
Towards the Institutional Student Mobility Ecosystem (ISME): Model Based on Systematic Literature Review

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ABSTRACT

The internationalization of higher education, especially in terms of student mobility, is a key indicator of the quality of higher education. Additionally, increasing the number of students participating in credit mobility is one of the strategic goals of the European higher education area. To help more students take advantage of student mobility programs, it is essential to understand the factors that influence student mobility at both the institutional and individual levels. This paper proposes the Institutional Student Mobility Ecosystem (ISME) for credit mobility. It is based on a systematic literature review of 321 initially retrieved sources, with 22 analyzed in detail. The results are supplemented by the analysis of 11 policy and professional documents. The proposed ISME identifies student decisional factors, supporting mechanisms and stakeholders as key enablers of student mobility. Additionally, it outlines the outcomes for students, HEIs and society that result from student mobility. This model provides valuable groundwork for researchers in the field of student mobility, facilitating further in-depth analysis of specific elements within the student mobility ecosystem.

Keywords: International student mobility, Ecosystem, Systematic Literature Review

1. Introduction

Since its establishment by the EU in 1987, the "Erasmus" program has provided nearly 14 million individuals with opportunities for mobility and skills development. It has significantly impacted the internationalization of higher education institutions (HEIs), with the largest portion of its budget dedicated to Learning Mobility, which accounted for 53% of the total budget in 2022 (European Commission, 2023). The internationalization of higher education and specifically student mobility have gained even greater importance with the Bologna declaration in 1999. Nowadays, student mobility is one of the important criteria in the processes of (re)accreditation of HEIs and student mobility within and across higher education systems takes its place in the Standards and Guidelines for Quality Assurance in the European Higher Education Area (2015). As such,

student mobility occupies an important place in strategic documents at the EU level. The Council Recommendation “Europe on the Move” set an important EU-level 2030 target - at least 23% of tertiary graduates should have a learning mobility experience abroad by that year (Council of the European Union, 2024) According to the Education and Training Monitor 2024, an estimated 10.9% of graduates have experienced learning mobility, with degree mobility accounting for 4.2% and credit mobility for 6.7% (European Commission, 2024).

In order to achieve the ambitious goals set at EU level, Member States need to make certain efforts at all levels, including ministries responsible for education, universities and at the level of individual faculties. However, despite the undeniable advantages that mobility programs offer to students, particularly in enhancing their employability and lifelong learning skills (European Commission, 2018), the potential benefits of HE students' participation in mobility programs are still not fully exploited, either on an individual or organizational level. According to the Erasmus Student Network (ESN) Survey XV, the main challenges include trust issues between partner universities, decision-making power for recognition depending on individual professors, lack of understanding of how the ECTS works, access to information on available courses and pre-departure support in preparations for the learning agreement (Erasmus Student Network, 2023).

In addition to policy papers, reports, and extensive surveys at the European level, international student mobility is also a subject of scientific research. Papers addressing student perspectives on mobility often focus on three main areas: motivational factors for student mobility (Cuzzocrea and Krzaklewska, 2022; Sousa et al., 2024), barriers and obstacles to participating in student mobility (Heirweg et al., 2020; Kmiotek-Meier et al., 2019; Souto-Otero et al., 2013), and the outcomes of student mobility (Granato et al., 2024; Kratz and Netz, 2018; Roy et al., 2019). These studies frequently focus on specific groups of respondents, such as students with disabilities (Heirweg et al., 2020) or students from lower socioeconomic backgrounds (Granato and Schepf, 2024). Additionally, they may examine specific aspects of student mobility, such as the financial returns (Kratz and Netz, 2018) or the development of a European identity (Mocanu and Llurda, 2024) as outcomes of the experience. Not surprisingly, the majority of these papers emphasize the student perspective, exploring a wide range of topics. Conversely, the perspectives of other stakeholders, such as academic or study abroad coordinators (Konaklı et al., 2024) and international relations officers (Bulut-Sahin, 2023), are infrequently addressed in the literature.

Several theoretical models of student mobility can be found in the literature. Sousa et al. (2024) presented a theoretical model outlining two factors influencing students' decisions to participate in mobility programs. Push factors are the internal motivations that drive students to seek activities fulfilling their needs, explaining why they pursue a mobility program. On the other hand, pull factors are the external motivations associated with the destination country that influence their choice of where to study or work abroad. These factors clarify the reasons behind selecting a specific country or institution for the mobility program. Kratz and Netz (2018) developed a conceptual framework to explain the financial returns of international student mobility (ISM). Their findings indicate that graduates with ISM experience enjoy faster wage growth after graduation and earn higher wages in the medium term than their peers. Roy et al. (2019) conducted a systematic literature review of international student mobility programs, analyzing cultural, personal, and employment/career outcomes and benefits derived from participation in such programs.

