoting student initiative and start-up mindset via frameworks such as the IDEAHUB project funding framework (hereafter referred to as: the IDEAHUB project) and other frameworks.

The TSI has established good relationships with outside partners - both domestic and foreign - going beyond typical internship-related purposes. This clearly showcases TSI’s strong focus on internationalisation which corresponds with TSI strategic development goals mentioned earlier. Nevertheless, despite the generally positive feedback from the interviewed employers, the expert group still maintains a more proactive role of the TSI needs to be exercised which would reflect to a greater extent modern transportation and logistics concepts, paradigms and approaches, instead of merely reacting to the current needs of the labour market. In this regard, in realising the study programmes assessed, the expert group recommends more effort to be invested into providing graduated students with concrete practical skills in cutting-edge transport and logistics-related IT tools and solutions, as well as in securing hi-performance lab infrastructure (SW, HW and data) which comply with the key strategic research objectives of the TSI.

Finally, although the interconnection of the study programmes assessed may be considered logical, still, the differences in the objectives set for the bachelor and master study levels must demonstrate expected higher set of knowledge and skills acquired at the master level of studying. To achieve this, the expert group strongly feels the learning objectives of both study programmes must be finetuned such that to be made more concrete and easier to be validated in student achievements.

I - Assessment of the Study Field

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1.1 Management of the Study Field

Analysis

1.1.1. The aims of the study field could be deemed as mostly clearly defined. The institution has indeed set up and formalised its key strategic objectives, however, the feedback received from the undertaken interviews suggests certain discrepancies do exist. Thus, for instance, contradicting feedbacks have been gathered from the management and the study programme’s heads regarding the TSI’s strategic orientations on the target student population. The former have hence provided feedback suggesting TSI’s strong focus on foreign territories further substantiating such claims with undertakings such as the partnership with the MSM Inc. recruiting agency and others. At the same time, the feedback from the latter was advocating focus on domestic/Baltic market presence justifying it with the planned nation-wide ITS project and expected favourable taxation conditions for employers sending off their employees to further their academic achievements. The latter feedback also aligns well with the current formal TSI vision and mission statements.

Taking into account Latvia’s strong footprint in the transportation and logistics business, the study

field may be seen as addressing the needs of the local economy. Nevertheless, the curricula of the study programmes taught need to reflect to a greater extent modern transportation & logistics concepts, paradigms and approaches in order to compete with similar such programmes in Latvia and the neighbouring Baltic countries. With respect to this, the feedback from the employers, although generally positive, has still suggested that graduated students should be capacitated to use cutting edge IT tools and solutions, thus generating potentials for making tangible improvements in company operations. In addition to the employers, the graduates too suggested that proper hands-on experience in modern software solutions acquired during the study would aid their career advancements.

The interconnection of the study programmes may be considered logical, but certain compatible study modules should better describe the differences in the learning outcomes students are expected to achieve. Thus, for instance, if the syllabi and the learning outcomes of the modules “Fundamentals of transport system geography” and “Geography of Transport Systems” are compared, almost no difference may be seen suggesting the same level of knowledge is to be achieved at bachelor and master level studying.

1.1.2. Results of the SWOT analysis have been presented in the Self-Evaluation Report (SER), but they contradict some of the feedbacks received from the undertaken interviews. Thus, for instance, the SER outlines “...the involvement of teaching staff in the scientific research...” to have been relatively weak due to the workload of teaching activities (p.22 SER). This, however, was strongly challenged by the academics interviewed which unanimously claimed their scientific output has been way beyond average. Furthermore, the institution has identified the need “...to attract professionals from the industry...” as teachers to be one of its major weaknesses stating uncompetitive remuneration as a key contributing factor inhibiting wider interest among industry professionals. At the same time, if the presented cost and revenue breakdown structure is analysed, it is clear that the gross profit margin shown should allow for the remunerations to be as competitive as required by the applicable labour market trends. Finally, even though the institution has identified the rather “low activity of students under the ERASMUS+ mobility programme” to be an important weakness, the feedback from the students suggests the poor ERASMUS+ output should primarily be attributed to the institution's ineffective internal procedures meaning that such an output may as well be treated as an opportunity or a threat rather than a weakness.

1.1.3. Positive results of TSI's operations imply effective management and adequate decision-making processes have been established. However, even though the management structure provided in Annex 5 seems straightforward and hence effective, the formal organisational structure of the institution itself, illustrated in Annex 3 and the TSI website, does not seem to match the real operating practices and, as such, may hinder the decision-making workflows of the study field. In the undertaken interviews the structure has been confirmed to have been considered too complex and featuring a certain number of redundant or inadequately positioned functions. With respect to the former, it remains unclear to what extent a number of business development functions such as “Sales & Admission”, “Recruitment & Business Development” and “Marketing & Communication” contribute individually to the institution's academic or business-related objectives. As for the latter, a good example of an inadequately defined function within the organisation is the “International Relations” function hierarchically positioned within the Student Affairs vertical but – as confirmed in the undertaken interviews – covers issues going beyond mere student affairs.

Although it may be deemed that even most ideally designed organisations still exhibit real operating workflows to deviate from those given by the organisational chart, still the demonstrated complexity of the TSI organisation may be deemed high and hence prone to hindering the effectiveness of

internal workflows. Moreover, as the institution prides itself to have been running its operations according to the ISO 9001 quality control standards, it is somewhat expected the business process would be optimised such that to feature more fluent workflows.

As discussed earlier under 1.1.2, an example of organisational inefficiencies leading to improper student support may be found in workflows related to managing and administering ERASMUS+ processes and student mobility. In addition, improper organisational setup may also be found in naming certain functions. Thus, for instance, the institution uses the expression “Recruitment” (eg. in the “Recruitment & Business Development” function) to denote the academic function addressing student admission matters. Even though the expert group appreciates such inconsistencies may be treated as typical examples of the “lost-in-translation” issues, still, for an internationally-focused institution, such poor translations of vital academic and business functions should not be present.

Management of the teaching process with respect to the pertinent technical and administrative issues is done via several organisational units. According to the SER (p. 25), these include the Study Department, the Digitisation and Innovation Training Centre, the Research Administration Department, the library and the IT Department. In addition to the inconsistent naming featured in the SER and the Annex 3 suggesting a lack of nominal consistency, it may also be deemed that the technical and admin units too follow the same organisational pattern of the study field management, and are hence susceptible to over laboured workflows. This has been somewhat confirmed from the student feedback which suggested lack of straightforward and effective procedures initiating and realising ERASMUS+ and internship opportunities.

1.1.4. The admission process is regulated by the Admission Rules document published annually for each academic year. The rulebook is available online both in Latvian and English. The document provides detailed information on both the requirements to be met by prospective students as well as the study/academic processes. In addition to properly documenting the admission procedures, conditions and workflows, the institution also provides extensive sets of information relevant to admission either via its website or social networks. The recognition of the level to which a prospective student had met the admission requirements is governed by the so-called “Regulation on Recognition of Learning Outcomes Obtained during Non-formal Education, or Competencies Acquired during Professional Experience and Learning Outcomes Achieved in Previous Education” document also available online via the TSI website. Similar to the admission rulebook, the document also provides a detailed set of guidelines and information on what competences and skills acquired outside the typical educational pathways the TSI would deem adequate for admitting to a chosen study programme. As may be seen from its heading, the document gets updated regularly (last update dates back in Dec 2023) and hence may be deemed adequate and reflecting all relevant changes in the current academic processes

1.1.5. The TSI has set up different formal mechanisms, tools and procedures for assessing student achievements and they are adequately communicated to the students prior to the start of the teaching process. This however gets somewhat obstructed by the sheer fact that a number of study courses feature learning outcomes which allow for rather flexible interpretations to what level an expected outcome has been achieved. In addition, the study programmes themselves also use generic definitions of the target learning objectives thus further contributing to making the student achievement assessment process somewhat vague. A typical example of a generically defined study programme learning outcome is, for instance, the “Able to explore, identify the value and apply current and emerging technologies for lifelong learning, professional activity and development” outcome of the Intelligent Transport and Smart Logistics academic master study programme as it allows for a variety of completion scenarios all of which would be able to be treated as successful.

Examples of vaguely defined study course objectives are even more flagrant. Thus, for instance, the “Understand sustainable logistics solutions” objective of the “Supply chain management and planning” study course or the “Understanding transport as a key element of development at any geographical scale, as well as the concept of individual modes of transport and their role in changing patterns of mobility and accessibility” of the MSc level “Geography of Transport Systems” study course both leave substantial room for arbitrary assessments of capacities achieved by the students.

The questionable operating practice in assessing student achievements has also been confirmed in the received student feedbacks. Thus, for instance, it has been reported that the practical realisation of the assessment process lacks objectivity as it involves group assessing/exam taking, hence the individual scores/grades cannot be deemed to reflect knowledge of an individual student but rather an averaged shared knowledge of the group assessed. Furthermore, on repeated questions on whether they would consider the generically defined learning outcomes to impede the objectivity of the assessment system, many of the students have demonstrated a great deal of ignorance and general lack of interest in challenging the thus defined expected outcomes of their studying. This clearly suggests the institution failed to set up an assessment framework which would encourage student critical thinking regarding the acquired capacities, as well as only moderate student participation in improving the study processes in proceedings other student questionnaires or other such typical ways of gaining student feedbacks

1.1.6. The TSI has set up different mechanisms, tools and procedures to enforce high standards of academic integrity. Their effectiveness has clearly been demonstrated in the student feedback which unanimously confirmed no academic integrity breach had been witnessed by any of the students interviewed.

Despite the undoubtedly respectable achievements in promoting high standards of academic behaviour, there are however areas which provide room for further improvements. Thus, for instance, on its Web site (<https://tsi.lv/about-us/rankings-and-accreditations/>), the institution prides itself by stating to have been “...honored to be internationally recognized and ranked among the best educational institutions in Europe & the world...”. Moreover, the Web page also showcases the Time Higher Education (THE) logo suggesting that the ranking referred in the text is that of the THE ranking system. At the same time, if the TSI’s ranking on the THE Web is searched for, it may be found that the institution has been ranked as 1000 or worse which may hardly be considered to have been “...the best educational institutions in Europe & the world...”. Given that this strongly contradicts with the content of the TSI Web site, the suggested globally recognized academic achievements by the TSI may indeed be found misleading and contrary to elementary standards of academic integrity.

In addition to the questionable way of promoting TSI’s reputation, the expert group also maintains the formal regulations addressing academic integrity issues need to be updated such that to include information on the consequences, in addition to explaining the circumstances leading to an academic integrity breaching proceedings. Also, as the majority of the issues addressed in the current regulation correspond to student work, the expert group feels the regulation also needs to be updated such that to address unethical behaviour of the academics, particularly related to self-plagiarising, intellectual property rights misuse and similar

Conclusions on this set of criteria, by specifying strengths and weaknesses

The aims of the study field may be seen as properly defined but the institution has failed to articulate their key strategic orientations in a streamlined manner. The presented SWOT analysis suffers from inconsistencies and hence suggests more effort would need to be invested in identifying key factors influencing TSI's operations. The formal organisational structure does not match the real operating practices and seems too complex to facilitate effective academic and business operations. The assessment system for validating to what level the expected learning outcomes have been met suffers greatly from the vaguely defined outcomes of both study programmes and study courses.

Strengths:

- 1) Taking into account Latvia's strong footprint in the transportation and logistics business, the study field may be seen as addressing the needs of the local economy.
- 2) Both the institution and the study programmes taught enjoy full support of the business community the TSI has been partnering with.

Weaknesses:

- 1) The aims of the study field have been poorly communicated to the stakeholders and key facilitators.
- 2) Generically defined study programme/course learning objectives.
- 3) The curricula marginally address modern transportation & logistics concepts, paradigms and approaches.
- 4) Academic integrity-focused regulations lack information on the consequences in the event of an academic integrity breach.
- 5) Organisational structure lacks straightforwardness.

1.2. Efficiency of the Internal Quality Assurance System

Analysis

1.2.1. The TSI Strategy 2020-2025 and Quality Handbook and Quality Policy are publicly available on the TSI website (<https://tsi.lv/about-us/official-documents/>). It encompasses processes related to higher education services and scientific activities. The QMS aims to ensure the quality of study processes and research activities, maintaining compliance with established requirements. Key components of the study field management include processes such as researching consumer demands and satisfaction, development of educational services, planning of the study process, admission and registration of students, implementation of study programmes, and study attestation. These processes are governed by specific internal managerial documents listed (SER 2.2.1., Table 1)

The QMS operations involve various activities such as developing internal guidance documents, conducting internal quality audits, controlling study field and programme development, analysing non-conformities and complaints, implementing corrective actions, researching stakeholder satisfaction, and monitoring regulatory requirements.

These efforts aim to maintain the efficiency and effectiveness of the management system. TSI claims to emphasise the importance of continuous improvement, evidenced by the development of guiding documents based on the Annual Work Plan, ensuring transparency and efficiency in programme evaluation and updating. These documents are accessible to staff and students, facilitating their implementation.

Regular quality audits (SER, 2.1.1., Table 2) are conducted to ensure compliance and identify areas

for improvement. The audit process involves planning, preparation, execution, and follow-up actions, ultimately contributing to the enhancement of study programmes and processes. TSI highlights the role of self-evaluations in identifying areas for improvement, such as adjusting study content to align with digitalization trends. Certification by TUV Rheinland and annual monitoring confirm the QMS compliance with ISO 9001:2015 standards. Management reviews conducted at Board meetings provide opportunities for ongoing evaluation and refinement of the QMS.

Deficiencies identified and corrective actions taken during internal quality audits are documented in the Register of Nonconformities. These audit findings inform enhancements to the operations of the Council of the Study Field and adjustments to the content of study course materials.

Each aspect of actions taken within TSI corresponds to Key Performance Indicators (KPIs). However, it is important to acknowledge that during the visit, management emphasised that the primary KPI is student enrollment, which may not necessarily align with the quality of education. This is counterbalanced by the understanding, expressed by management during the visit, that students, as paying customers, inherently hold certain expectations regarding quality. Further investigation revealed the existence of other significant KPIs, such as the "research to business" metric. Nonetheless, it is crucial to note the absence of a systematic approach to tracking KPIs and monitoring progress comprehensively. While certain levels of management implicitly understand their KPIs and corresponding progress as claimed during the on-site visit, there is no overarching system for visibility and tracking of KPIs.

A key element highlighted by the TSI in the quality review process is the annual round table meeting, designed to convene stakeholders including academic professionals, industry representatives, and students. This forum aims to discuss the latest advancements in the field and explore avenues for integrating these innovations into the educational curriculum. For instance, one outcome of these round table discussions is the proposal to establish AI guidelines for academic studies and research within TSI.

However, concerns arise due to insufficient evidence demonstrating consistent integration of student feedback into decision-making processes and reported issues within certain departments, particularly regarding challenges faced by outgoing students participating in mobility programs. These observations suggest that the quality assurance system appears to prioritize managerial aspects of TSI, while aspects related to the student experience and educational processes are somewhat neglected.

TSI has established a quality policy which is publically available. Following information gathered during on-site visit, there is insufficient evidence that established QMS ensures improvement, development, and efficient performance of the study field on a consistent basis.

1.2.2. The procedures for designing, approving, revising, and modifying TSI study programmes, along with the responsibilities of relevant personnel and units, are outlined in the "Regulation on Management of Study Directions and Study Programs" (<https://tsi.lv/wp-content/uploads/2020/12/studiju-virzienu-un-studiju-programmu-nolikums-eng.pdf>). This regulation adheres to national laws and regulations concerning programme licensing and modifications. The development, assessment, registration, and modification of study course descriptions and teaching materials are specified in the "Regulation on Management of Study Courses"

(https://tsi.lv/sites/default/files/editor/Dokumenti/Oficialie_Dokumenti/study_course_management_regulations.pdf).

Study Direction Councils oversee the collective management of programme design and implementation, with deans of faculties and heads of study fields responsible for council

organization. Students, as ensured by regulatory enactments, have the opportunity to contribute to programme design, assessment, and improvement through various channels, including Study Direction Councils, Faculty Councils, and surveys. Input is also gathered from graduates, employers, and external experts. The director of each study programme ensures supervision over programme implementation and quality by analyzing the study process, results, survey data, and industry trends. New programmes are developed in alignment with TSI's development strategy and undergo a series of stages, including application, content development, approval, accreditation, marketing, and placement of materials in the e-learning environment.

However, a common issue identified across all study programs within the study field in question is the overall vagueness of learning outcomes. Therefore, it is essential to incorporate into the QMS particularly in the processes regarding development and review of programmes the necessary standards for a particular level of clarification. More concrete and specific learning outcomes will facilitate a more robust examination system and only benefit the overall quality of study process, ensuring that students achieve the intended outcomes.

After accreditation, annual self-assessment reports are prepared and approved by the Senate, focusing on programmes' compliance, changes, strategy alignment, and quality assurance. Proposals for programme changes are discussed and approved by the Senate, with consideration of feedback obtained through regular surveys and strategic decisions aligned with the HEI's overall strategy. External stakeholders' input and labor market research inform strategic decisions, such as the development and continuation of specific study programmes, like those in the "Transport Services" field, tailored to meet current market trends.

Although the current external stakeholders - cooperation partners are quite good, there are still some issues, particularly for incoming Erasmus students who struggle to find internships in English. Despite the commendable quality and quantity of cooperation and industry partners, the process for onboarding new partners is unclear. Therefore, it would be beneficial to establish clear methods for onboarding new external partners and stakeholders.