While the benefits of student mobility—academic, professional, and personal—are widely recognized, as are the barriers and obstacles to participation, various other factors related to the study program and the HEI can also influence students' decisions regarding participation in mobility programs and their ability to successfully take advantage of these opportunities. For example, support services provided by the host university can play a significant role in this regard (Perez-Encinas et al., 2017).

As the existing model falls short in recognizing all the important factors related to student mobility, the present study aims to contribute to the field of research on student mobility in higher education by proposing the Institutional Student Mobility Ecosystem (ISME). The inspiration for this model lies in the University-Business Cooperation (UBC) ecosystem proposed by Davey et al. (2011), which includes benefits, drivers, barriers, and situational factors on the factor level; strategies, structure & approaches, activities and framework conditions at the action level; and outcomes that are materialized at the results level. Therefore, based on the systematic literature review (SLR), this study answers the following main research question: "What are the main elements of the Institutional Student Mobility Ecosystem (ISME)?"

2. Methodology

This study utilized SLR which was performed in several steps, as shown in Figure 1, following the steps as described in Kitchenham (2004), described below. SLR is a common method in different fields, the main aim

being to provide deep and comprehensive insight into a certain field. In this research, SLR was applied in order to recognize and design the Institutional Student Mobility Ecosystem (ISME).

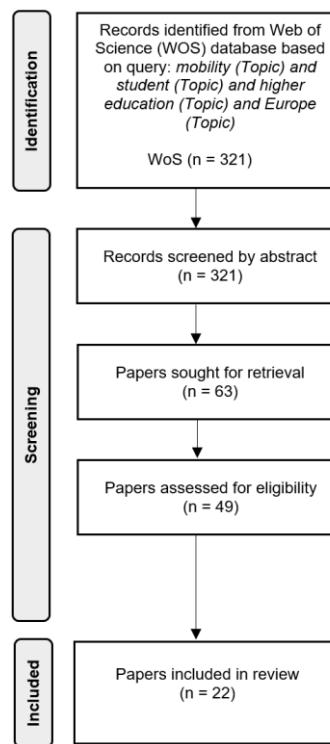


Figure 1. Literature review steps (based on the PRISMA 2020 flow diagram template¹)

2.1. Identification of a need for review

This study is a part of the Erasmus+ co-funded project “SuMoS - Strengthening the ecosystem for sustainable student mobility”, aimed at supporting awareness-raising about the green transition, environmental and climate-change challenges in practices and processes related to student mobility, at institutional and individual levels. Tertiary education ecosystems are recognized as dynamic structures comprising several subsystems (Hazelkorn and Locke, 2023). One of these subsystems, introduced in this paper, is the Institutional Student Mobility Ecosystem, or ISME. Student mobility can be observed at systemic, organizational and individual levels (European Commission, 2018); the ISME therefore needs to be coherent, collaborative, coordinated and co-produced with other higher education sub-ecosystems. As highlighted in the introductory section, while many papers discuss different aspects of student mobility, the concept of the ISME has not yet been introduced. Therefore, to enhance the ISME further, it is essential to identify all of its components.

2.2. Specifying the research question

The aim of this SLR was to identify elements of the student mobility ecosystem, whether these elements were mentioned in primary or secondary sources. Additionally, the frequency with which certain elements appear is not significant, as the final results (the proposed ISME) will only comprise the identified elements.

¹ PRISMA flow diagram is available at: <https://www.prisma-statement.org/prisma-2020-flow-diagram>

2.3. Development of a review protocol and source selection

In order to detect all relevant studies, a broad query was conducted in the Web of Science (WoS) database “mobility (Topic) and student (Topic) and higher education (Topic) and Europe (Topic)”, which resulted in 321 papers, in December 2024. There were no additional limits to the query, so it called up journal papers, conference papers and books.

2.4. Quality assessment

After identifying 321 sources as potentially relevant based on the initial query, two researchers independently reviewed abstracts in the first round of quality assessment to determine eligibility for further analysis, categorizing them as Yes, No, or Maybe. The inclusion criteria were that, from the abstract, it was indicative that the paper was focused on a credit student mobility (non-degree seeking) and provided a broad perspective on student mobility in European countries. The principal researcher conducted the second round of title and abstract analysis. In the third round of quality assessment, the principal researcher and one of the two researchers analyzed the articles that lacked consensus to establish their eligibility for further analysis. This process concluded with 53 Yes and 10 Maybe articles included in further analysis. The research team had access to 49 full articles. While analyzing the 49 articles with full access, the readers offered insights on each article, including details about participants, sample size, country, research methods, research goals or questions, key terms, and relevance. Based on their feedback and comments, the principal researcher reviewed all articles and made the final decision on which ones to consider for final analysis. The main inclusion criterion was that the article provided valuable information on student credit mobility in the European context, identifying more elements related to the ISME. Articles were excluded if they focused on degree mobility, postgraduate mobility, mobility outside Europe, broader internationalization activities with only marginal reference to student credit mobility, or on particular aspects offering limited relevance for the development of ISME (e.g., sustainability in student mobility or mobility's contribution to tourism). In addition, articles providing only a narrow description of mobility in specific countries or older studies lacking current relevance for ISME development were also excluded.

In addition to reviewing 22 research papers, the authors thoughtfully analyzed 11 policy and professional papers to refine and enhance the categories identified. Unlike research articles, policy and professional documents on student mobility are not systematically indexed in databases, so there is no single repository that could be used for a structured search. For this reason, recent and influential documents related to student credit mobility that are produced by key stakeholders such as the European Commission, the European Parliament, the Erasmus Student Network (ESN), or the European Association for International Education (EAIE) were included. A full list of the research papers, policy and professional documents included in the analysis is available in the Appendix.

2.5. Data extraction

Both inductive and deductive approaches were used to determine ISME elements. First, the principal researcher read several articles to propose the initial ISME categories and elements, making it easier for other researchers to engage with the study. The articles were distributed among nine team members who conducted the reading and analysis. Prior to involvement of other researchers in reading, a meeting was held with all researchers to explain the methodology. When reading the papers, the researchers marked the recognized elements of ISME and categorize them in an Excel table. As researchers reviewed the complete articles, new categories began to emerge. If a specific element was identified within an article, whether as a primary or secondary reference, it was marked in the Excel table.

The inductive approach was employed to analyze qualitative data using coding to determine ISME elements. Manual coding followed Saldaña's (2013) recommendations for organizing similarly coded data into categories. In inductive research aimed at developing a new theory, recoding and re-categorizing is repeated iteratively until the final set of codes is developed (Saldaña, 2013, pp. 9-10). Therefore, this study used a two-cycle coding process: 1) assigning preliminary codes to the elements recognized from the literature and 2) categorizing the detected elements into smaller sets of categories for clarity. The credibility of the research is established by the involvement of researchers with diverse and relevant backgrounds in student mobility within higher education, including professionals in international relations, a vice-dean in international relations, international relations officers, as well as academic advisors and professors. Moreover, the coding process was systematically documented in Excel sheets for future reference, ensuring the dependability and confirmability of the results.

3. Results

Based on the general structure of the University-Business Ecosystem (UBC) as outlined by Davey et al. (2011)², the Institutional Student Mobility Ecosystem (ISME), which focuses on student credit mobility, reflects a similar framework, as illustrated in Figure 2. This proposal draws upon elements identified from an analysis of 22 papers and 11 policy papers, following SLR methodology previously described.