1.2.3. The procedure for submitting and reviewing student complaints and proposals at TSI is outlined in the "Regulations for the Admission and Examination of Student Complaints and Proposals"

(<https://tsi.lv/wp-content/uploads/2021/07/regulation-on-the-procedure-for-receiving-and-considering-complaints-and-proposals-of-students.pdf>). Students may submit complaints and recommendations to the Study Department either in person, via email, through an electronic form on the TSI Intranet, or by post. The Study Department registers and forwards these complaints to the responsible department for examination, with a response provided within 7 business days. The decision is communicated in writing to the complainant and the appropriate official for execution. Welcome Week events acquaint students with TSI's structure, officials, resources, and regulatory documents, including procedures for submitting complaints and proposals. Despite infrequent complaints, TSI addresses issues primarily through negotiation. In the previous academic year, there were two complaints related to COVID-19 restrictions. (SER 2.2.3) Regulation states, that "[students] can submit proposals and complaints about study process, process improvements at TSI and improvement of study service quality." The internal complaints procedure needs to be expanded to enable students to voice their discontent regarding any aspect of their studies at the higher education institution, including the individuals involved.

However, students have asserted that options exist for submitting anonymous complaints through a designated "box" located near the study department; however, there have been no reported instances of this avenue being utilised. While students claim no suspicions of ethical misconduct

within the institution, it's imperative to recognize that lack of suspicion alone does not guarantee absence of potential misconduct. In light of students' assertions that certain concerns regarding the study process have been overlooked, it is advisable for all parties involved to exercise caution. The presence of a definitive quality culture and a zero-tolerance policy regarding issues raised by student feedback is not evidently established. Hence, it is recommended that the institution more actively seek ways to encourage students to submit their suggestions and/or complaints, and to demonstrate explicitly that their voices are valued and taken into consideration. Not only regarding study process, curriculum, but also regarding work of other departments (such as those, responsible for mobility administration) and potential ethical misconduct within TSI.

Regarding the principle of closing the feedback loop with students, there are indications that this is occurring in some instances, which is commendable. However, it is expected that this process becomes formalised as standard practice. Such formalisation (not necessary through regulatory means, but by practice) would empower students to more actively engage in feedback procedures, knowing that their opinions are being acknowledged and addressed. For instance, it is imperative to establish mandatory procedures for closing the feedback loop, even in cases where decisions resulting from student feedback are deemed negative or dismissed. In these situations, it is essential for students to be informed and provided with clear reasoning behind the decision, even if it may not align with their perspective. This enables transparency and ensures that students understand the rationale behind decisions, facilitating constructive engagement with the study processes. There have been indications that certain issues have not only remained unresolved but have also lacked proper explanation or response from the institution following dismissal.

There is a mechanism developed for submission of student complaints and suggestions and students are informed about such opportunities as indicated during on-site visit. However, its efficiency lacks sufficient evidence and students only in some cases receive feedback.

1.2.4. The surveys of students, employers, and alumni are conducted annually in adherence to the guidelines outlined in the 'Regulation on Surveys of Students, Alumni, and Employers.' (<https://tsi.lv/wp-content/uploads/2022/04/studejoso-absolventu-un-darba-deveju-aptauju-organizesanas-noteikumi-.pdf>)

TSI conducts data collection to evaluate and enhance its study programmes. This includes enrollment figures, student demographics, and academic performance, as well as feedback from surveys. These surveys assess satisfaction levels among students, graduates, and employers. Results are reviewed by academic bodies and integrated into self-assessment reports. Additionally, surveys are conducted regularly to gather feedback from various stakeholders, including foreign students and employers.

This data includes the number of applications, matriculated students, student status, graduates, and dropout reasons, reviewed regularly by academic bodies and included in self-assessment reports. TSI uses a special e-resource for easy report generation and data processing. They also conduct surveys on student and graduate satisfaction, career opportunities, and academic staff performance, integrating feedback into program improvements. Specific surveys target foreign students' satisfaction with admission processes and graduates' and employers' opinions on the relevance of education to the labor market. Survey results are reviewed and acted upon to enhance teaching quality, program content, and staff performance, with 30-35% student participation in recent years. The feedback loop ensures students are informed of survey outcomes and subsequent actions, confirming that faculty programs generally meet labour market needs.

The effectiveness of deriving real-world actionable insights from a predominantly quantitative

dataset obtained through student feedback questionnaires, utilising a scale ranging from Agree to Disagree, is uncertain. This uncertainty is highlighted by the limited inclusion of qualitative responses in the provided survey summary ("Annex.6 SURVEY.zip"). Therefore, it is advisable to explore in addition to established approaches, alternative methods for gathering substantive and actionable feedback from students. The role of the Students' Council within the feedback gathering procedures (and general QMS procedures as such, apart from involvement levels required by regulatory enactments) is currently unclear. Consequently, it is recommended to actively empower the student representative body as an alternative and viable option for information gathering alongside established feedback systems. In addition it is recommended to explore and consider the possibility of enabling student surveys to be conducted during mid-course as well, so that action can be taken during on-going study process, not only at the end of study courses.

1.2.5. The TSI website (<https://tsi.lv>) provides comprehensive information about the Institute, its programmes, and regulatory documents in both Latvian and English. This includes programme titles, degrees/qualifications offered, programme amount in credit points, study types and forms, languages of instruction, programme directors' contact details, admission requirements, programme annotations, learning outcomes, career prospects, course details, tuition fees, and testimonials from graduates. Experts noted during the on-site visit that there are no indications regarding potential shortcomings regarding the information available on the institution's website. Further details about programmes in both Latvian and English are accessible at https://tsi.lv/lv/study_programmes/. Management of study programme information on the TSI website is overseen by the respective programme directors, ensuring consistency. The Academic Quality Department is tasked with monitoring the consistency of this information and is responsible for updating it in official registers such as VIIS (State Educational Information System) and the AIKA E-platform, ensuring its accuracy. Additionally, the Research Administration Department is responsible for administering and updating information in the National Information System on Scientific Activities (www.sciencelatvia.lv). The information on the institution's website regarding study programmes matches the official registers (VIIS and E-platform), offering vital details to applicants and students in all programme languages.

Conclusions on this set of criteria, by specifying strengths and weaknesses

TSI has established a publicly available quality policy and maintains a quality assurance system. The Quality Policy and Quality Handbook detail internal quality assurance processes. Despite efforts in stakeholder engagement and compliance with ISO 9001:2015 standards, there is insufficient evidence that the system consistently ensures the improvement of the study field. While procedures for programme development and feedback mechanisms from students, employers, and graduates are defined, the integration of student feedback into decision-making lacks consistency. Furthermore, the mechanisms for student complaints and suggestions exist but their efficiency and feedback loop closure need improvement. TSI also gathers and analyses statistical data from annual surveys to enhance its programmes, but possibility to derive actionable insights from mainly quantitative feedback is limited. Information about study programmes on TSI's website is comprehensive and aligns with official registers, providing vital details to applicants and students in all programme languages.

Strengths:

- 1) TSI has implemented QMS and the system is certified according to ISO9001.
- 2) Internal documentation is well prepared and accessible to all involved parties.

Weaknesses:

- 1) Not sufficient evidence on continuous improvement based on student feedback.
- 2) Students' Council is not sufficiently integrated in QMS processes.
- 3) Participation of stakeholders (apart from students and staff members) in QMS processes is limited to already established partnerships, while possibilities or potential opportunities of inclusion of new ones are unclear.

Assessment of the requirement [1]

- 1 R1 - Pursuant to Section 5, Paragraph 2.1 of the Law on Higher Education Institutions, the higher education institution/ college shall ensure continuous improvement, development, and efficient performance of the study field whilst implementing its internal quality assurance system:

Assessment of compliance: Partially compliant

The internal quality assurance system is established and operational; however, there are shortcomings in student participation (such as lack of considerable track record of improvements following student feedback) in quality assurance processes and in ensuring the achievement of learning outcomes (see analysis and conclusions in "2.2. The Content of Studies and Implementation Thereof" of both programmes and fact that there identified deviations from the principles of sound evaluation practices, such as instances of collective test completion).

- 2 1.1 - The higher education institution/ college has established a policy and procedures for assuring the quality of higher education.

Assessment of compliance: Fully compliant

The Quality Handbook and Quality Policy are publicly accessible on the TSI website. These documents cover processes related to higher education services and scientific activities. The QMS aims to ensure the quality of study processes and research activities, maintaining compliance with established standards.

- 3 1.2 - A mechanism for the development and internal approval of the study programmes of the higher education institution/ college, as well as the supervision of their performance and periodic inspection thereof has been developed.

Assessment of compliance: Fully compliant

A system has been established for the development and internal approval of the study programmes at TSI, along with mechanisms for supervision and regular evaluation of study programmes.

- 4 1.3 - The criteria, conditions, and procedures for the evaluation of students' results, which enable reassurance of the achievement of the intended learning outcomes, have been developed and published.

Assessment of compliance: Partially compliant

There have been indications of occasional deviations from the principles of sound evaluation practices, such as instances of collective test completion and similar activities. Consequently, there remains uncertainty regarding whether students' results adequately reflect the attainment of intended outcomes in all cases. Thus, ensuring control and enforcement measures is imperative to prevent misconduct from both staff and students.

- 5 1.4 - Internal procedures and mechanisms for assuring the qualifications of the academic staff and the work quality have been developed.

Assessment of compliance: Fully compliant

Requirements for academic staff members are established as evidenced by the qualifications of the teaching staff members recruited.

- 6 1.5 - The higher education institution/ college ensures the collection and analysis of the information on the study achievements of the students, employment of the graduates, satisfaction of the students with the study programme, efficiency of the work of the academic staff, the study funds available and the disbursements thereof, as well as the key performance indicators of the higher education institution/ college.

Assessment of compliance: Partially compliant

The current data collection and analysis processes are implemented as per requirements. However, there is a need to explore alternative methodologies for obtaining more qualitative and actionable insights from students and graduates. The current surveys are predominantly quantitative, posing challenges in deriving concrete actions.

- 7 1.6 - The higher education institution/ college ensures continuous improvement, development, and efficient performance of the study field whilst implementing its quality assurance systems.

Assessment of compliance: Fully compliant

Internal quality assurance system has been developed and previous recommendations have mostly been addressed. This system supports the development of the study field; however, its efficiency and scope need to be enhanced

1.3. Resources and Provision of the Study Field

Analysis

1.3.1. TSI has a quite clear and transparent system in place for determining the financial support needed for the respective study field and programmes. It is stated in the SER 2.3.1. Own revenues form up to 95-98% of the total financing, with the other financing of up to 2-5% coming from the implementation of various Latvian and EU funded projects. As stated in SER 1.2.: The budget is formed based on the needs of responsibility centres, and its resources are allocated consistently with the approved plan. The financial plan provides for a separate development fund, which is aimed to support research activities. It should be easy for students and faculty to understand how resource funding decisions are made and during meetings with different stakeholders there didn't appear any significant signs opposing this statement. In comments received during the on-site visit (24.04.-25.04.), stakeholders expressed a sufficient level of understanding and confidence in how funding decisions are made. Transparency in decision-making processes regarding financial support is crucial for building trust and ensuring fairness within TSI.

Within topics discussed TSI demonstrated a structured approach to redistributing financial support based on the needs and priorities of respective study fields and programmes. Based on SER this involves periodic assessments and adjustments as needed "Annual activities and the budget plan are developed considering the needs of structural units and the results of the current year." (SER 1.2.) Although it was noticed that mechanisms to redistribute resources are based on changing priorities, areas of study, or research needs, (eg. separate budget for assignment of guest lecturers) respecting today's high speed of external changes, TSI management should evaluate on continuous focus for change adaptive resource management strategy and agility in reallocating such funds.

TSI, through discussions on scientific research and logistics industry projects, has informed about certain indications of procedures to track the outcomes of funded projects and initiatives to assess their impact such as publications. Improvement initiatives based on evaluation findings demonstrate

a commitment to enhancing the effectiveness of the resource management system. Emphasis on continuous effectiveness improvement might be a great opportunity to become one of the milestones for the next strategy period.

It also should be mentioned that during the observation process it has been noticed that the funding system is aligned with the overall goals and mission of TSI. Such an approach is a great advantage to support innovative research, academic excellence, and the advancement of knowledge in the relevant study fields. In discussions with TSI management and academic staff quite clear understanding was noticed that respective stakeholders recognize the institution's resource allocation strategies as contributing to its competitiveness and relevance in the academic landscape in Latvia.

1.3.2. The findings during the observation process reveal that TSI on strategic and tactical levels conduct various needs assessments to identify specific requirements for TSI infrastructure, laboratories, materials and wide technical support. This process involves engaging different stakeholders and consulting with experts to ensure that resources align with the demands of the study field. Surveys as a method are also used to improve processes where possible.

The evaluation process indicates that TSI employs basic resource allocation strategies, such as budgeting, partnerships and various grant funding, to acquire the necessary infrastructure, materials, and technical support. Close collaboration with industry partners plays a crucial role in accessing specialised resources, inside knowledge and technical expertise that may not be available internally. Partnership involvement (eg. Riga City council, Riga airport) approach should be noted as one of strengths in respective TSI activities. Overall this approach enables TSI to prioritise resources based on the requirements of different study programmes and optimise the use of available resources.

Based on observations TSI should be rated as moderately active in staying abreast of emerging trends in logistics, technological advancements, and shifting student demands. At the same time some quotes provided during discussions ensured that more positive direction is ongoing.

1.3.3. TSI, according to SER 2.1.3 (...the faculty that is responsible for the management of the study direction. The institutions included in the TSI structure participate in the management of the TSI study directions) and discussions on site, have a structure which coordinates curriculum development and are responsible for reviewing and updating educational materials and resources to ensure that the curriculum aligns with academic standards and best practices.

TSI offers a wide range of professional development opportunities for teaching staff to enhance their teaching methods and stay updated on the latest educational trends. This includes conferences, research and laboratory projects (more explanation is available at Assessment of the Study Field, point 1.4.) focused on improving teaching options and incorporating new technologies.

TSI is using, commonly adapted in the majority of existing institutions in higher education institutions, a system of modern electronic libraries with subscriptions to the international databases (Academic Complete, Science Direct, SCOPUS) as well as located in the TSI premises library. Library has sufficient content of available and needed materials, nevertheless main emphasis is placed on electronic/digital sources. International databases are highly valuable and available for distance learning students who can't visit the on-site library. At the same time in TSI premises students benefit from both sources of information - library and databases available at digital classroom-library.

Based on received information during on-site visits, TSI gathers regular feedback from teaching staff, students and also potential employers for future graduates not only, but also to assess the effectiveness of assigned library resources and databases.

1.3.4. Since TSI has historically - <https://tsi.lv/about-us/history/> - solid IT competences, knowledge

and respective resources for development, all stakeholders involved are benefiting from well-developed in-house IT infrastructure and a virtual study environment.

For students, usage and logic of different information and communication technology solutions is well-structured starting from the first step - submit an application for studies <https://tsi.lv/future-students/admission/> - until TSI graduation.

During expert on-site visit capabilities of e-study environment or Moodle platform were presented from different angles, via supported options and based on received insights, especially when analysed on behalf of academic master study programme “Intelligent Transport and Smart Logistics” which one of implementation forms is distance learning, it should be stated that:

- Moodle serves as a central hub for storing and accessing essential information related to each study course, including description of the course, tasks for independent work, self-test tasks, exam questions, and other learning materials;
- Following mandatory teaching methodology for each course within the Study Course Management Regulations, teaching staff can ensure that the learning journey is structured and coherent. This should help students a lot to understand the expectations and requirements of the course;
- Through different tasks provided on Moodle, students might be encouraged to engage in self-directed learning and promote deeper understanding and retention of course content
- Last but not least, by having exam questions and self-test tasks available on Moodle, students should be able better prepare for various assessments and exams. Such an option might be useful in better understanding of the course material and assessing their own progress.

It should be separately mentioned, that self-developed by TSI student offline lecture attendance record system, described during on-site visit besides forming a correct attitude towards discipline, ensures

- more accurate record of attendance;
- reliability of attendance data recorded;
- better control over data management and approach to attendance tracking;
- that attendance tracking remains accessible to all users without connectivity limitations.

In the short-term perspective existing ICT solutions have enough capabilities and will support the study process at an appropriate level. At the same time in the long-term perspective (>5 years), as technologies develop more extensively, TSI might have to consider a more differentiated approach towards various ICT solutions in-between existing study fields. Therefore building sustainable architecture logic of existing and perspective ICT solutions, including strong focus on data/infrastructure security, should be considered as important strategic activity.

1.3.5. Described in SER 2.3.5. processes and procedures provide a solid background for attracting qualified teaching staff. TSI has developed, introduced and follows a structured approach towards hiring and election of academic staff. Such approach, based on amount of students, financial results, satisfaction survey results and staff commitment noticed during experts on-site visit, highly supports different aspects of non-material attractors like: professional development opportunities, supportive work environment, potential for career progression and strong reputation of TSI as leading ‘alma mater’ in logistics industry.

By continuing implementation of these procedures, TSI will be able to attract and retain qualified teaching staff, create a conducive environment for academic excellence and student success also in the next strategy period.

At the same time, considering the speed of change in logistics, technology breakthrough, backbone importance of IT and coming turnaround from AI implementation, TSI should more emphasise international footprint in its academic structure at the best possible level considering balance between legal requirements and creating continuous competitive advantage.

1.3.6. According to information gathered from different stakeholders during experts on-site visit in TSI and description provided in SER 2.3.6., the running process of teaching staff development should be treated as a comprehensive one, especially in evaluating and enhancing competences.

Some key points more detailed:

- Evaluation process appears to be well-structured and systematic, focusing on various aspects of professional development such as teaching skills, methodological development, and research capabilities within the existing availability of the examined study field.
- The inclusion of planning for financial resources indicates a commitment to invest in the professional growth of teaching staff.
- The assessment of the professional growth potential of teaching staff and the nomination of promising lecturers demonstrate a proactive approach to talent management within TSI.
- The range of professional development activities, such as publishing in peer-reviewed journals, participating in international conferences, and engaging in training programs, reflects a commitment to offering diverse opportunities for skill enhancement.
- The emphasis on activities like scientific publications, participation in conferences, and doctoral studies highlights the integration of research and teaching in the professional development process. As a separate benefit here should be mentioned close collaboration with actual industry activities (lecturer's internships in logistic companies, electing academic staff professionals from the industry).
- The organisation of annual teaching staff attestations commits to continuous improvement and quality assurance. Regular evaluations provide feedback to staff members, identify areas for development, and ensure ongoing alignment with TSI strategy, goals and standards. Nevertheless, it should be emphasised that focus on international experience, latest knowledge gathering and targeted involvement in most advanced industry achievements via existing or planned teaching staff should be among development of the teaching staff strategic targets for the next period, as competition in logistics will become only fiercer.

1.3.7. TSI has provided detailed in numbers existing evaluation of academic, research, and administrative workload balance in SER 2.3.7. It also contains references to Latvian legislation, Government and internal regulations and based on those workload expectations defined by TSI management.

Document contains well balanced descriptions about various aspects of workload KPI's and tempted activities to gain best correlation between generic academic, research, and administrative streams. During the on-site visit experts have asked different stakeholders to comment on documents versus actual workload balance and no clear or self-explanatory answers were received.

Although SER 2.3.7. contains different components of what is included in overall training staff's workload, it is not clearly stated or described how those components are measured and does TSI use any academic workload management system or time tracking tool where the numbers presented are coming from.

At the same time staff members seem to be engaged in the evaluation and feedback on workload distribution.

1.3.8. Based on examined experience during TSI on-site visit, support for students on the site is provided on a visually convenient and professionally supportive level with a special visitor room (Study Department) where the front-office desk performs first opinion creator role.

IT support under responsibility of 4 IT engineers is ensured within extended working time in workdays, including almost 8h access on Saturdays and special time frame on Sundays.

Online support via Moodle platform, e-mail communication as well as different mobile application access also plays a kind of good support role during the study process.

TSI emphasises significant focus on international student support as their stay in Latvia is followed not only by study life issues. Scope of potential challenges for this group is obviously wide, therefore

continuous improvement is and should be assigned here, including findings during meeting with students, see below.

A special kind of support within innovations and project management during study life should be mentioned as an option to become a member of iDEAHUB project whose goals ensure higher commitment from those who seek higher level challenges.

During meeting with students two aspects of support were nominated to be improved as most actual:

- Responsibility, involvement and quality of ERASMUS project coordination from TSI staff side;
- Optimal timing, quality and communication support on internship process as well as appropriate places (companies) for internship for international students who can't act in the local language.

Conclusions on this set of criteria, by specifying strengths and weaknesses

TSI has developed a well-structured and balanced resource/provision management system. Being well known among logistics industry players and having a significant partner list, which also includes some big corporate companies, the examined study field and the study programmes taught have a stable new student flow and challenging research project list followed by sufficient financial flow.

Having stable, solid IT competences, knowledge and respective inside resources, TSI has also developed a strong information and communication technology structure which supports continuous growth and competitive advantage.

Since human resources hold not only the biggest cost line in TSI expenses, but also plays an important attraction role in student feedback or awareness on study field level at TSI, TSI as a "knowledge service" provider should pay much higher attention to student and academic staff well-being on a daily routine basis.

To keep the most efficient and well measured human resource in the long term, TSI should devote more efforts in describing and evaluating academic, research and administrative workload balance.

Strengths:

- 1) Stable source of financial resources, supported by high awareness in the industry.
- 2) Stable, based on existing in-house competences developed IT infrastructure.
- 3) Committed and united academic staff team, overall positive student thinking mindset.

Weaknesses:

- 1) Proactive, new logistics trend based approached learning curve is not in place yet (eg. new type engineering (RailBaltic), Green Logistics).
- 2) Teaching staff's workload balance distribution, reported in SER 2.3.7., should be developed at a more detailed level, with description and documentation on how such distribution impacts continuous improvement of the study field. Also missing, at least short, process description in SER about regular measurement and monitoring of workload activities.

1.4. Scientific Research and Artistic Creation

Analysis

1.4.1. The Transport and Telecommunications Institute has developed the Strategy 2020-2025 which aim is to continue develop the research culture, to coordinate with study process, learning of study

subjects and teaching, to create a science and service education environment that ensures the continuous training of scientific personnel and the realisation of scientific research and development in the strategic research areas of TSI directions (SER, p. 69)

TSI postulates that research activities are given a crucial importance in order to be able to prepare graduates who can meet the requirements of the 4th industrial revolution and its impact on industrial sectors, markets and society, as well as the "Smart Specialization Strategy (RSI3)" developed by the Ministry of Economy of the Republic of Latvia. The purpose of RIS3 is to increase innovation capacity, as well as to create an innovation system that promotes and supports technological progress in the national economy by setting several priorities.

The priority "Efficient development of products with high added value" refers to laboratory projects and research in the field of robotics, IT and IS (e.g. ePcenter, D-Code projects). The priority "development of new products/services" refers to successful business projects with the private sector, including innovative software and technologies in the aerospace industry. The priority "energy efficiency" is implemented in several obtained patents (related to wind energy) and PostDoc projects, such as Dr.sc.ing. Tatjana Endrjukaite, Dr. oec. Yelena Popova. The priority "ICT system corresponding to modern standards" refers to projects implemented by TSI faculties and the Department of Research Administration (for example, iSecret, Learn_IT projects (SER, p.63)

The infrastructure of TSI's research laboratories is directly supervised and guided by Vice rector of academic research Mihails Savrasovs (Tour at the facilities April 24). All TSI research activities are administered and documented in the institution's internal database. At the institution, the staff of the Research Administration Department is responsible for all record keeping in the field of science and development. (Meeting with management April 24).

Academic and research staff, as well as doctoral students, are involved in research by participating in the European Union (EU) research and innovation support programme Horizon 2020 projects, European Regional Development Fund (ERDF), European Social Fund - EU funds, COST activities, ERASMUS+, InterReg, State in development fund projects, etc. (SER, p. 64).

One of TSI's strategic research areas is smart solutions in transport and logistics on the topics of aviation, smart transport systems, transport simulation and modelling and the use of surface radars (SER, p. 61.)

During the on-site visit, the Institution demonstrated practical research for the aviation industry in the form of intelligent and evolving control systems and remote and unmanned aerial vehicle systems for monitoring critical infrastructure (Tour in facilities 24.04.)

A cluster of laboratories has been developed, which, among other things, deals with the analysis and creation of transport systems, both in the Riga agglomeration, and developing smart solutions in the interests of customers. Here should be mentioned the transport flow solutions created for the Riga Bus Station and the access roads of the Riga International Airport. The industry, academic staff and students cooperated in projects.

Ground-penetrating radars have also been purchased and are being used at the institution, with the aim of assessing the quality of road infrastructure construction. (M. Savrasovs, Tour of facilities).

TSI is a member of the European Conference of Transport Research Institutes (ECTRI), its resources are included in the global transport research sharing database "Soft Research Infrastructures". TSI researchers can use the resources of ECTRI members (28 EU research institutes). TSI students and academic and research staff have access to the TSI electronic library, where journals, conference materials, books and textbooks are available in electronic format. The library provides the opportunity to use international electronic databases: "Knovel"; EBSCO, "Academic Complete"; OAPEN-Library; DOAJ; PKP; World Bank; VersitaOpen etc. (Tour in facilities April 24.)

Interdisciplinary areas are also being developed. As an example - smart city, mobility in the city, e-solutions in business, including various business sectors related to the transport and logistics industry (Meeting with employers, April 24)

Analysing the results of the experts on-site visit it is possible to conclude that the scientific research

and applied research of the study field corresponds to the development goals of the institution and are relevant for the study field "Transport services" and implemented study programmes "Transport and Logistics" (42840) and "Intelligent Transport and Smart Logistics" (45840) as well as with the logistics industry modern requirements. The study field complies with the prescribed requirements.

1.4.2. TSI reliably ensures the connection of the process and results of scientific research both with the study process at all study levels and with companies representing the business sector and fully compliant with requirements of criterion.

The complex of scientific laboratories is freely accessible to students. When visiting the laboratories of the laboratory complex, student groups and individual students were observed discussing with each other, engaged in research or doing construction work. (Tour at facilities, Meeting with employers, Meeting with TSI management).

TSI organises the students' scientific conference "Science and technology - a step into the future", where students have the opportunity to participate with the results of their research work. Conferences are held twice a year - in December and April. Journals of scientific publications for the past years were presented to the experts during the visit. It is mandatory for students of all master's study programmes implemented by TSI to speak at the conference before defending the work of the final examination. TSI undergraduate students, young scientists, doctoral students and students from other universities also participate in the conference. Special sessions are organised at the conference, where students demonstrate their Scientific and practical works (p. 65, SER; Meeting with graduates).

The IDEAHUB project initiated and initially financed by the EU, is maintained at TSI, in which students participate with the aim of conducting research on topics of interest to them. This project is able to interest young researchers more, because it is characterised by the financing for researched directions. In the academic year 2023 - 2024, TSI maintains the programme from its own funds (Facility tour, meeting with employers).

Most of the teaching staff involved in the study field are also active scientists and researchers who both participate in projects and actively publish in journals and participate in conferences. In their courses, they use examples and demonstrations from projects and research, the teaching staff offers students work topics that are related to the teacher's areas of expertise (p.65 SER).

The "Sustainable Transport Interchange Program (STIP)" education and training programme for two summer schools was developed for the needs of the "Alliance" project. Based on the STIP, partners developed digitised courses to support lifelong learning goals. Several STIP courses were also included in master's study programmes. Study courses can be mentioned: "Sustainable transport exchanges", "Methodology of decision-making". TSI significantly improved cooperation in the thematic areas of the project by organising 5 international research groups, which included both young and leading researchers. This project increased the number of publications prepared by TSI employees (p. 65, SER).

TSI reliably ensures the connection of the process and results of scientific research both with the study process at all study levels and with companies representing the business sector and fully compliant with requirements of criterion.

1.4.3. TSI implements mobility measures for academic staff, researchers and students. Cooperation agreements concluded by TSI with foreign scientific institutions are presented (SER, Appendix 16). Programmes such as Horizon2020, Interreg, ERASMUS+, COST and others are used for such cooperation (p. 67, SER).

In the list of international cooperation mentioned the ePIcenter - "Enhanced Physical Internet-Compatible Earth-friendly freight Transportation- ansWer" project (H2020 program), in which TSI and study field academic staff participate: the project consortium includes such representatives of the academic sector, scientific organisations and industry as: Port of Antwerp, DHL, Stena, Panasonic,

and others (p. 66, SER). Another example of international cooperation is the "SCI-BI" Baltic-German University Cooperation Office project, which is supported by the German Academic Exchange Service (DAAD) with funding from the Ministry of Foreign Affairs of the Federal Republic of Germany. TSI submits the list of projects where university staff and students are involved (Annex 12, SER).

TSI employees participate in such international conferences as: TRANSBALTICA; Transport Research Arena; Winter Simulation Conference (WSC), International Conference on Dependability and Complex Systems DepCoS-RELCOMEX; International Conference on MATHEMATICS AND COMPUTERS IN BUSINESS AND ECONOMICS; IEEE International Conference on Logistics Operations Management (GOL); Conferences on Sustainable Urban Mobility (CSUM); International Symposium on Stochastic Models in Reliability Engineering, Life Science, and Operations Management, SMRLO; International Conference on Harbor, Maritime and Multimodal Logistics Modeling and Simulation and other international conferences (p. 66 SER, meeting with management, facility tour).

The institution has a long-standing practice in organising international conferences. The international conference "Reliability and Statistics in Transportation and Communication" (RelStat) has been held at TSI for 20 years. For the fourth year in a row, the specially selected articles of the RelStat conference are published in the special edition of the conference "Springer Lecture Notes in Networks and Systems" indexed in SCOPUS (p.66 SER).

TSI publishes several internationally cited journals: "IEEE Transactions on Intelligent Transportation Systems"; "Sustainability"; "Sensor"; "European Transport Research Review"; "Transportation"; "Aviation"; "Transportation Research Procedia"; "Transport and Telecommunication".

"Transport and Telecommunication" is a TSI indexed and peer-reviewed scientific research journal, ISSN 1407-6160, ISSN 1407-6179. Articles published in Transport and Telecommunication are included in: SCOPUS, Elsevier Database; Web of Science - Emerging Sources Citation Index, Engineering Village, De Gruyter Open; The Summons; Transportation Research Board; ProQuest; ProQuest Engineering Journals; ProQuest Illustrata: Technology; ProQuest SciTech Journals; ProQuest Technology Journals; CNKI Scholar (China National Knowledge Infrastructure); EBSCO Discovery Service; Google Scholar; Primo Central (ExLibris); SCImago (SJR) and other scientific databases (p.67 SER).

TSI shows strong targeting to study field subjects as well as interdisciplinary approach in research. The both study programmes complies with the prescribed requirements of criterion.

1.4.4. In order to ensure sustainable involvement of teaching staff in scientific work, each lecturer also includes scientific activity in their individual work plan for the academic year (p.70 SER, meetings with academic staff).

TSI's academic personnel remuneration policy provides separate payment for high-level scientific publications, patents, participation in conferences, and payments for this activity are made once a year. The scientific and pedagogical activity of professors and associate professors is evaluated every two years. This performance evaluation also includes the evaluation of scientific and research activities. TSI participates in the implementation of international projects, involving TSI teaching staff into projects according to their scientific and professional interests (Meeting with academic staff).

Support for organising scientific and research activities of teaching staff is provided by the Research Administration Department (vice rector of Academic & Research).

The research activity of the teaching staff is facilitated by the opportunity to participate in the conferences organised by TSI, which are available to TSI teaching staff with a significant fee discount.

Journals published by TSI and participation in conferences inside and outside the university provide an opportunity for TSI teaching staff and researchers to implement publicity activities, especially useful for doctoral students and young researchers (p.68 SER).

In order to ensure the scientific and research environment, the research infrastructure and the

material and technical base for conducting scientific research are developed. Two research clusters have been created at TSI, the main purpose of which is to unite researchers and leading lecturers (Facility tour).

Studying the list of developed projects, it can be stated that a significant part of the projects can be attributed to the study field "Transport services"(TSI home page).

TSI staff development is based on the TSI development strategy for 2020 -2025, which defines 5 strategic goals for the relationship with research and scientific activity. The institution adheres to these strategic principles in its work, ensuring and promoting the involvement of teaching staff in scientific research according to the study field, the institution provides the technical, digital, and supportive environment for staff involvement in scientific work, as well as guides and motivates staff to participate in the development of scientific projects.

The study field and both study programmes fully complies with the criterion.

1.4.5. For more than 20 years, TSI has been organising the student scientific conference "Science and technology - a step into the future", RatSif, which provides an opportunity for young researchers to participate in an interdisciplinary scientific conference and cooperate with experienced scientists. Conferences are held twice a year - in December and April. It is mandatory for students of all master's study programmes implemented by TSI to speak at the conference before defending the work of the final examination. TSI undergraduate students and young scientists, doctoral students, graduate students and students from Latvian and foreign universities are also invited to participate in the conference. (Conference summaries are available on the TSI web page).

Students, together with their supervisors, participate in the TSI international scientific conference "Reliability and Statistics in Transportation and Communication" (RelStat) with articles published in Springer Lecture Notes in Networks and Systems. Scientifically, the topics of the articles correspond to the field of study: Voronin Y., Yatskiv I. (2022) Free Public Transport Policy: Modeling of Implementation in Riga. . Yatskiv, I., Pticina I., Romanovska K. (2018) The Riga Public Transport Service Reliability Investigation Based on Traffic Flow Modelling. Enhanced Physical Internet-Compatible Earth-friendly freight Transportation ansWer (ePIcenter). 2020-2023: created an interoperable cloud technology ecosystem based on user-friendly, extensible and artificial intelligence-based logistics software solutions (p. 72 SER).

Special attention at the institution is paid to the chosen field of research - smart interconnected sustainable transport networks. Many scientific works in the field of logistics and transport were developed within the framework of the "ALIANCE" project and reflected in the self-assessment report. Experts would like to note that this project ended already in 2018. Experts recommend to proceed such practice.

At the same time, the achievements of the student iDEAHUB project, which exists based on the Institution's self-financing, should be noted (Meeting with management, April 24). The Railway Maintenance Platform (RMP) team developed a web platform for railway maintenance, digitalization of expedition companies processes (APDoc) developed an application aimed at digitising some of the processes of forwarding companies related to document collection, development of an unmanned aerial vehicle platform (DiPROGer), developing a prototype - a glove (Volkirion) that will scan the surrounding environment and using touch input, will transfer information about objects to the hand. A total of 20 projects with more than 60 participants are being implemented in the years 2021/2023. In many cases, project teams are interdisciplinary and include students from different study programmes, including students from study field "Transport services". (p. 74, SER).

TSI convincingly proves the involvement of students of the study field "Transport services" in scientific and applied research for both bachelor's and master's level students. Research programmes, among other things, are created to attract young scientists also financially and to build competences for carrying out scientific work. The study field fully complies with the criterion.

1.4.6. IT technologies are widely used in the administration of the study process, for example, students must confirm attendance at lectures using student cards (using validators in each class), attendance data is entered into the database, and then attendance data is analysed weekly. If attendance is poor, students receive low attendance warning texts (Facility tour, p. 75 SER).

TSI uses an LMS system (based on Moodle), and several platform learning analysis tools are also used to track student progress. In the academic field, several innovations can be mentioned, such as flipped classrooms, learning by doing, provision of online classes in synchronous and asynchronous modes, intensive use of simulators, game-based learning, use of online courses for part-time learning, etc. (p. 75 SER; Moodle presentation).

In 2023, TSI was engaged in two projects in the activity "Digitalization initiatives to improve the quality of studies". The activities are aimed at providing an innovative, project-based, modern environment that will motivate students and develop digital and soft competences. Another example of innovation and its transfer to education process is the iDEAHUB project. Within its implementation, an innovative ecosystem has been created that unites TSI's research infrastructure and external partners, research staff, customers and experts (p. 75 SER, Meeting with students).