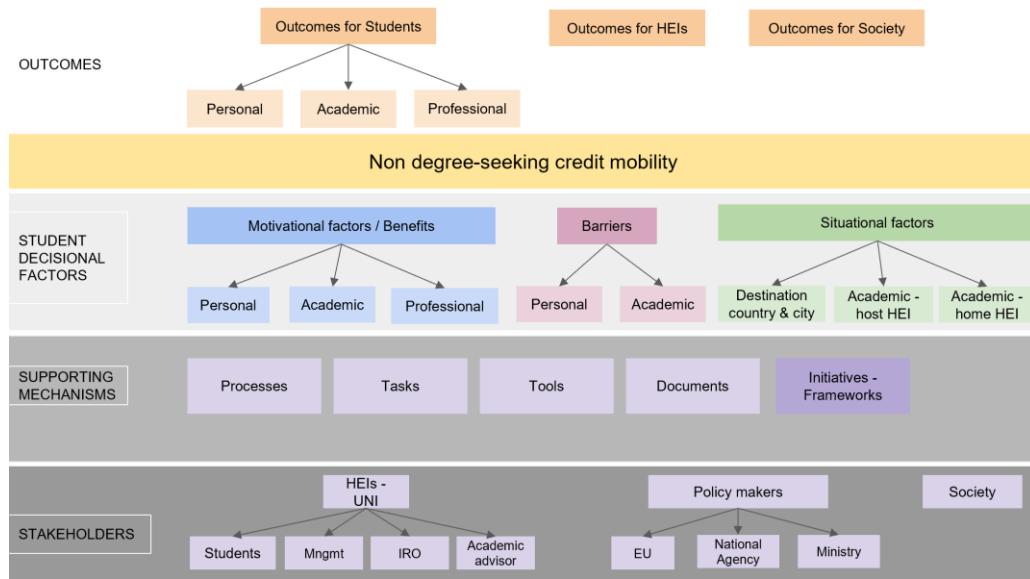


Figure 2. Proposed structure of the Institutional Student Mobility Ecosystem (ISME)

Students are at the center of the proposed model as they seize or decline opportunities for mobility, because ultimately, students' decisions to carry out mobility periods or not, will "make or break" mobility programs, wider internationalization policy and the positive societal change sought after. This chapter further describes the main recognized ISME pillars (student decisional factors, supporting mechanisms, stakeholders and outcomes), focusing on student decisional factors, which are more extensively recognized in the literature, while other elements have been researched less and require further investigation.

3.1. Student Decisional factors

Three main categories of student decisional factors are recognized: motivational factors/perceived benefits, barriers and situational factors.

3.1.1. Motivational factors/benefits

Motivational factors for students can be further classified into three main categories: personal, academic, and professional (Figure 3). Depending on the student's perspective, some may view these motivational or push factors as reasons to decide to participate in an exchange program. In contrast, other students might not consider these factors before their mobility, but they do recognize them as the perceived benefits (outcomes) gained from their study abroad experience.

² A more detailed representation of the UBC Ecosystem model, created by Davey, T., Galan-Muros, V., and Meerman, A., can be found in the 2010/2011 country reports available on the website: <https://www.ub-cooperation.eu/index/reports>

Motivational factors / Benefits		
Personal	Academic	Professional
Personal growth and generic skills development	Attend reputable HEI	Improve career prospects
Improve intercultural understanding and skills	Experience different educational systems	Develop capabilities to work and live abroad
Expand social network	Academic growth	
Experience novelty	Fulfill academic obligations more easily	
Have fun		
Improve language and communication skills		

Figure 3. Motivational factors / benefits for student mobility

Personal motivational factors

Within the literature analyzed here, personal factors are recognized as important motivational factors from the students' point of view. Student mobility results in the development of a wide range of student generic/soft skills and personal growth in a broader sense, including an opportunity to mature and improve the student's degree of autonomy (López-Duarte et al., 2023), as well as develop their independence and resiliency (Van Maele et al., 2016; Pineda et al., 2008); increased confidence (Silva et al., 2017; Martins et al., 2016) and open-mindedness (Granato et al., 2024; Van Maele et al., 2016). Furthermore, some students view mobility as a reflexive project of the self (Cuzzocrea and Krzaklewski, 2023). Improving intercultural understanding and skills is another important motivating factor for traditional student mobility (Konakli et al., 2024; Sousa et al., 2024). Students are keen to learn more about the local culture and tradition, enlarge their cultural knowledge, and enhance their cross-cultural proficiency and sensitivity. This enhances their intercultural awareness/understanding. Moreover, students are striving, not only to understand different cultures, but also to acquire or improve their foreign language knowledge and skills (Sousa et al., 2024; Krzaklewski and Cuzzocrea, 2024; Kosmas et al., 2020). Therefore, student mobility fosters cross-cultural competencies, which enhance students' chances of accessing the international labor market and working in multicultural environments (López-Duarte et al., 2021). Mobility provides students with essential skills to build global networks as well. Engaging with new people, forming social connections, making friends, and socializing with other international students are recognized as vital activities during their mobility semester (Mocanu and Llurda, 2024; Krzaklewski and Cuzzocrea, 2024; Kosmas et al., 2020; Sousa et al., 2024). The desire for new experiences while living in another country, as well as the quest to discover if one is "missing something" (Krzaklewski and Cuzzocrea, 2024) serve as strong motivations for student mobility. The "fun" factor, including travelling, organizing meetings, trips and engaging with Erasmus + students, is also among the significant objectives for student mobility (Konakli et al., 2024; Lopez-Duarte et al., 2023; Sousa et al., 2024). The findings of Sousa et al. (2024) research show that the three main motivations for students to engage in mobility are "For leisure/fun/travel", "Make new friends, create an international social network" and "Learn about another culture and traditions". While students today often experience the pressure to excel and progress, the Erasmus experience is an opportunity for their "oasis of youth", which provides them "a social (or even institutional) space for both becoming (an adult) and being (a young person)", enabling them to 'pause' and enjoy the youthful experience (Krzaklewski and Cuzzocrea, 2024).