The humanoid robot NAO, which is enriched with specific lecturer/teacher functionality and is part of the Learning by doing project, is used in the marketing of study areas and programmes. The robot is widely used in various types of events, it is capable of conducting short multimedia presentations (p. 74, SER, Presentation of MOODLE system, tour at facilities).

TSI applies product, process, marketing and organisational innovations in academic, research and study processes.

Conclusions on this set of criteria, by specifying strengths and weaknesses

The directions of scientific research of the study field correspond to the development goals of the TSI and are relevant both to the study content and the study field. Industry requirements are regularly deliberated and expected. International cooperation provided in the field of scientific research. The research activity of the teaching staff is facilitated by the opportunity to participate in the international conferences and conferences organised by TSI. Innovative technologies are widely introduced in the study and research processes.

Study field "Transport services" is fully compliant to all 6 Scientific Research criteria. Scientific work at TSI is established on a solid foundation. This is done regularly by compiling the results in several scientific publications, which are indexed in international research databases. An internal administrative institution has been established at the university, which supports and coordinates scientific research, thus facilitating the research process for staff and students.

Strengths:

- 1) A comfortable laboratory complex at TSI, significantly improving the development of research and providing the material and technical base for students and academic staff.
- 2) The administration of TSI pays extra attention to research projects at the university, getting involved in financing projects and motivating students and scientists in other ways.

Weaknesses:

- 1) Most of the projects related to the study field "Transport services" are related to the transport industry and efficient organisation of transportation, neglecting other disciplines related to the science of logistics.

Assessment of the requirement [2]

- 1 R2 - Compliance of scientific research and artistic creation with the level of development of scientific research and artistic creation (if applicable)

Assessment of compliance: Fully compliant

The study field complies with the prescribed requirements.

The development of scientific works is fully integrated into the study process and is purposefully managed by the TSI administration.

1.5. Cooperation and Internationalisation

Analysis

1.5.1. Throughout the evaluation process it has been made clear to the expert group that the institution has been committed to establishing good relationships with outside partners. In addition to the typical examples of setting up partnerships for internship-related purposes, through which the TSI have been collaborating with internationally renowned companies such as the Riga International Airport, HAVI Logistics and others, the partnering organisations also participate in both TSI's research and business related activities. The interviewed academics have thus reported to have been teamed up with their peers from other Latvian universities such as the Riga Technical University and others in doing joint research activities or participating in different government-led initiatives. Examples of accomplishments done as a result of the liaisons with the business sector include capacity assessment studies undertaken for the Riga International Airport, and traffic flow simulations done for the Riga central bus station.

Another positive example of a fruitful relationship with the industry is the realisation of the so-called iDEAHUB project discussed earlier in Section 1.4. Although the project had originally been set up as an EU-funded undertaking, through the good cooperation with the industry the TSI has managed to secure iDEAHUB funding even after the formal completion of the EU project. Furthermore, practical examples of industry involvement in the academic process also include the participation of industry representatives in graduation work evaluation commissions. According to the feedback gained from the TSI Management, at the time of this writing, every such commission must include at least one industry representative, hence granting the timeliness and concrete operational applicability of the student graduation works. This, however, has not been confirmed by the feedback received from other stakeholders interviewed, nor has it been suggested in the SER.

Despite the undoubtedly positive manifestations of the established cooperation, further efforts remain to be undertaken in order to better manage the existing relationships and hence generate even more concrete effects going beyond mere internship-related purposes. Thus, for instance, although indeed positive, the framework provided by the iDEAHUB project seems to have been very much focused on student's initiative, leaving the TSI's role to have been mostly concerned with maintaining the necessary liaisons with the financing partners. As such, the research work done is unlikely to have been compliant with some strategic research orientations of the TSI but rather relies on arbitrary student interest and motivation. In addition to streamlining key areas of expertise the TSI would aim to excel in through cooperation initiatives such as the iDEAHUB and others, the expert group also encourages the TSI to put more effort in managing the relationship with the partners in a way which would first set up clear guidelines for establishing a partnership going beyond rather generic attributes like "the reputation of the partner, compliance with the specifics of the industry, the common scientific and research interests of teaching staff and the benefits of all cooperation partners" (SER, p.82) and similar. Furthermore, the TSI is encouraged to manage the relationship

with the partners according to partner's relevance to the TSI development goals - hence discriminating between, for instance, A-, B-, or C-level partners - instead of exercising a practice where "the choice of cooperation partners of employers is determined by the demand of organisations for specialists in the relevant field" (SER p.82).

1.5.2. As discussed earlier in Section 1.1, in addition to addressing the needs of Latvian transport and logistics sector, the TSI has also been focused on internationalising its operations either by stimulating student inward mobility or by academic exchange. With respect to the former, the institution has set up a number of English taught study programmes which is further complemented by the double degree programmes realised in partnership with the University of the West of England Bristol, UK (UWE). The TSI openly admits the UWE partnership does not cover the Transport Services study field (SER, p. 86), and taking into account a TSI's partner selection criteria to have been that "...academic and scientific activities should align with TSI study directions...", some may argue such a partnership may hardly be found as complementing the academic process. Nevertheless, the expert group still maintains the partnership may indeed be used for capacity build up and important knowledge sharing and as such should be complimented for.

Another example of TSI's focus on internationalising its operations is its clear focus on ERASMUS+ backed outbound student mobility manifested in a number of cooperation agreements closed with foreign partnering universities. Nevertheless, as reported earlier in Section 1.1.3, further efforts need to be invested to provide better logistics support to students willing to exercise their ERASMUS+ financed opportunities. In addition, although all the TSI's academic partners listed in Annex 14 may indeed be considered highly reputable, and hence inherently benefiting the TSI reputation too, it remains unclear to what extent and through which concrete activities individual academic partners contribute to TSI's key strategic objectives. The expert team appreciates that some framework for selecting the foreign partners according to their academic or other such relevance has been provided by the Annex 25 document ("Procedure for selecting a strategic collaboration partner"), nevertheless, it may hardly be seen as a well thought-off material offering a natural follow up to strategic documents such as, for instance, the "TSI Strategy 2020-2025" or others.

1.5.3. In addition to the discussion from the previous section, the TSI's focus on internationalisation is also clearly visible from the spread of origins of the international students studying at the TSI. The expert group has hence had an opportunity to get feedback from students coming from as far as Nigeria, India, Denmark and Uzbekistan, which all spoke highly of the academic opportunities offered by the TSI. In addition to the findings related to stimulating student mobility, the expert group has also received positive feedback from different stakeholders interviewed on the TSI accomplishments related to academic staff exchange. In this regard it has been reported that a number of foreign academics have participated in the TSI's academic processes in different roles and capacities. These include both face-to-face and online lectures, as well as participation in exhibitions and various panels done by academics originating from Greece, Sweden, Germany and elsewhere.

According to the SER, the TSI has established a financial support scheme for attracting inbound mobility among foreign academics amounting roughly €10.000 annually. Although such a scheme is definitely to be complimented for, the feedback received from the teaching staff interviewed suggests more effort should be invested to familiarise them on how the scheme may benefit their teaching process. Nevertheless, overall, the outputs of the system clearly demonstrate the TSI has been successful and effective in attracting foreign academics and students to take part in the academics processes relevant to the given study field.

Conclusions on this set of criteria, by specifying strengths and weaknesses

The institution has established good relationships with outside partners - both domestic and foreign - going beyond internship-related purposes. It has also set up a number of English taught study programmes which is further complemented by the double degree programmes realised in partnership with the University of the West of England Bristol, UK. All of this clearly showcases TSI's strong focus on internationalisation. To further improve the effectiveness of the system, more effort should be invested into better partner management as well as in further promotion of internationalisation-centred operating practices among teaching staff. In addition, better support needs to be provided to students wanting to exercise their studying opportunities offered through the ERASMUS+ scheme.

Strengths:

- 1) Good relationships with outside partners, both domestic and foreign.
- 2) Demonstrated very good English fluency among both the students and teachers.
- 3) Practical operationalization of signed agreements at renowned industry partners.

Weaknesses:

- 1) Insufficient support for students interested in ERASMUS+ related mobility opportunities.
- 2) Centralised partnership setting up process and insufficient promotion of partnering options among the teaching staff.

Assessment of the requirement [3]

- 1 R3 - The cooperation implemented within the study field with various Latvian and foreign organizations ensures the achievement of the aims of the study field.

Assessment of compliance: Fully compliant

The institution has been cooperating with a number of renowned partners, both domestic and foreign. The feedback received from the interviewed employers demonstrates their strong focus and commitment to the established partnership going beyond typical internship-related purposes.

1.6. Implementation of the Recommendations Received During the Previous Assessment Procedures

Analysis

The documents relevant to this assessment point provided to experts were: "Self assessment report" (Chapter 2.6), the accreditation report title "JOINT REPORT OF EXPERTS, on the bachelor, professional bachelor and master study programmes at Transport and Telecommunications Institute", Annex 18. "Report on the implementation of the recommendations Study programme "Transport and Logistics" (Transport and Business Logistics) was evaluated in the field of study Management, Administration and Real Estate Management"" and Annex 19 "About the study programme "Intelligent Transport and Smart Logistics" (former title "Master of Social Sciences in Transport and Logistics") the implementation of the recommendations made by the experts".

The professional bachelor study programme "Transport and Logistics" is a new name of the previous programme "Transport and Business Logistics". In 2012 it was assessed in the study field "Management, Administration and Real Estate Management". By the decision No. 172 of the Accreditation Commission of the Ministry of Education and Science of June 14, 2013 the programme "Transport and Logistics" was accredited in the field of the study "Transport Services".

The previous recommendations were addressed for each programme separately. This approach is

followed below.

Recommendations referred to Transport and Logistic.

Recommendation 1. "TSI needs to work out a stricter approach to evaluation formulas, their application, intermediate assessment should be performed". The recommendation was addressed by developing a common methodology for course assessment, preparing two documents describing assessment procedures Regulations on the Study Procedures and the Regulations on the Management of the Study Courses, revising the course description and preparing procedures for approval and validation of the course descriptions.

Recommendation 2. "TSI should seek as equal quality for their graduates as possible, because the current situation proves that employers are not satisfied fully with skills deficiencies they embark on daily basis". To fulfil this recommendation the Council of the Study Directions was established to enhance the study programmes, to promote interdisciplinarity and to strengthen links with employers and graduates. The surveys with graduates and employers was structured by developing documents Rules for the Organisation of Student, Graduate and Employer Surveys. Several meetings like round table discussions, seminars, and open lectures by employers are being organized on a periodic basis.

Recommendation 3. "For bachelor degree programmes the current number of students per teacher is 17 on average, it should be made more efficient and 25 students should be taught in an academic group (during seminars, for example). The master programme has reached the minimum of students in a group, i.e., 5, in 2010. This situation should also be considered as a signal for a more efficient approach to programme management". According to TSI information the study process is optimized, as some classes are provided for students from various programmes. Experts' are not in favor of the requirement to increase the number of students in an academic group, as it would contradict the student centered approach implemented by TSI.

Recommendation 4. "There are no or few electives". The number of electives have been streamlined with the requirements of actual regulations (see description of studies chapter)

Recommendation 5. "Avoid mistranslation into English in course titles, e.g. Bookkeeping Accounting; Economic Development Analytics and Planning; Metaphorization Management Skills in Transport; Social Psychology and Sociology". The recommendation is not fully relevant, due to the new title of the programme and new courses implemented.

Recommendation 6. "Major areas for improvement are: a) library resources in the English Language; b) reduction of courses per term/semester; c) increase in credit points per course, d) all courses should be assessed in the exam format rather than "differentiated test,' e) ERASMUS exchange should be improved; f) academic staff should focus on management field research and publications, including project "

Ad a) The library contains the basic reference books for the field in English due to substantial spendings each year for new items. The electronic databases, student accessibility and services offered are at adequate level.

Ad. b) and c) The adequate number and arrangements of courses are now provided.

Ad d) The ERASMUS exchange is offered, and some students profit from it, however the key issue is a low students' interest due to their parallel employment during studies.

Ad f) The students and staff involvement in the research has improved (see iIDEAHUB project dedicated to students activities). The number of referenced publications and their level is adequate.

The study programme "Intelligent Transport and Smart Logistics"

Recommendation 1. "To clarify the substantive content of the programme and to formulate the objectives, content and expected results accordingly, as well as to define the entry requirements" The programme has been restructured into the actual name "Intelligent Transport and Smart Logistics" with respective adjustments of content, entry requirements and scope of internship.

Recommendation 2. "To clarify and add to the descriptions of study courses, to explain more

precisely the requirements for the full-time and part-time studies, to clarify the criteria and requirements for the award of credits points”

The recommendation was addressed by developing a common methodology for course assessment, preparing two documents describing assessment procedures Regulations on the Study Procedures and the Regulations on the Management of the Study Courses, revising the course description and preparing procedures for approval and validation of the course descriptions.

Recommendation 3. “A full-fledged free choice must be ensured in part C” The number and scope of elective courses was improved. Students may select the A and B courses in different programmes as well as profit from the access to Coursera learning platform.

Recommendation 4. To pay more serious attention to the real possibilities of student exchange and mobility in this program taking into account that the study period is short and almost all students work. Two aspects were considered here. First the students' motivation and ability to profit from exchange offers is not high due to professional and personal involvements. The second aspect is that the Institute has a long list of agreements with various educational and professional institutions, which is planned to be extended. But the actual links are not sufficiently exploited.

Recommendation 5. “Motivate and encourage the need to actually read the prescribed literature and to use the available databases”. The access to existing information sources is adequate. The students are introduced with the availability during entrance period (“Welcome week”)

Recommendation 6. “Rethink the content and requirements of the internship and Master thesis, and develop the requirements for the inclusion of novelty and more serious research in the Master thesis”

The internship is organized by TSI or organized by a student and accepted by TSI. Students are encouraged to present their thesis results in a scientific conference organized twice a year. The level of thesis presented to Experts was good and according to the programme declared outcomes.

Recommendation 7. “Continue to work on the development of the e-learning environment, which is especially important for the research work and the work with part-time students” The Moodle tool is continuously developed and adjusted to the e-learning process.

Recommendation 8. “To inform the participants of the surveys about the results of the surveys of students, graduates and internships employers in order to provide the feedback”. The surveys are organized for each course and results analyzed each year. Some lecturers have prepared additional surveys, adjusted to their course speciality. The main issue is the low response at 30% level.

Recommendation 9. To promote the inclusion of students of the Master study program in the work of the student council . TSI offers students facilities to be active in the student council. The Student Council organizes various events on a monthly basis.

Recommendation 10. “To attract more international guest lectures. The recommendation was addressed by involving 9 international lecturers into the teaching process and assigning a special budget to attract them.

Conclusions on this set of criteria, by specifying strengths and weaknesses

The TSI was very reactive on recommendations from previous accreditation. Suggested changes were implemented, which improved the teaching and study process. It may be stated that the recommendations, that had been made, were addressed properly.

Strengths:

1. The TSI responded to all recommendations received during the previous assessment procedures.
2. Actions based on recommendation enhance teaching and learning at the TSI.

Weaknesses:

- 1) The low students' interest in international and internal exchange.
- 2) The low students' involvement in improving the studying process. The low number responses on surveys.

Assessment of the requirement [4]

- 1 R4 - Elimination of deficiencies and shortcomings identified in the previous assessment of the study field, if any, or implementation of the recommendations provided.

Assessment of compliance: Fully compliant

All recommendations from the previous assessment were addressed

1.7. Recommendations for the Study Field

Short-term recommendations

- 1) The formal organisation of the TSI should be made less complex thus allowing for easier workflow of both academic and business processes.
- 2) The SWOT analysis identifying key factors influencing TSI's operations should be rethought and backed by feedback from most important (if not all) stakeholders.
- 3) The formal regulations addressing academic integrity issues need to be updated such that to include information on the consequences, in addition to the information on the circumstances leading to an academic integrity breaching proceedings.
- 4) Introduce a partnership relationship management system. Manage partners according to their relevance/contribution to a particular strategic development objective.
- 5) Update the TSI Website such that to include only genuine proofread information on the TSI ranking.
- 6) The learning objectives of both the study programmes and the study courses taught must be made more concrete and measurable.

Long-term recommendations

- 1) TSI administration and research staff should additionally focus on research in Logistics disciplines such as Warehouse Management, Inventory Management, Procurement Management, Personnel Management in Logistics Companies, Green Logistics, AI Application in Supply Chains.
- 2) The institution should streamline its strategic focus with respect to the geographical territories of its primary interest. These objectives should then be translated into the corresponding formal documents and communicated to both the TSI stakeholders and the interested public.
- 3) Technology context should be more present in the curriculum, allowing students deeper understanding principles of operation and comparison of qualities.
- 4) Consider developing a comprehensive process on how to effectively on-board new external stakeholders into decision-making processes and feedback collection procedures in addition to already established partnerships.
- 5) Consider the possibility of implementing mid-course feedback collection.
- 6) Strengthen the culture and practice of closing-the-feedback loop following feedback collection done in context of quality assurance processes from internal and external stakeholders with emphasis on student feedback.

7) Consider options to empower to a greater degree and involve Students' Council in decision making and quality assurance processes, regarding questions concerning study processes and all other aspects relevant to study experience within TSI.

8) Consider other ways of feedback collection methods in order to obtain more qualitative therefore actionable data.

9) Guarantee the effective assessment of learning outcomes by refraining from practices such as group examination or collective test-taking, thereby ensuring accurate evaluation of individual performance.

10) Enhance the avenue for submitting anonymous complaints concerning potential misconduct and establish a protocol for addressing these issues effectively, while also preserving confidentiality and protection of the complainant if needed.

11) Consider the possibility of making KPIs more trackable and available to decision makers.

II - "Transport and Logistics" ASSESSMENT

II - "Transport and Logistics" ASSESSMENT

2.1. Indicators Describing the Study Programme

Analysis

2.1.1. The contents of the professional bachelor study programme "Transport and Logistics" (42840) is within the scope of the study field "Transport services" (code 840) described in Regulation No 322 "Regulations on the Classification of Latvian Education" by the Latvian Cabinet of Ministers.

2.1.2. The professional bachelor study programme "Transport and Logistic" offers higher education at the 6th level EQF, leading to the title of Professional Bachelor of Transport and Logistics. The graduates obtain qualification of Logistics Manager, according to the Latvian Logistics Manager Professional Standard and also according to recommendations of the European Logistics Association.

The aims (tasks) of the studies, as specified in documents, are well selected as to deliver both theoretical and practical knowledge to gain a sixth-level professional qualification in transport and logistic. The learning outcomes are correlated with the study aims, but descriptions of professional competences of the graduates are formulated sometimes in a too generic way. The need for an interdisciplinary approach to studies is underlined. The practical skills acquisition and preparation for working in an international environment (as a single European labor market) are taken into account. The students' professional individual interests are respected, for instance in the selection of the place for students' internship. The programme offers full time studies (4 years) and part time extramural studies (4,5 years), both in Latvian and English languages in two specializations: "Sustainable transport solution" and "Smart logistic systems". All four types of studies contain 160 CPs and identical sets of studying subjects. It is positive that graduates of all forms of the studies are offered the same contents of studies.

The admission requirements are defined in the "TSI Admission Rules", which are based on Articles 46 and 47 of the Law on Higher Education Institutions, Regulation of the Cabinet of Ministers No. 846 of October 10, 2006 "On Requirements, Criteria and Procedures for Admission to the Study Programmes". The TSI admission requirements are aligned with the aim, objectives and learning outcomes of the study programme, for instance the applicant should have general secondary or

vocational secondary education (maybe “secondary education” is sufficient to describe the candidates’ profilebackground) .

Foreign applicants should be matriculated according to the requirements of the Regulation of the Cabinet of Ministers No. 846 Regulations on Requirements, Criteria and Procedures for Admission to the Study Programmes. The English proficiency is assessed on the basis of the examination score of an internationally recognized testing institution, but at least at B2 level, except in cases where the previous education was acquired in English. Admissiveness criteria for studies in English as secondary education and English language skills at least at B2 level are rational. Also the additional verification of English level is done for candidates who did not fulfil the requirements, but are confident with their English knowledge. The admission to Latvian studies is completion of secondary education according to Latvian regulations.

The specific document admissiveness rules are prepared to clarify the criteria and ease the candidates preparation to the studies, but only in Latvian; the equivalent document should be prepared in English for foreign candidates.

2.1.3. The Professional Bachelor's study programme was licensed in 1999; the previous accreditation was in 2013. Several modifications have been implemented since the last accreditation. The title was modified from "Transport and Business Logistics" to "Transport and Logistics", which indeed gives better visibility and differentiation to other management programmes. The qualification of graduates was established as Logistics Manager according to the Latvian professional standard (approved at the meeting of the Tripartite Cooperation Sub-Council for Vocational Education and Employment on October 16, 2019). This change is also assessed as rational and justified.

The Russian language courses were terminated in 2019, but the TSI gave the enrolled students the possibility to complete education at TSI. The distance learning was abandoned, as it was offered only in Russian, and also due to market demand analysis of the prospects of education in Russian.

The programme includes new courses aimed at the development of professional knowledge in transport and logistics, in the amount of 36 CP (54ECTS) and also at development of students' data processing and analysis skills. Two internships were included : "General Internship" (8 CP, 12 ECTS) and "Specialized Internship"(16 CP, 24ECTS), which provides students’ better hand-on experience.

2.1.4. There is strong social justification of the programme, due to both internal and external factors. The transport including logistic sector is expanding and changing rapidly implementing novel technologies and business models. The strong internationalisation of the sector is visible due to EU markets and links outside. The sector is expanding also due to e- commerce. It is a vital part of Latvian economy, as the transport and storage sector accounts for approximately 7% of GDP (according to 2022 data). Latvia's involvement in the new infrastructure projects (e.g. “Rail Baltica”) will open many opportunities for programme graduates, many of whom undertake the job in the sector already during their studies.

The vast majority of graduates (95% according to SER) work as managers or specialists in logistics in companies related to transportation, logistics, wholesale, manufacturing, etc.

The sector internationalization justifies also the development of the English version of the programme, which attracts foreign students and also gives the national students an opportunity to be prepared to work in an international environment with working English language skills.

2.1.5. Not applicable

Conclusions on this set of criteria, by specifying strengths and weaknesses

The programme is placed very well in the field of “Transport services”. It offers a good background for graduates to be well prepared for market needs. The programme has been modified to follow the current trends in the field. The very high rate of graduates' employment proves the need for the offered education. The overall outcomes of the programme are in line with existing regulations and the market needs.

Strengths:

- 1) Declared alignment of the contents with market needs.
- 2) Adequate provision of internship and internal projects.

Weaknesses:

- 1) During the visit, the opinion was expressed that the study programme needs more alignment to practical skills (see also Chapter . 2.2).

2.2. The Content of Studies and Implementation Thereof

Analysis

2.2.1. The study programme has been accredited as full-time and part-time programme taught in Latvian and English. The majority of the programme content may be seen topical. However, as it has been discussed earlier in Section 1.4, the great deal of the content is related to the transport industry and efficient organisation of transportation, leaving issues dealing with modern logistics uncovered. Moreover, green mobility and green logistics have both been addressed only marginally and/or indirectly. In the undertaken interviews, this has been confirmed by both the interviewed students and the academics. The student feedback even included claims that some textbook materials on logistics used in the teaching process date back as far as 2008. It hence remains to be concluded that such materials are unlikely to include any content on contemporary green logistics. Equally so, when the interviewed academics were asked on which concrete green mobility/logistics concepts, paradigms, tools and/or technologies were included in the curricula (eg. e-mobility, H2-mobility, SUMP modelling, eFuels or similar), unfortunately no straightforward answer has been provided. Instead, generic claims were given implying green logistics/mobility has been taught primarily from the point of the underlying economics. Nevertheless, this has not been substantiated by any tangible or authentic proof from both the interviewed lecturers as well as the students/graduates.

As discussed earlier in Section 1.1, a number of learning objectives of both the study programme and the courses taught are rather generic and as such difficult to be validated and matched against the capacities acquired by the graduated students. Given that such objectives allow for a variety of flexible interpretations, legalistically speaking, it may be said the content of the courses taught corresponds with the aims of the study programme. Nevertheless, the thus acquired capacities of the graduated students may hardly be seen as matching the needs of the industry, labour market and scientific trends. Thus, for instance, the “Modern Solutions and Technologies in Distribution Logistics” course - which, judging by its title, may indeed be seen as one of the most important programme courses providing highly applicable industry-relevant sets of knowledges and practices - sets out as one its learning outcomes that by taking the course the student will be able to “Understand the basics of the methodology of geographical analysis of transport systems and explore the ability to decompose the complex real world transport system from different

perspectives. As well as the ability to understand the network phenomenon that influences the geographical patterns of our daily lives". Given that it remains unclear what sort of "geographical analysis" the students would be exercising, what concrete "different perspectives" would be taken into account when "decomposing the complex real world of transport", or which "network phenomenon" influencing the "geographical patterns of our daily lives" would be studied, it may hardly be taken for granted that such a study content would inherently capacitate students with concrete practical abilities needed by the contemporary mobility and logistics industry.

There are no indications suggesting the content of the study programme would not comply with the applicable national regulations, however there are some uncertainties regarding the required amount of practical work and sub specialisations. Nevertheless, some parts of the content suggest taking mandatory elements perhaps further than needed. Thus, for instance, the curriculum includes the study course "Accounting" which is - as explained by the interviewed study programme directors - mandatory by the national regulations. Even though the expert group fully appreciates that the study programme must be made fully compliant with all the national regulations applicable, it is rather hard to understand how come that any engineering-centred curricula would be required to include learning objectives such as to "...prepare a balance sheet, income statement, and cash flow statement, analyse financial statements..." as set forth in the syllabus of the "Accounting" study course. It is reasonable to suspect that even experienced Logistics Managers of today would have difficulties preparing balance sheets or, indeed, any similar book-keeping documentation, hence the expert group questions whether the content of the given study course has perhaps gone too far with meeting the requirements of the national regulations.

Upon successful completion of the programme, graduates are awarded the professional qualification of Logistics Manager, corresponding to level 6 of the European Qualifications Framework (EQF) and Latvian Qualifications Framework (LQF). An analysis of the professional qualification requirements, in conjunction with the provided curriculum map (Annex 1.3. Compliance with the professional standard.docx) and the content of the study courses, indicates that the programme covers all necessary competencies. Therefore, there is no basis to assert that the programme fails to meet the professional qualification requirements. However, it must be reiterated that intended learning outcomes can be considered as generally vague in such amount, that it nominally covers all necessary skills, competences and knowledges demanded by standard, but in on itself this vagueness does not constitute any identifiable noncompliance that can hinder the awardment of qualification, nevertheless more integration with actual industry needs is a process that is always appreciated Accordingly, the programme is in compliance with the professional qualification standard. Nevertheless, there are some issues regarding provided sub specializations within the programme. Every student thus has a choice to select a specialisation in either "Sustainable Transport Solutions" or "Intelligent Logistics Systems". However, the number of courses comprising these specialisations is insufficient, resembling more to study modules rather than providing a distinct specialisation as indicated in the diploma supplement. Particularly concerning are the following study courses: in Semester 4, "B1 Smart Transport Solutions" (4CP) and "B2 Smart Warehouse Operation" (4CP), and in Semester 5, "B1 Modern Solutions and Technologies in Distribution Logistics" (4CP) and "B2 Project and Multimodal Transport" (4CP). As observed, there are only two courses each with 4CP credits, which is considerably low in order to ensure a specialisation as such and, as previously mentioned, resembles study course modules. Conclusion is that provided specialisations are not justified to be nominated as specialisations as such. Firstly, the professional standard does not distinguish between such sub specializations. Secondly, according to expert opinion, the intended outcome of the 8 CP worth of courses constituting the sub specialization does not justify it being regarded as anything more than a regular B elective course or module.

2.2.2. Not applicable

2.2.3. As repeatedly discussed earlier, the achievement of the aims and learning outcomes of the study courses and the study programme is strongly hindered by the generic nature of the outcomes set. Given that any generically formulated objective allows for flexible interpretation of the achievements made, legalistically speaking, it may be said the implementation methods utilised in the teaching process contribute to the achievement of the aims and learning outcomes of both the study courses and the study programme itself. However, even with the given vagueness of the assessment framework, certain deficiencies of the methods used are more than clear. Thus, for instance, it is clear that throughout the learning process students only marginally get in touch with contemporary IT tools and solutions designed to aid modern transportation and logistics processes. Furthermore, students do not get any hands-on experience in utilising, for instance, GIS software solutions in exploring the spatial nature of transport and logistics even though the curriculum includes study courses such as the “Fundamentals of transport system geography”, “Optimisation Methods” or “Modern Solutions and Technologies in Distribution Logistics”.

The expert group fully appreciates the focus of the programme to have been set to understanding the principles behind spatial optimisation needs rather than on gaining experiences in practical use of modern optimisation tools, nevertheless, the feedback received by both students and employers suggest more effort should be invested in capacitating students with more concrete skills readily applicable upon job taking. The interviewed students thus reported that even though the curriculum implies their familiarisation with the AnyLogic and/or PTV Visum/Visim range of tools, their capacities upon graduation rarely go beyond understanding the theory behind or basic sets of practical skills in using the software. Some of them even suggested that they had tried to initiate changes in this regard through the regular feedback providing channels, however, the proposals submitted or communicated orally were either left unanswered or dealt with in a bureaucratic way such that the formal procedure would be fulfilled but would not generate any concrete changes. The same applies to both full-time and extramural-learning studying.

Judging by a general contentment of the students and graduates interviews, the study programme and the teaching methods used may be seen as student-centred. The approach which stimulates student’s initiative in undertakings such as the project proposals within the IDEAHUB framework, internshiping and ERASMUS+ exchange may all be considered sound in building up student’s professional self-confidence and motivation. Nevertheless, as repeatedly discussed earlier, more efforts need to be invested into streamlining student’s technical and IT skills in directions complying with the actual and future transportation and logistics trends, as well as the strategic directions of TSI academic and research development. The programme is taught either as full-time or part-time. The latter is held either on site on weekends or in a distance learning option. The programme is realised using the 40 hours per credit point (1.5 ECTS principle, out of which 12 hours per 1 credit point are intended for contact hours). In the distant learning option 1 contact hour is provided for 1 credit point.

2.2.4. As discussed earlier in Section 1.5, the institution has set up a number of partnerships through which it offers students internship opportunities. Despite the variety of thus provided possibilities, the operationalization of concrete internships was reported to have been suffering from a variety of challenges. Thus, for instance, foreign students have reported a complete lack of TSI support in finding internship opportunities leaving finding a concrete placement entirely to themselves. Furthermore, some of the part-time students interviewed expressed concerns regarding the fact that the TSI does not value in any way possible their previous industry experience, leading to a situation where they are expected to undergo a mandatory internship despite the fact that the level of knowledge and skills expected to be acquired through the internship is likely to be way below their current level of professional expertise.

Even though the SER states (p. 138) that “Many international logistics companies operating in Latvia use English” as corporate communication language, in the feedback received from the interviewed employers no options of doing internships in English was suggested to have been possible. Quite contrary, the employers such as, for instance, the Riga International Airport explicitly stated Latvian fluency to be a mandatory requirement for all new employees. Indeed, the expert group appreciates other regulations that may apply for internship candidates, but from the effectiveness of the business workflow point of view, the same mandatory requirement on Latvian fluency is likely to have been applicable to student interns too.

2.2.5. Not applicable.

2.2.6. Despite the variety of options the students have available when choosing their final thesis, which may indeed lead to questionable thesis compliance with the study programme, the expert group has found no evidence which would suggest poor thesis relevance to the Transport Services study field or the Transport and Logistics study programme. As reported by both the interviewed representatives of the TSI management as well as the industry representatives, the subject of the thesis is often chosen such that to reflect a concrete real-world challenge, either as a result of the previous internship experience of the student, or the involvement of an industry representative in the thesis evaluation commission. Both indirectly proves a high level of thesis compliance with the needs of contemporary transport and logistics, and implies real-world applicability of the skills and knowledge accumulated as a part of the thesis realisation process.

Conclusions on this set of criteria, by specifying strengths and weaknesses

A significant part of the study programme/course content is related to the transport industry only leaving issues dealing with modern logistics rather uncovered. Also, contemporary green mobility/logistics concepts, paradigms, and/or technologies such as e-mobility, H2-mobility, SUMP modelling, eFuels or similar are only marginally represented and upon graduation the students are not capacitated to independently evaluate the applicability of different green mobility options in real-life processes analysed. The generic nature of the study programme/courses outcomes hinder the process of proper evaluation to which extent the implementation methods utilised in the teaching process contribute to the achievement of these outcomes. Nevertheless, it may still be deemed that some of the methods used need to be improved such as, for instance, a wider use of GIS software solutions in exploring practical examples of the spatial nature of transport and logistics.

Strengths:

1) The rationale behind the study programme is timely and topical and as such, the study programme has got great potential to correspond closely to the needs of both local and international transport & logistic sectors, providing the content of the study programme enables more concrete learning objectives to be achieved.

Weaknesses:

- 1) Strong focus and reliance on student’s own initiative in finding internship opportunities.
- 2) Marginal use of transport & logistics-based IT.
- 3) Questionable syllabus of the “Accounting” study course.
- 4) Specializations as defined within the study programme could be more reasonably understood as

study course modules rather than distinct specialisations.

Assessment of the requirement [5] (applicable only to master's or doctoral study programmes)

- 1 R5 - The study programme for obtaining a master's or doctoral degree is based on the achievements and findings of the respective field of science or field of artistic creation.

Assessment of compliance: Not relevant

2.3. Resources and Provision of the Study Programme

Analysis

2.3.1. In addition to analyses provided under criterion 1.3.3. TSI ensures extensive and solid provision for academic knowledge gathering (Academic Complete database of scholarly e-books in major fields of science, SCOPUS database, on-site library with regular info sessions about latest library news and training on library resource usage). Such an approach is essential for guiding students through their academic learning process and better facilitates their understanding of the study subject. TSI can additionally benefit from a wide range of software supported by TSI as well as computer labs and remote access to those resources, which ensures that study programme scientific provision relies on the availability of limited, but still existing, research activities and equipment that support scientific inquiry and experimentation.

Access to specific Coursera course catalogue allows to improve qualification for teaching staff, knowledge level for students and better learning process management. Observations done during TSI on-site visit (24.04.-25.04) ensured that necessary prerequisites to achieve study goals and quality of study process are in place.

2.3.2 Not applicable.

2.3.3. Study programme funding is mainly based on tuition fee income and fully supports existing needs of implementation of the programme. To attract a bigger amount of students different options to receive personalised discounts are in use and applied on a competitive basis. Study programme management has defined a minimum number of students to ensure profitability level - 12 students (face-to-face studies), 8 students (part time face-to-face studies). Existing profitability level supports further development of the study programme and no threatening signs were noticed during expert on-site visits (24.04.-25.04.). At the same time, the decreasing amount of total students on a year-to-year basis in reference period (SER 3.1. Annex 1.1) shows a negative trend and might request challenging corrective activities in the coming future to attract the necessary amount of students.

Conclusions on this set of criteria, by specifying strengths and weaknesses

Study programme has a strong existing funding base from financial, academic knowledge and data source, IT technology and teaching staff aspects, which, as a set of prerequisites, ensures a stable background for acquiring necessary student volume and potential for further development.

Strengths:

- 1) Flexibility to provide the study process mainly by the existing staff of the Faculty of Engineering within combination of involvement of the staff from the Faculty of Transport and Management

Sciences for the human/social studies part of the course.