Academic motivational factors

Among different motivational factors and powerful incentives, academic ones are the most prominent, as credit mobility occurs during the educational period. For most students, gaining academic or study experience is among the most important reasons for participation in the Erasmus + programme (Kosmas et al., 2020).

The study abroad period is an opportunity for students' academic growth and enhancement. Indeed, some students consider Erasmus as part of their educational plan even before enrolling in university (Cuzzocrea and Krzaklewska, 2022). Some students see the study abroad period as an opportunity to attend a reputable HEI or prestigious university (Lopez-Duarte et al., 2023; Rodríguez González et al., 2011; Sin et al., 2017). Experiencing an international learning environment was rated the highest among choices concerning the city and the HEI in the research from Sousa et al. (2024), which indicated that students value the opportunity to experience a different educational system, requiring adaptation to a new learning environment and dealing with the resulting "learning shock". In some cases, improved academic performance (Granato et al., 2024) and deeper engagement with coursework (Konakli et al., 2024) motivate students to carry out a study mobility. A study by Granato et al. (2024) found that student mobility does not delay graduation. Instead, it positively affects the final graduation marks of undergraduate students. Improving academic knowledge and acquiring more knowledge and skills is an important part of academic motivation for study abroad (Martins et al., 2016; Silva et al., 2017; Sousa et al., 2024). Sometimes students aspire to learn something new during the study abroad period, i.e. study subjects or specialities that are not offered at their home institution (Pineda et al., 2008). Teaching methodologies of certain universities can motivate students to study at that institution as well (Pineda et al., 2008). For example, that is the case among students choosing the European Project Semester Program for their study abroad period (Sousa et al., 2024). Studying abroad may also benefit students' future educational pathways and increase their motivation for continuing education abroad (Granato et al., 2024).

In contrast, a less admirable motive is that students view the study abroad period as an opportunity to fulfil their academic obligations more easily, i.e. there is less work involved in obtaining the ECTS credits at the host institution (Sousa et al., 2024). Some students find motivation in manageable academic responsibilities (Krzaklewska and Cuzzocrea, 2024) or favourable grading policies at the host institution and/or advantageous grade conversions at their home institution; or even the opportunity to earn passing grades abroad in subjects with high failure rates at home (Sin et al., 2017). According to a study by Granato et al. (2024), evidence shows that Erasmus students achieve higher exam marks only while studying abroad, particularly at host institutions with lower relative quality, and not after returning home.

Professional motivational factors

Erasmus students are motivated to study abroad for both personal and academic reasons (Pineda et al., 2008), but professional reasons play an important role as well. Increasing chances for future employability, developing employability skills and improving career prospects were recognized as significant factors for many students concerning their professional development (Granato et al., 2024, Lopez-Duarte et al., 2021; Sin et al., 2017). Students believe that participating in an exchange program and studying abroad for one semester or two will make them stand out to employers, compared to students who have not participated in mobility programs and who are their competitors in the job market. According to Martins et al. (2016), Erasmus + students view their experience as essential for integrating the job market, as employers value it highly. They believe this experience makes it easier to find jobs abroad and that employers appreciate the coursework from other universities (Martins et al., 2016). According to research from Sousa et al. (2024), pursuing international mobility to facilitate inclusion in the labor market is a motivational factor rated with the importance $M = 3.27$ ($sd = 1.04$), on a five-point Likert scale (Sousa et al., 2024). Improving the CV and making it more attractive to future employers is another professional motivational factor for students, as they see study period abroad in their CV as an added value (Lopez-Duarte et al., 2023; Martins et al., 2016) and the factor that "makes it stronger" (Silva et al., 2017), especially if it includes an exchange program at a prestigious university (López-Duarte et al., 2023). Moreover, the development of a range of generic skills during student mobility significantly enhances students' professional growth. This process not only helps them acquire cutting-edge skills but also affects their professional development as it provides a competitive advantage in the labor market and widens the possibilities of aspiring to more qualified jobs (Lopez-Duarte, 2023; Sousa et al., 2024). Besides improving their career prospects in different ways, in traditional mobility, students have the opportunity to immerse themselves in other cultures while also seeking educational and job opportunities in different countries (Konakli et al., 2024; Silva et al., 2017). For some students, the desire for long-term immigration may motivate their decision to study abroad, as it allows them to access the international labor market and work towards an international career (Lopez-Duarte et al., 2023; Sousa et al., 2024; Sin et al., 2017), and potentially positively influences their likelihood of living or working abroad. However, career objectives as mobility goals seem to have limited impact, as highlighted in the study by López-Duarte et al. (2023). The authors stress that mobility goals should be based on realistic benefits, particularly in increasing students' chances of securing paid employment.