2) Wide range of good level academic databases availability.

Weaknesses:

1) Actual number of total students, especially during the last 5 years, is decreasing and might have long-term (>5-7 year) impact on study programme sustainability

Assessment of the requirement [6]

- 1 R6 - Compliance of the study provision, science provision (if applicable), informative provision (including library), material and technical provision and financial provision with the conditions for the implementation of the study programme and ensuring the achievement of learning outcomes

Assessment of compliance: Fully compliant

On-site observations (digital classroom, public library, condition of premises) correlate with statements defined in SER 3.3.1. and 3.3.3.

2.4. Teaching Staff

Analysis

2.4.1. The qualifications of teaching staff involved in the implementation of the study courses meet the conditions of the study programme and the requirements of regulatory acts, ensure the achievement of the goals and study results of the study programme and the corresponding study courses.

Teaching of the Bachelor study programme "Transport and Logistics" is provided by 25 teaching staff with appropriate academic work experience and qualifications, of which 16 are lecturers elected by TSI, 14 teaching staff with Doctor's degrees in various fields, 5 with a master's degree. TSI professors, emeritus professor, 4 assistant professors and 2 lecturers (Annex Nr. 10, p. 145. SER). Several industry specialists are also involved in the study process. Foreign lecturer Berdymyrat Ovezmyradov works at TSI, who started cooperation in 2019, continues and currently teaches several courses in the professional sector in English (meeting with academic staff). Of the invited lecturers, 5 have a Doctor of Science degree, the rest have a master's degree (p. 145 SER).

2.4.2. Changes in the structure of teaching staff involved in the study programme are in line with the requirements of the learning process and industry development. The administration ensures that the appropriate qualifications and experience of the teaching staff, both in the academic environment and in the industry, ensure the highest possible quality of education (meeting with management). In the period since 2013, the total number of lecturers has decreased, but the number of students in the study programme has also shortened. From the previous period, 5 lecturers work at TSI, ensuring sufficient transfer of competences necessary for teaching the study programme. The institution's administration records the rotation of lecturers and analyses its reasons (p.146 SER, Annex 10).

The choice of lecturers is determined by the content of the study programme, which is continuously improved according to the rapid development of the industry. The programme includes study courses that ensure future competences, inviting teaching staff who specialise in the specific field, including from the professional environment, to teach these courses (p. 146 SER)

2.4.3. Not applicable.

2.4.4. It should be noted that when TSI submitted Appendix 11 "Compilation of quantitative data on

scientific research activities corresponding to the field of study in the reporting period", the reporting period was chosen for 10 years - from 2013 to 2023. This does not allow for an accurate assessment of this criterion.

Analysing the list of lecturers who provide the study process in the Bachelor study programme "Transport and Logistics" and Appendix No. 11 with the quantitative indicators of scientific publications, as well as Appendix 13, it was found that one teaching staff member, who is a lecturer in the "Information Systems" study course, has not fulfilled this criteria.

2.4.5. The study programme has a mechanism for regular mutual cooperation between teaching staff, it promotes the improvement and interconnection of study courses. This programme ensures enough cooperation to provide adequate study courses.

During the implementation of study courses and scientific work, regular weekly meetings of teaching staff take place, in which they exchange experiences on study course topics, results of scientific work, news in research, etc. (Meeting with academic staff).

If a study course is taught in several languages, and it is possible that the same course is taught in Latvian and English by different teaching staff, all teaching staff related to the specific study course are involved in the process of coordinating the study courses (meeting with academic staff).

Within the framework of the study programme, cooperation with employers and professional organisations is implemented in seminars, conferences, as well as during personal contacts of lecturers. TSI regularly holds discussion meetings involving academic staff and industry representatives (meeting with academic staff).

Conclusions on this set of criteria, by indicating strengths and weaknesses

Set of criteria is partially compliant.

The qualification and research record of the teaching staff is in general on a satisfactory level. The mechanism of collaboration between the teaching staff and also industry representatives was assessed as good. Additional attention should be paid to the publication frequency of the elected teaching staff in the scientific journals.

Strengths:

- 1) Regular teaching staff weekly meetings, to solve operative issues.
- 2) Good collaboration between the teaching staff and industry representatives.

Weaknesses:

- 1) Lecturer in the "Information Systems" study course, has not fulfilled the criteria of scientific publication in the last 6 years.

Assessment of the requirement [7]

- 1 R7 - Compliance of the qualification of the academic staff and visiting professors, visiting associate professors, visiting docents, visiting lecturers and visiting assistants with the conditions for the implementation of the study programme and the requirements set out in the respective regulatory enactments.

Assessment of compliance: Fully compliant

Despite the fact that one lecturer has not fulfilled the criterion of regular scientific publication,

experts believe that this indicator against the total number of teaching staff mentioned in the Appendix 11, is not essential.

2.5. Assessment of the Compliance

Requirements

- 1 - The study programme complies with the State Academic Education Standard or the Professional Higher Education Standard

Assessment of compliance: Fully compliant

Annex “1.2.pielikums. Atbilstība izglītības standartam 0103.docx” confirms that the study programme complies with Cabinet Regulation No. 305 “Noteikumi par valsts profesionālās augstākās izglītības standartu”. Also, Civil and Environmental protection courses in 2 CP amount is present in the programme.

- 2 - The study programme complies with a valid professional standard or the requirements for the professional qualification (if there is no professional standard required for the relevant occupation) provided if the completion of the study programme leads to a professional qualification (if applicable)

Assessment of compliance: Fully compliant

Provided mapping (“1.3.pielikums. Atbilstība profesijas standartam.docx”) confirms that the programme is compliant with occupational standard of LOGISTICS MANAGER, approved on 16.10.2019., however inclusion of sub specializations of “Sustainable Transport Solutions” and “Smart Logistics Systems” are not justified.

- 3 - The descriptions of the study courses and the study materials have been prepared in all languages in which the study programme is implemented, and they comply with the requirements set forth in Section 561 , Paragraph two and Section 562 , Paragraph two of the Law on Higher Education Institutions.

Assessment of compliance: Partially compliant

Attached study course descriptions (“1.6.pielikums. Studiju kursu apraksti.zip”) are prepared in Latvian and

English. Descriptions comply with regulations set forth in Law on Higher Education Institutions. However in some cases mandatory literature features an unrealistic amount of sources, therefore it is necessary to clarify what pages or articles are actually mandatory reading so it corresponds to factual study work and requirements from students within the courses.

Although some courses feature multiple books as obligatory reading, students stated in on-site visit that, in their experience, no courses actually require reading multiple books. Obligatory reading should reflect factual requirements and coursework required in order to complete the course.

- 4 - The sample of the diploma to be issued for the acquisition of the study programme complies with the procedure according to which state recognised documents of higher education are issued.

Assessment of compliance: Partially compliant

The provided diploma sample (“1.7.pielikums. Diploma paraugs.zip”) generally complies with the procedure by which state-recognised documents of higher education are issued in accordance with Cabinet Regulation No. 202 “Kārtība, kādā izsniedz valsts atzītus augstāko izglītību

apliecinošus dokumentus". Apparently, the provided diploma supplement features information about Latvian Higher Education system that is outdated. However, each student has the option to choose one of the specialisations: "Sustainable Transport Solutions" or "Intelligent Logistics Systems". The amount of courses that constitutes this specialisation is not sufficient and acts more like study modules and does not necessarily grant specialization as such.

- 5 5 - The academic staff of the academic study programme complies with the requirements set forth in Section 55, Paragraph one, Clause 3 of the Law on Higher Education Institutions.

Assessment of compliance: Not relevant

- 6 6 - Academic study programmes provided for less than 250 full-time students may be implemented and less than five professors and associated professors of the higher education institution may be involved in the implementation of the mandatory and limited elective part of these study programmes provided that the relevant opinion of the Council for Higher Education has been received in accordance with Section 55, Paragraph two of the Law on Higher Education Institutions.

Assessment of compliance: Not relevant

- 7 7 - At least five teaching staff members with a doctoral degree are among the academic staff of an academic doctoral study programme, at least three of which are experts approved by the Latvian Science Council in the respective field of science. At least five teaching staff members with a doctoral degree are among the academic staff of a professional doctoral study programme in arts (if applicable).

Assessment of compliance: Not relevant

- 8 8 - The teaching staff members involved in the implementation of the study programme are proficient in the official language in accordance with the regulations on the level of the official language knowledge and the procedures for testing official language proficiency for performing professional duties and office duties.

Assessment of compliance: Fully compliant

Attached resumes ("CV lv.zip") and confirmation letter ("0.pielikums. Apliecinajums valsts valodas prasme.edoc") verifies that state language proficiency is compliant with Cabinet Regulation No. 733 "Noteikumi par valsts valodas zināšanu apjomu, valsts valodas prasmes pārbaudes kārtību un valsts nodevu par valsts valodas prasmes pārbaudi".

- 9 9 - The teaching staff members to be involved in the implementation of the study programme have at least B2-level knowledge of a related foreign language, if the study programme or any part thereof is to be implemented in a foreign language (if applicable).

Assessment of compliance: Fully compliant

Attached resumes of staff ("CV lv.zip") and confirmation (" 21.pielikums. Apliecinajums angļu valodas prasme.edoc") verifies that language proficiency in English is at least B2.

- 10 10 - The sample of the study agreement complies with the mandatory provisions to be included in the study agreement.

Assessment of compliance: Fully compliant

Sample of attached study agreement ("24.pielikums. Studiju līguma paraugs 0103.pdf") complies with Cabinet Regulation No. 70 "Studiju līgumā obligāti ietveramie noteikumi".

- 11 11 - The higher education institution / college has provided confirmation that students will be provided with opportunities to continue their education in another study programme or another higher education institution or college (agreement with another accredited higher education institution or college) if the implementation of the study programme is terminated.

Assessment of compliance: Fully compliant

Attached contract (“ 22.pielikums . Ligums RTU_TSI_.edoc”) confirms that the institution provides the possibility to continue studies within RTU Professional Bachelor study programme "Business Logistics" (42345). Study programme level and awarded degree/qualification is comparable, however study programme code of TSI programme is 840 which corresponds to “Transport Services”, while RTU programme code is 345 which corresponds to “Management and Administration”.

- 12 12 - The higher education institution / college has provided confirmation that students are guaranteed compensation for losses if the study programme is not accredited or the study programme’s license is revoked due to the actions (actions or omissions) of the higher education institution or college and the student does not wish to continue studies in another study programme.

Assessment of compliance: Partially compliant

TSI confirmation (“23.pielikums. Apliecinājums par zaudējumu kompensāciju 1103.edoc”) does not clearly state that students are guaranteed compensation. Confirmation states that the institution will refund tuition fees for the period when studies are not provided,”. If a student cannot continue studies and decides against continuing studies in a provided institution, the student should have the right to be compensated fully for all tuition fees paid as the institution has failed its contractual obligations.

- 13 13 - The joint study programmes comply with the requirements prescribed in Section 55.(1), Paragraphs one, two, and seven of the Law on Higher Education Institutions (if applicable)

Assessment of compliance: Not relevant

- 14 14 - Compliance with the requirements specified in other regulatory enactments that apply to the study programme being assessed (if applicable)

Assessment of compliance: Not relevant

Assessment of the requirement [8]

- 1 R8 - Compliance of the study programme with the requirements set forth in the Law on Higher Education Institutions and other regulatory enactments.

Assessment of compliance: Partially compliant

Diploma supplement features specialization. The amount of courses that constitutes this specialization is not sufficient and acts more like study modules.

Diploma supplement features outdated information regarding Latvian Education system.

In some of the study course descriptions mandatory literature features an unrealistic amount of sources, therefore it is necessary to clarify what pages or articles are actually mandatory reading so it corresponds to factual study work and requirements from students within the courses. Obligatory reading should reflect factual requirements and coursework required in order to complete the course. Fact that obligatory reading reflects actual work in courses has not been corroborated in meeting with students.

Confirmation of compensation for losses is not sufficiently clear.

General conclusions about the study programme, indicating the most important strengths and weaknesses of the study programme

Professional bachelor study programme "Transport and Logistics" demonstrates strong alignment with market needs and current industry trends, contributing to high rates of graduate employment. However, the programme may benefit from further integration of modern logistics concepts and green mobility technologies to better prepare students for real-world challenges. Overly general outcomes of the study programme makes it difficult to evaluate how the teaching methods used contribute to achieving these outcomes. While collaboration with industry representatives is commendable, more emphasis on publication frequency in scientific journals among teaching staff could strengthen the program's academic relevance and research contributions. All implementation modes and languages generally yield similar outcomes in practice, thus there should not be significant non-compliances. Part-time extramural studies are particularly vulnerable, but the online learning platform appears to be well-organized and effectively mirrors the content and methodologies employed in the full-time program. Therefore, all forms (full time and part-time extramural) and languages (Latvian and English) implemented within the scope of this study programme should be supported.

Main strengths:

- 1) The study programme is timely and topical and as such has got great potential to correspond closely to the needs of both local and international transport & logistic sectors.
- 2) Regular teaching staff weekly meetings, to solve operative issues.
- 3) Good collaboration between the teaching staff and industry representatives.
- 4) Flexibility to provide the study process by the existing teaching staff of two faculties (Faculty of Engineering & Faculty of Transport and Management Sciences).
- 5) Wide range of good level academic databases availability.

Main weaknesses:

- 1) Strong focus on student initiative in finding internship opportunities.
- 2) Marginal use of transport & logistics-based IT.
- 3) Questionable syllabus of the "Accounting" study course.
- 4) Specialisations as defined within the study programme could be more reasonably understood as study course modules rather than distinct specialisations.
- 5) The reporting period of the list "Compilation of quantitative data on scientific research activities corresponding to the field of study in the reporting period" was chosen for 10 years, instead of the required 6 years.
- 6) A lecturer in the "Information Systems" study course has not fulfilled the criteria of scientific publication in the last 6 years.
- 7) Confirmation of compensation for losses is not sufficiently clear.
- 8) In some of the study course descriptions mandatory literature features an unrealistic amount of sources.

Despite some shortcomings in the study programme, experts believe it generally meets its overall aims. The identified weaknesses can be reasonably addressed to further improve the program. The institution has a strong foundation, both academically and otherwise, to successfully implement programme in future.

Evaluation of the study programme "Transport and Logistics"

Evaluation of the study programme:

Good

2.6. Recommendations for the Study Programme "Transport and Logistics"

Short-term recommendations

- 1) Control and manage the frequency of publications of the elected teaching staff in peer-reviewed collections of scientific articles.
- 2) Significantly improve student support in finding internship opportunities, especially for English-speaking students. In addition to providing mere placement options through signed cooperation agreements, the support should also include capacity matching evaluation through which optimal placement options would be selected and offered to the student.
- 3) Re-evaluate the learning objectives of the "Accounting" study course and make sure they do not go beyond the mandatory set of skills and experiences required by the applicable national regulations.
- 4) The number of study courses specialising in transport and logistics is marginal and hardly adequate for building target student's specialisations. In this regard it is recommended to increase the number of transportation/logistics-centred courses and/or organise them as modules.
- 5) Update the necessary documentation to ensure full compensation of tuition fees paid in case of programme closure if a student decides not to continue studies in options provided.
- 6) Update study course description mandatory reading lists to reflect actual reading required by students within the courses.
- 7) Finetune the study programme learning objectives making them more concrete and easier to be validated in student achievements. Make the learning objectives realistic and complementing the needs of the industry.

Long-term recommendations

- 1) The data to be submitted for evaluation should be applied to an appropriate period of time.
- 2) Stimulate the inclusion of practical works and the use of GIS or other such software tools in the learning process such that the graduated students would possess a good set of practical hands-on experiences in utilising modern IT support upon taking a job.
- 3) Invest into dedicated transport & logistics lab equipment which comply with the key strategic research objectives of the TSI and make sure they get to be practically utilised by students in both the teaching process as well as in the student final thesis.
- 4) Ensure continuous growth of the number of graduating students to avoid long-term funding challenges.

II - "Intelligent Transport and Smart Logistics" ASSESSMENT

II - "Intelligent Transport and Smart Logistics" ASSESSMENT

2.1. Indicators Describing the Study Programme

Analysis

2.1.1. The contents of the academic master study programme "Intelligent Transport and Smart Logistics" is within the scope of the seventh level study field "Transport services" (code 840)

described in Regulation No 322 "Regulations on the Classification of Latvian Education" by the Latvian Cabinet of Ministers. Transport Engineering is included in the Civil Engineering and Transport Engineering sector, in the Engineering and Technology sector group (according to the Cabinet of Ministers Regulation No. 595 "Regulations on Latvian Science Sector Groups, Scientific Sectors and Sub-Sectors").

2.1.2. The academic master's programme "Intelligent Transport and Smart Logistics" (previously named "Master of Social Sciences in Transport and Logistics") was licensed in 2012. The programme "Intelligent Transport and Smart Logistics" was evaluated and accredited in the study field "Transport Services" in 2014. The programme "Intelligent Transport and Smart Logistics" is an academic master study programme providing higher education at the 7th level, leading to the title of Master of Engineering in Transport and Logistics. The programme offers 2 years full time studies and 2.5 years part time extramural studies both in Latvian and English, each of amount 80 CPs (120 ECTS). There are also two forms of part time extramural studies in a distance learning form, with similar scopes and requirements as part time extramural studies. The distance learning is offered only in English.

The entrance requirements are Bachelor's degree in engineering, natural sciences, social sciences (economics or management sciences), or equivalent higher education, with a completed programme of 120 CP (180 ECTS).

For candidates, which completed first-cycle professional higher education in the field of transport or logistics and professional qualification as a logistics manager or equivalent to higher education, there are dedicated full time studies duration of 1,5 years and part time extramural studies duration of 2 years in Latvian and English, both 60 CPs (90 ECTS). The entrance requirements are "first-cycle professional higher education in the field of transport or logistics and professional qualification as a logistics manager or equivalent to higher education, or Bachelor's degree in engineering, natural sciences, social sciences (economics or management sciences), or first-cycle professional higher education in relevant fields, or equivalent to higher education, with a completed program of 160 CP (240 ECTS) and 1 year of practical work experience in the field of transport and logistics". The candidates should pass the entrance exam. To study in English, the B2 level of language proficiency is required. The entrance requirements for all types of studies are well defined and adequate for selecting candidates with good prospects to successfully complete the studies.

Although general goals of the programme could be deemed as well-defined, underlining a multidisciplinary approach to prepare specialists for designing, planning and managing as well as identifying and solving problems of transport and logistics systems, the TSI has not included adequate specifics of the programme which would clearly suggest TSI's competitive advantages against similar comparable programmes taught elsewhere. Also, the learning outcomes may generally be seen as correlated well with the study aims describing the competences of the graduates, however, as discussed earlier, they are rather generic and hence susceptible to flexible interpretations.

2.1.3. Several programme modifications have been implemented since last accreditation. The title of the programme was changed from "Master of Social Sciences in Transport and Logistics" to "Intelligent Transport and Smart Logistics", accredited in the Transport services field. The programme renaming was a good approach to make it more attractive for candidates and to streamline the contents to requirements of modern industry. The programme was modified by removing internship (20 CP), including new courses like a 8 CP module referring to modern "intelligent" aspects of transport and logistics, and a 4 CP course of digital technologies in transport and logistics. The 4 CP Study Project was added, which is positive for students, who learn to solve practical problems and prepare for Master Thesis. The free elective block was increased to 4 CP

which allows the students to acquire knowledge according to their individual interests.

2.1.4. Transport and logistics are important sectors for Latvia's national economy, with good prospects for further development due to access to the Baltic Sea and proximity to Scandinavia. As in other countries the transport industry has a big influence on the national economy. New technologies related to intelligent transport systems and automated traffic control, flow planning combined with increasing implementation of IT will absorb well prepared specialised. The programme "Intelligent Transport and Smart Logistics" offers study courses related to these topics. Based also on information from graduates, they had no problems with finding a job according to their study field. The number of local students is stable, and the number of international students decreased during the last 5 years. The reasons may be the covid case and general international situation. Students from new countries appeared last year (Azerbaijan 1, Cameroon 1, Lebanon 1, Nigeria 1) which may suggest the recovery in international students' interest. Offering the distance learning in English is a good approach to expand education activity abroad, which brings economic benefits for the Institute.

Conclusions on this set of criteria, by specifying strengths and weaknesses

The study programme "Intelligent Transport and Smart Logistics" is tailored well to the needs of the labour market - actual and prospective. The responsiveness of studies management to actual needs of industry should be acknowledged. The implemented changes are in-line with actual trends in transport. Offering a shorter period of studies is a good solution for experienced candidates.

Strengths:

- 1) Implementing programme changes according to industry needs.
- 2) Including more study courses related to recent trends in industry.

Weaknesses:

- 1) The competitive advantages against similar comparable programmes taught elsewhere are not clear.
- 2) The competences of the graduates are formulated in a too generic way.

2.2. The Content of Studies and Implementation Thereof

Analysis

2.2.1. The master study programme 'Intelligent Transport and Smart Logistics' has been accredited as a full-time and part-time in person study programme taught in the Latvian, Russian and English, and part-time distance learning programme taught in Russian and English. The study programme implemented in Russian will not be offered for the new accreditation period. Further to the discussion provided in Section 2.1.2, the content of the programme may also be seen as susceptible to rather generic programme and study course objectives. A typical example of a generically defined programme outcome is, for instance, that a graduated master level student would be, "...based on a broad knowledge of intelligent transport systems, able to effectively use computerised tools for modelling and analysis of transportation systems engineering problems...". Although the focus on computer-based modelling and analysis is indeed something any programme should be

complimented for, it remains unclear what has been considered by the syntagm “computerised tools” as it may encompass a rather wide range of digital complexities and outputs, from a mere Microsoft Excel basic proficiency to a highly powerful ESRI ArcGIS Pro hands-on experience.

In addition to the generic nature of learning outcomes formulations, the differences in the objectives set for the bachelor and master study levels may hardly be seen as reflecting the expected higher set of knowledge and skills acquired at the master level of studying. The comparison below thus showcases concurrent BSc vs. MSc programme objectives which may be deemed entirely synonymous even though it would rather be expected the MSc study level would include far more complex accomplishments. Moreover, some of the master level objectives (eg. the “Able to explore, identify the value and apply current and emerging technologies for lifelong learning, professional activity and development” objective) may even be seen as rather trivial and way beyond the complexity levels of typical engineering-related study programmes.

45840 vs. 42840 comparison of concurrent learning objectives

Comparison 1:

45840 - Able to provide specialised up to-date knowledge of transport engineering in technology, develop specialised problem solving skills required for research, and acquire leadership and innovation skills applicable to solving real-world and theoretical problems in the field of transport and logistics.

42840 - To be able to apply professional knowledge in the field of transport and logistics, performing work both individually and either as a part of a team or in an interdisciplinary team.

Comparison 2:

45840 - Able to participate and actively contribute to all phases of research or development projects in the field of transport and logistics, taking into account the importance of technology in society, including economic, social, and sustainable development.

42840 - To be able to analyse the supply chain flows in the company, to organise cost and revenue calculations, and to choose transport modes appropriate to the needs of the company.

Comparison 3:

45840 - Based on a broad knowledge of intelligent transport systems able to effectively use computerised tools for modelling and analysis of transportation systems engineering problems.

42840 - To be able to apply modern information technology and software to analyse and to improve the transport and logistics processes.

Comparison 4:

45840 - Able to design, analyse, improve and manage the transport and logistics systems and emerging technologies

42840 - To demonstrate knowledge of smart logistics systems and sustainable transport solutions, and to contribute to the implementation of sustainable logistics solutions in the company.

Despite the claims provided in the SER (p. 111) that “...the correlation of the objectives and results of the study programme with the results of individual study courses can be found in each course description...”, they may hardly be seen as substantiated by concrete proofs. Thus, for instance, if the ability to “...effectively use computerised tools for modelling and analysis of transportation systems engineering problem...” is analysed, the fundamental course addressing the given programme objective is likely to be the “Information Systems and Technologies” study course. Given that the course description states the course has been designed to “help students understand the

role of IS/IT in the enterprise and the means by which these systems are designed, developed, utilised and maintained”, thus suggesting a primary focus on ERP-related topics, it remains unclear to what extent the course contributes to the realisation of the objective of modelling the “transportation systems engineering problems”. To further underpin the expressed doubts, the focus of the “Information Systems and Technologies” study course on generic ERP solutions such as the SAP ERP instead of vertical transport/logistics-centred IT solutions has also been confirmed by the interviewed teaching staff. The expert group finds such a practice dubious, especially given that the SAP ERP has only been studied theoretically leaving the students without any practical SAP-related experience. In addition, it has made clear to the expert group that the level of mobility-centred IT literacy taught in the programme also corresponds more with the “understanding the logic behind” than with the “being an independent software user” paradigm. As such, it may hardly be concluded that such study courses capacitate students to model and analyse transportation systems engineering problems and hence contribute in a tangible way to the overall objectives of the study programme.

The questionable way of setting up the learning objectives may also be seen as an important factor inhibiting a wider interest from the industry for master level graduates. Although not communicated explicitly, the feedback from the interviewed industry representatives still suggested the primary interest of the employers to be not to hire master level graduates, but rather entry level students still able to be purposely “moulded” according to specific needs of a company. It is beyond any doubt that industry representatives contribute actively to various parts of the TSI academic process, nevertheless, it seems that established relationships suffer from a questionably “role casting” setup in which the TSI is always on the receiving end, reacting to the needs expressed by an industry partner. The expert group hence feels more effort would need to be invested in making the TSI’s role more proactive, and attracting wider industry interest by the carefully selected and carried out sets of industry-applicable knowledges and skills of both TSI’s graduates (master level) and their teachers, rather than by responding directly to any request coming from an industry partner regardless of how the request actually complies with the TSI’s strategic development goals.

With respect to the study programme’s compliance with national regulations, the programme is implemented in two versions each lasting more than one year and being credited 60 CPs or more. The mandatory part of the study programme includes studying the theoretical knowledge of the chosen scientific field and coupling it with the application of acquired knowledge in practical tasks. In all of the studying variants the number of thus acquired credits exceeded the mandatory 18 credit points. The study programme also offers free-choice study courses (the so-called Block C courses) aimed at complementing the knowledge and experience gained through the mandatory and other elective courses. International students for whom Latvian is not their first language, learning Latvian as a part of the “Latvian language for foreign students” study course (3ECTS) is also compulsory. Finally, with respect to the provisions of the requirements of the “Environmental Protection Law” and the “Civil Protection and Disaster Management Law”, students are required to take “Labour Safety, Civil Defence and Environment Protection” study course (3ECTS) in case they had not covered that in their earlier education.

2.2.2. The degree awarded upon graduating the “Intelligent Transport and Smart Logistics” study programme may be deemed as corresponding to the achievements and findings of the relevant field of science. The programme deals with the challenges of contemporary transportation and logistics and includes content, paradigms and concepts such as green logistics, urban mobility, smart warehousing, transport multimodality and others which may all be found as relevant. In addition, the relevance of the course content to the new trends is further substantiated by the active practical, scientific and research accomplishments of the teaching staff realising the programme either through their research output, knowledge sharing with other Latvian and foreign colleagues or

participation in industry-initiated expertise.

2.2.3. As has been the case with the “Transport and Logistics” (42840) bachelor study programme discussed above, the implementation methods used in the realisation of the “Intelligent Transport and Smart Logistics” (45840) programme also suffer from similar challenges. Primarily these are related to the generic nature of the learning objectives set, thus hindering the assessment of the effectiveness of the implementation methods used in the programme. Examples of generically defined objectives include, for instance, the “Understanding transport as a key element of development at any geographical scale, as well as the concept of individual modes of transport and their role in changing patterns of mobility and accessibility” outcome of the “Geography of Transport Systems” study course, the “Understanding the impacts of the sustainable transportation in the urban system” outcome of the “Urban Mobility and Smart Cities” course and others. In addition to the generic nature of the study course objectives, as discussed earlier in Section 2.2.1, the same applies to the majority of study programme learning objectives too.

Another issue which the expert group finds problematic in addition to the generic nature of the learning objective is the strong focus on student initiative in the teaching and learning processes. Even though such an approach may indeed be deemed affirmatively and a good example of exercising a student-centred learning, the expert group still feels a more active role by the teaching staff should be present in reaching the learning objectives set. Thus, for instance, both the students and the academics interviewed have confirmed the teaching process has been focused on theory-based learning rather on learning-by-doing. In this regard, it has been communicated that, should the students want to expand their knowledge and/or skillfulness in a desired discipline, software or technology, they are typically suggested by their teachers to exercise that within their study projects. The expert group indeed generally supports such an attitude but only if some basics on the given subject had already been provided as a part of the curriculum. The expert team fully appreciates the study project framework plays a vital role in promoting independent and self-driven studying, nevertheless, this should not be confused for leaving the hard bits of the study programme solely on students.

Similarly to the “Transport and Logistics” study programme, the practical use of modern IT tools and solutions in supporting the realisation of the programme is marginal and - according to the feedback received by both students and teacher - very much theory-based.

The programme is taught either as full-time or part-time. The latter is held either on site on weekends or in a distance learning option. The programme is realised using the 40 hours per credit point (1.5 ECTS principle, out of which 12 hours per 1 credit point are intended for contact hours). In the distant learning option 1 contact hour is provided for 1 credit point.

2.2.4. Not applicable.

2.2.5. Not applicable

2.2.6. As has been the case with the “Transport and Logistics” study programme, the “Intelligent Transport and Smart Logistics” study programme also offers students a variety of options to choose the subjects of their final thesis from. Even though this may lead to questionable thesis compliance with the study programme, the expert group has found no evidence which would suggest poor thesis relevance to the aims and objectives of both the study field and the given study programme. As reported by both the interviewed representatives of the TSI management as well as the industry representatives, the subject of the thesis is often chosen such that to reflect a concrete real-world challenge, either as a result of the previous internship experience of the student, or the involvement of an industry representative in the thesis evaluation commission. Both indirectly proves a high level of thesis compliance with the needs of contemporary transport and logistics, and implies real-world

applicability of the skills and knowledge accumulated as a part of the thesis realisation process.

Conclusions on this set of criteria, by specifying strengths and weaknesses

Both the study programme and its courses feature a number of learning objectives of generic nature, thus hindering the assessment of the effectiveness of the implementation methods used in the programme. The programme also features a strong focus on theory and student initiative in the teaching and learning processes, leading to situations in which students are typically suggested by their teachers to explore further the practical examples of the desired disciplines, software or technology only as a part of their study projects. The programme offers students an adequate variety of options to choose the subjects of their final thesis from.

Strengths:

1) The rationale behind the study programme is timely and topical and as such has got great potential to correspond closely to the needs of both local and international transport & logistic sectors.

Weaknesses:

- 1) Strong focus on student initiative and lack of adequate support in important issues such as finding a Study Project subject.
- 2) Moderate practical use of contemporary transportation & logistics-based IT.
- 3) Poor promotion of the capacities of the master level graduates among TSI's industry partners.

Assessment of the requirement [5] (applicable only to master's or doctoral study programmes)

- 1 R5 - The study programme for obtaining a master's or doctoral degree is based on the achievements and findings of the respective field of science or field of artistic creation.

Assessment of compliance: Fully compliant

The programme deals with the challenges of contemporary transportation and logistics and includes content, paradigms and concepts such as green logistics, urban mobility, smart warehousing, transport multimodality and others which may all be found as relevant.

2.3. Resources and Provision of the Study Programme

Analysis

2.3.1. In addition to analyses provided under criterion 1.3.3. and based on information gathered during on-site visit study programme provision should be evaluated as well-designed and is closely aligned with the particular programme's objectives and expected learning outcomes. Informative provision, which includes access to a well-equipped TSI library with a diverse collection of 28,546 books & e-books as well as online resources/databases (Academic Complete, Science Direct, SCOPUS), supports students' interests, study needs with high quality and reliable information to conduct in-depth research and/or broaden their knowledge base for the needs of masters study programme. As from material and technical provision aspect there should be mentioned quite wide range of software provided by TSI (Microsoft Dynamics AX & CRM, SPSS, STATISTICS/Win, AnyLogic,

ExtendSim, PTV Visum/Visim, Microsoft Project & VISIO, online resources JIRA, LucidChart, etc.). Computer labs are equipped for practical classes. Distance learning students access necessary resources via a remote server and use the software remotely. All of the above strongly supports successful delivery of the study programme.

2.3.2 Not applicable.

2.3.3. Evaluation of financial provision indicates tuition fees as the main source of income for funding the study process, actual support of the study program's implementation and maintenance. Information provided at SER 3.3.3. confirms the existence of sufficient financial resources to ensure the availability of quality educational materials, study development activities and existing infrastructure upgrades that should contribute to a high-quality study process. Study programme management has defined a minimum number of students to ensure profitability level – 7 students (full-time on-site studies), 5 students (part-time on-site studies), 1 student (part-time distance studies), which is not impacted by the amount of students per language of the study.

At the same time, the decreasing amount of graduating students on a year-to-year basis in the last 3 years (SER 3.1.4 Annex 2.1, picture 5.) shows a negative trend and might request corrective activities in the next years to improve graduation rate since the amount of new students have increased as well.

Certain activities (SER 3.3.3.) have been considered and implemented to save existing costs and make study programme more cost-effective even with fewer students:

- programmes of the field of study respect the continuity of study courses,
- the study plans of each programme are mutually coordinated - the courses included in the plan and their sequence by semesters

Conclusions on this set of criteria, by specifying strengths and weaknesses

Study programme has a sufficient existing funding base from financial, academic knowledge and data source, IT technology and teaching staff aspects, which, as a set of prerequisites, ensures a stable background for acquiring necessary student volume and potential for further development.

Strengths:

- 1) Title and content of the study programme, as a kind of unique knowledge scope in the existing logistics education market and in case of continuous development towards cutting-edge technologies and innovative logistics solutions, has a great potential to attract students, with correlating funding, seeking for a comprehensive and relevant education that prepares them for successful careers in the dynamic field of logistics.
- 2) Performance of activities in study course and study plan coordination which leads to effective cost management.

Weaknesses:

- 1) Actual number of graduating students, decreasing 3rd year on the row, at the existing stage of the programme's life cycle, might have a short-term negative impact on the study programme's sustainability.
- 2) Knowledge of technologies used in transport is not sufficiently addressed in aims and outcomes of the programme.
- 3) The integration of various technologies and concepts needed within delivery of the study programme can be complex, requiring a high level of technical understanding from students.

4) Risk of the funding gap between the learning scope of the skills taught today and the adequate knowledge demanded tomorrow by the industry, necessitating ongoing professional development for graduates.

Assessment of the requirement [6]

- 1 R6 - Compliance of the study provision, science provision (if applicable), informative provision (including library), material and technical provision and financial provision with the conditions for the implementation of the study programme and ensuring the achievement of learning outcomes

Assessment of compliance: Fully compliant

On-site observations (digital classroom, library, premises conditions) correlate with statements in SER 3.3.1. and 3.3.3. and future potential with the subject and purpose of the programme.

2.4. Teaching Staff

Analysis

2.4.1. The qualifications of the teaching staff involved in the implementation of the master's level study programme "Intelligent Transport and Smart Logistics" (45840) meet the conditions of the study programme implementation and the requirements of regulatory acts, ensure the achievement of the goals and study results of the study programme and corresponding study courses.

Teaching of the study programme is provided by 19 teaching staff with relevant academic work experience and qualifications, 12 of whom are teaching staff elected by TSI. Seven TSI professors and 2 associate professors are involved in the implementation of the compulsory and limited optional part of the academic master's programme "Intelligent transport and smart logistics", all with a doctorate in Science. In addition to the mentioned composition of professors, 1 assistant professor and 1 emeritus professor are also involved in the implementation of the programme (SER p. 115). It can be concluded that the qualifications of the teaching staff involved in the implementation of the study programme fully comply with Section 55, Paragraph one, Clause 3 of the Law on Higher Education Institutions of the Republic of Latvia.

Doctors of Science, who work in companies in the field of transport and logistics and implement related research projects are invited to work as lecturers (SER p. 116). Foreign guest lecturers from the University of Thessaly, Wismar University of Applied Sciences (Germany) and other European universities are invited to implement the course program. Foreign teaching staff in the study programme teach only in English, both for students studying the programme in English flow and for students studying the programme in Latvian flow.

2.4.2. Changes in the structure of teaching staff involved in the study programme are in line with the requirements of the learning process and industry development. The administration ensures that the appropriate qualifications and experience of the teaching staff, both in the academic environment and in the industry, ensure the highest possible quality of education (meeting with management). TSI regularly records and controls changes in the composition of lecturers in the programme. The institution concludes that the total number of lecturers remained almost unchanged during the reporting period (SER p. 117). Changes in the composition of lecturers have been influenced by several factors. Taking into account the rapid development of the field, in the programme "Intelligent transport and smart logistics" during the past eleven years, both new courses were included and the subject matter of existing courses was changed (SER p. 118).

2.4.3. Not applicable.

2.4.4. Lecturers of the master's level study programme "Intelligent Transport and Smart Logistics" of TSI have convincingly fulfilled the conditions for publishing scientific works in indexed sources. After examining the data in appendices No. 10, 11, 13, it was found that each of the lecturers of the master's study programme convincingly fulfilled the condition of publishing at least one scientific article in the last six years. Number of publications: Budilovich Evelina 17, Gromule Vaira 16, Jackiva Irina 64, Jakson Ilya 24, Pavluyk Dmitry 39, Savarsov Mikhail 41, Toluyev Yuri 32. The authors listed have published articles in sources indexed in Scopus and Web of science. (annex 10, annex 11, annex 13). The institution has declared the number of publications for the final 10-year period from 2013 to 2023, which does not correspond to the reference period of the criterion.

2.4.5. The study programme has a mechanism for regular mutual cooperation between teaching staff, it promotes the improvement and interconnection of study courses. This programme ensures enough cooperation to provide adequate study courses. Cooperation between teaching staff is implemented at four levels: within the course/module, within the study programme, within the faculty and at the university level (SER p. 119). During the implementation of study courses and scientific work, regular weekly meetings of teaching staff take place, in which they exchange experiences on study course topics, results of scientific work, news in research, etc. (Meeting with academic staff). If a study course is taught in several languages, and it is possible that the same course is taught in Latvian and English by different teaching staff, all teaching staff related to the specific study course are involved in the process of coordinating the study courses (meeting with academic staff). Within the framework of the study programme, cooperation with employers and professional organisations is implemented in seminars, conferences, as well as during personal contacts of lecturers. TSI regularly holds discussion meetings involving academic staff and industry representatives (meeting with academic staff).

Conclusions on this set of criteria, by indicating strengths and weaknesses

The qualification and research records of the teaching staff are at a good level. The mechanism of collaboration between the teaching staff and also industry representatives was assessed as good. Teaching staff excellently fulfilled publication conditions in peer-reviewed journals. Set of criteria is fully compliant.

Strengths:

- 1) All lecturers experienced with Doctors degree in different sciences.
- 2) Impressive contribution of the programme lecturers in the publication of scientific articles.

Weaknesses:

None.

Assessment of the requirement [7]

- 1 R7 - Compliance of the qualification of the academic staff and visiting professors, visiting associate professors, visiting docents, visiting lecturers and visiting assistants with the conditions for the implementation of the study programme and the requirements set out in the respective regulatory enactments.

Assessment of compliance: Fully compliant

Qualifications of the teaching staff meet the conditions of the study programme implementation and the requirements of regulatory acts.

2.5. Assessment of the Compliance

Requirements

- 1 1 - The study programme complies with the State Academic Education Standard or the Professional Higher Education Standard

Assessment of compliance: Fully compliant

“Annex (“2.2.pielikums. Atbilstiba valsts akademiskajam standartam 0103.docx”) confirms that the study programme generally complies with Cabinet Regulation No.240 “Noteikumi par valsts akadēmiskās izglītības standartu”. Also, Civil and Environmental protection courses in 2 CP amount is present in the programme.

- 2 2 - The study programme complies with a valid professional standard or the requirements for the professional qualification (if there is no professional standard required for the relevant occupation) provided if the completion of the study programme leads to a professional qualification (if applicable)

Assessment of compliance: Not relevant

- 3 3 - The descriptions of the study courses and the study materials have been prepared in all languages in which the study programme is implemented, and they comply with the requirements set forth in Section 561 , Paragraph two and Section 562 , Paragraph two of the Law on Higher Education Institutions.

Assessment of compliance: Partially compliant

Attached study course descriptions (“Annex 2.5. Descriptions of the study courses modules.zip”) are prepared in Latvian and

English. Descriptions comply with regulations set forth in Law on Higher Education Institutions. However in some cases mandatory literature features an unrealistic amount of sources, therefore it is necessary to clarify what pages or articles are actually mandatory reading so it corresponds to factual study work and requirements from students within the courses.

Although some courses feature multiple books as obligatory reading, students stated in on-site visit that, in their experience, no courses actually require reading multiple books. Obligatory reading should reflect factual requirements and coursework required in order to complete the course.

- 4 4 - The sample of the diploma to be issued for the acquisition of the study programme complies with the procedure according to which state recognised documents of higher education are issued.

Assessment of compliance: Partially compliant

The provided diploma sample (“2.6. Diploma paraugs.zip”) complies with the procedure by which state-recognised documents of higher education are issued in accordance with Cabinet Regulation No. 202 “Kārtība, kādā izsniedz valsts atzītus augstāko izglītību apliecinošus dokumentus”. However, the diploma supplement features outdated information regarding Latvian Education system.

- 5 5 - The academic staff of the academic study programme complies with the requirements set forth in Section 55, Paragraph one, Clause 3 of the Law on Higher Education Institutions.

Assessment of compliance: Fully compliant

Annex ("2.8.pielikums. Apliecinājums atbilstība AL prasībām.edoc") confirms that involved in implementation of the academic master study programme "Intelligent Transport and Smart Logistics" are 7 professors and 3 associate professors.

- 6 6 - Academic study programmes provided for less than 250 full-time students may be implemented and less than five professors and associated professors of the higher education institution may be involved in the implementation of the mandatory and limited elective part of these study programmes provided that the relevant opinion of the Council for Higher Education has been received in accordance with Section 55, Paragraph two of the Law on Higher Education Institutions.

Assessment of compliance: Not relevant

- 7 7 - At least five teaching staff members with a doctoral degree are among the academic staff of an academic doctoral study programme, at least three of which are experts approved by the Latvian Science Council in the respective field of science. At least five teaching staff members with a doctoral degree are among the academic staff of a professional doctoral study programme in arts (if applicable).

Assessment of compliance: Not relevant

- 8 8 - The teaching staff members involved in the implementation of the study programme are proficient in the official language in accordance with the regulations on the level of the official language knowledge and the procedures for testing official language proficiency for performing professional duties and office duties.

Assessment of compliance: Fully compliant

Attached resumes ("CV lv.zip") and confirmation letter ("0.pielikums. Apliecinājums valsts valodas prasme.edoc") verifies that state language proficiency is compliant with Cabinet Regulation No. 733 "Noteikumi par valsts valodas zināšanu apjomu, valsts valodas prasmes pārbaudes kārtību un valsts nodevu par valsts valodas prasmes pārbaudi". Fact that obligatory reading reflects actual work in courses has not been corroborated in meeting with students.

- 9 9 - The teaching staff members to be involved in the implementation of the study programme have at least B2-level knowledge of a related foreign language, if the study programme or any part thereof is to be implemented in a foreign language (if applicable).

Assessment of compliance: Fully compliant

Attached resumes of staff ("CV lv.zip") and confirmation (" 21.pielikums. Apliecinājums angļu valodas prasme.edoc") verifies that language proficiency in English is at least B2.

- 10 10 - The sample of the study agreement complies with the mandatory provisions to be included in the study agreement.

Assessment of compliance: Fully compliant

Sample of attached study agreement ("24.pielikums. Studiju līguma paraugs 0103.pdf") complies with Cabinet Regulation No. 70 "Studiju līgumā obligāti ietveramie noteikumi".

- 11 11 - The higher education institution / college has provided confirmation that students will be provided with opportunities to continue their education in another study programme or another higher education institution or college (agreement with another accredited higher education institution or college) if the implementation of the study programme is terminated.

Assessment of compliance: Fully compliant

Attached contract (" 22.pielikums . Ligums RTU_TSI_.edoc") confirms that the institution provides the possibility to continue studies within RTU Professional Master study programme

"Logistics and Supply Chain Security" (47840). Study programme type is not fully comparable, as TSI programme is academic master, while RTU - professional master.

- 12 12 - The higher education institution / college has provided confirmation that students are guaranteed compensation for losses if the study programme is not accredited or the study programme's license is revoked due to the actions (actions or omissions) of the higher education institution or college and the student does not wish to continue studies in another study programme.

Assessment of compliance: Partially compliant

TSI confirmation ("23.pielikums. Apliecinājums par zaudējumu kompensāciju 1103.edoc") does not clearly state that students are guaranteed compensation. Confirmation states that the institution will "refund tuition fees for the period when studies are not provided,". If a student cannot continue studies and decides against continuing studies in a provided institution, the student should have the right to be compensated fully for all tuition fees paid as the institution has failed its contractual obligations.

- 13 13 - The joint study programmes comply with the requirements prescribed in Section 55.(1), Paragraphs one, two, and seven of the Law on Higher Education Institutions (if applicable)

Assessment of compliance: Not relevant

- 14 14 - Compliance with the requirements specified in other regulatory enactments that apply to the study programme being assessed (if applicable)

Assessment of compliance: Not relevant

Assessment of the requirement [8]

- 1 R8 - Compliance of the study programme with the requirements set forth in the Law on Higher Education Institutions and other regulatory enactments.

Assessment of compliance: Partially compliant

Diploma supplement features outdated information regarding Latvian Education system. In some study course descriptions mandatory literature features an unrealistic amount of sources, therefore it is necessary to clarify what pages or articles are actually mandatory reading so it corresponds to factual study work and requirements from students within the courses. Fact that obligatory reading reflects actual work in courses has not been corroborated in meeting with students.

Confirmation of compensation for losses is not sufficiently clear.

Study programme where students have the opportunity to continue their studies is not fully comparable.

General conclusions about the study programme, indicating the most important strengths and weaknesses of the study programme

The study programme "Intelligent Transport and Smart Logistics" (45840) has a solid funding base, encompassing financial resources, academic knowledge, data sources, IT technology, and qualified teaching staff, ensuring stability and potential for growth. The teaching staff's qualifications and research records are commendable, and their collaboration with industry representatives is effective. Teaching staff generally meets the required publication standards in peer-reviewed journals. The programme's generic learning objectives hinder the assessment of implementation methods. The strong focus on theory and student initiative in learning leads to limited practical application, with practical examples suggested primarily for study projects. The programme aligns

well with labour market needs and industry trends, offering a shorter study period for experienced candidates and those holding bachelor degree with a relevant qualification of Logistics Manager. However, it lacks technical content related to transport and logistics, such as the basic principles of vehicle operation, which would aid in understanding optimization processes. All implementation modes and languages generally produce similar outcomes in practice. Online learning platform effectively mirrors the content and methodologies of the full-time programme. Therefore, both full-time and part-time extramural forms, including distance learning (which seems to be up to standard and requirements of good practice), Latvian and English language modes, and all study length options should be supported within this study programme.

Main strengths:

- 1) Implementing programme changes according to industry needs.
- 2) Including more study courses related to recent trends in industry.
- 3) The study programme is timely and topical and as such has got great potential to correspond closely to the needs of both local and international transport & logistic sectors.
- 4) All lecturers are experienced with Doctors degree in different sciences.
- 5) Impressive contribution of the programme lecturers in the publication of scientific articles.
- 6) Title and content of the study programme, as a kind of unique knowledge scope in the existing logistics education market and in case of continuous development towards cutting-edge technologies and innovative logistics solutions, has a great potential to attract students, with correlating funding, seeking for a comprehensive and relevant education that prepares them for successful careers in the dynamic field of logistics.
- 7) Performance of activities in study course and study plan coordination which leads to effective cost management.

Main weaknesses:

- 1) Knowledge of technologies used in transport is not sufficiently addressed in aims and outcomes of the programme.
- 2) Strong reliance on student's own initiative and lack of adequate support in important study process issues such as finding a Study Project subject.
- 3) Moderate practical use of contemporary transportation & logistics-based IT.
- 4) Poor promotion of the capacities of the master level graduates among TSI's industry partners.
- 5) Actual amount of students, at existing stage of programme's life cycle, might have short-term negative impact on study programme's sustainability
- 6) The integration of various technologies and concepts needed within delivery of the study programme can be complex, requiring a high level of technical understanding from students
- 7) Risk of the gap between funding the adequate scope of the skills taught today and the skills demanded tomorrow by the industry, necessitating ongoing professional development for graduates.
- 8) Confirmation of compensation for losses is not sufficiently clear.
- 9) In some of the study course descriptions mandatory literature features an unrealistic amount of sources.
- 10) Study programme where students have the opportunity to continue their studies if the programme is being closed is not fully comparable.

Despite some shortcomings in the study programme, experts believe it generally meets its overall aims. The identified weaknesses can be reasonably addressed to further improve the program. The institution has a strong foundation, both academically and otherwise, to successfully implement programme in future.

Evaluation of the study programme "Intelligent Transport and Smart Logistics"

Evaluation of the study programme:

Good

2.6. Recommendations for the Study Programme "Intelligent Transport and Smart Logistics"

Short-term recommendations

- 1) Finetune the study programme learning objectives making them more concrete and easier to be validated in student achievements. Make the learning objectives realistic and complement the needs of the industry.
- 2) Revise the syllabi of the "Fundamentals of transport system geography" (42840) and "Geography of Transport Systems" (45840) study courses such that to reflect expected knowledge and skills differences between BSc and MSc study levels.
- 3) Provide active support and steer the student selection of Study Project areas such that they comply with TSI's research and business interests. Use the Study Project framework as a leverage to stimulate joint student-teacher research.
- 4) Update the necessary documentation to ensure full compensation of tuition fees paid in case of programme closure if a student decides not to continue studies in options provided.
- 5) Update study course description mandatory reading lists to reflect actual reading required by students within the courses.
- 6) Diploma supplement should be updated to ensure compliance.

Long-term recommendations

- 1) In the proposed reports, observe the established reporting period.
- 2) Stimulate the inclusion of practical works and the use of GIS or other such software tools in the learning process such that the graduated students would possess a good set of practical hands-on experiences in utilising modern IT support upon taking a job.
- 3) Invest into dedicated transport & logistics lab equipment which comply with the key strategic research objectives of the TSI and make sure they get to be practically utilised by students in both the teaching process as well as in the student final thesis.
- 4) Exercise general operational paradigm to ensure resource-intensive support in implementing and maintaining state-of-the-art technology and equipment to underpin hands-on learning processes using different knowledge sources.
- 5) Consider providing other, more comparable, study options made available to students if the programme is phased out.
- 6) Make sure the scope of the study programme is constantly evolving and hence make adequate updates to the curriculum to keep pace with technological advancements.

III - Assessment of the Requirements for the Study Field and the Relevant Study Programmes

III - Assessment of the Requirements for the Study Field and the Relevant Study

Programmes

Assessment of the Requirements for the Study Field

Requirements	Requirement Evaluation		Comment
<p>R1 - Pursuant to Section 5, Paragraph 2.1 of the Law on Higher Education Institutions, the higher education institution/ college shall ensure continuous improvement, development, and efficient performance of the study field whilst implementing its internal quality assurance system:</p>		<p>Partially compliant</p>	<p>The internal quality assurance system is established and operational; however, there are shortcomings in student participation (such as lack of considerable track record of improvements following student feedback) in quality assurance processes and in ensuring the achievement of learning outcomes (see analysis and conclusions in “2.2. The Content of Studies and Implementation Thereof” of both programmes and fact that there identified deviations from the principles of sound evaluation practices, such as instances of collective test completion).</p>
<p>R2 - Compliance of scientific research and artistic creation with the level of development of scientific research and artistic creation (if applicable)</p>	<p>Fully compliant</p>		<p>The study field complies with the prescribed requirements. The development of scientific works is fully integrated into the study process and is purposefully managed by the TSI administration.</p>
<p>R3 - The cooperation implemented within the study field with various Latvian and foreign organizations ensures the achievement of the aims of the study field.</p>	<p>Fully compliant</p>		<p>The institution has been cooperating with a number of renowned partners, both domestic and foreign. The feedback received from the interviewed employers demonstrates their strong focus and commitment to the established partnership going beyond typical internship-related purposes.</p>

Requirements	Requirement Evaluation			Comment
R4 - Elimination of deficiencies and shortcomings identified in the previous assessment of the study field, if any, or implementation of the recommendations provided.	Fully compliant			All recommendations from the previous assessment were addressed

Assessment of the Requirements for the Relevant Study Programmes of the Study Field

No.	Study programme	R5	R6	R7	R8	Evaluation of the study programme (excellent, good, average, poor)
1	Transport and Logistics (42840)	Not relevant	Fully compliant	Fully compliant	Partially compliant	Good
2	Intelligent Transport and Smart Logistics (45840)	Fully compliant	Fully compliant	Fully compliant	Partially compliant	Good

The Dissenting Opinions of the Experts

There is no dissenting opinions of the experts undertaking the given procedure.