3.1.2. Barriers

Although there are many motivational factors and benefits associated with student mobility, students' decisions to pursue a period of mobility are significantly influenced by various barriers. These barriers can generally be categorized into two main groups: academic issues and personal factors (Figure 4.).

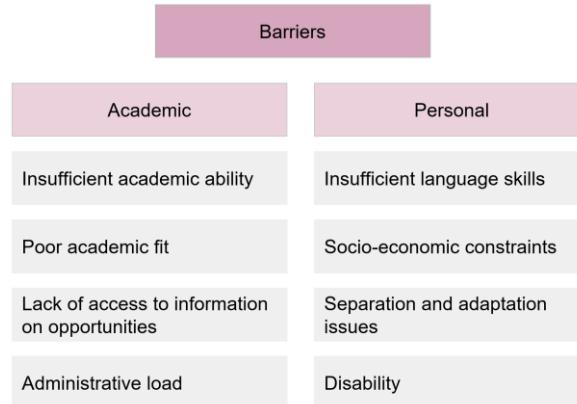


Figure 4. Barriers to student mobility

Different aspects of academic-related barriers are recognized from the literature. Konakli et al. (2024) discuss how study-abroad coordinators view minimum academic standing as a key eligibility factor in Erasmus + placements, alongside language proficiency. In contrast, results from Granato & Schnepf (2024) indicate that students with lower academic abilities may hesitate to apply for mobility due to fears of failing the selection process or viewing application requirements as too high. In addition to being a barrier for student applications, curricular barriers related to course offerings at host institutions, as well as limitations imposed by compulsory courses at home institutions and inflexibility in taking courses abroad (Sin et al., 2017), have significant and potentially negative impact on the process of creating a mobility study program plan. Additionally, poor fit between academic programs at the home and host institution could be due to the study field or lack of ECTS information packages (course catalogue) in English (Shanaida et al., 2018). The barrier of different academic cultures arises when students encounter unfamiliar teaching methods (Sin et al., 2017), assessment styles, and institutional expectations in their host country, which can hinder their academic performance and overall mobility experience. Granato et al. (2024) emphasized that studying abroad involves time-intensive organizational tasks, as acquiring the necessary organizational and adaptation skills to live in a new environment requires significant time and effort. This may, in turn, lead to poorer academic performance and delays in one's study career. Finally, some students also expected difficulties in recognition and validation of the selected courses and ECTS received by host institutions (Nada et al., 2023), which may delay completing the degree (Sin et al., 2017).

Learning a new language or developing foreign language skills (e.g. Sousa et al. 2024, Silva et al., 2017, Kosmas et al., 2020, Martins et al., 2016) could be one of the main motivators for mobility, while on the other hand language proficiency, often together with minimum academic standing, could be used as selection criteria to meet eligibility for mobility (Konakli et al., 2024, Granato & Schnepf, 2024) and therefore one of the main obstacles (Kmiotek-Meier et al., 2019, Fleaca et al., 2015). Kosmas et al. (2020) describe detailed language obstacles or important challenges such as difficulty in understanding the regional accents/dialects, in understanding the academic language, and in using jargon/slang of fellow students.

While parents, relatives or friends can play a motivating and supportive role in the choice of a mobility (Sousa et al., 2024), a long separation from the family can also be a major barrier to participation in student mobility (Fleaca et al., 2015). Kmiotek-Meier et al. (2019) found that anticipated negative impact on psychological well-being during the mobility period, defined as fear of suffering from stress/loneliness/sadness, was a forth barrier to higher education credit mobility participation. In addition to psychological support, family support also has a financial dimension. Granato & Schnepf (2024) emphasize that students whose parents have completed fewer years of study are less likely to apply for mobility, while Lopez-Duarte et al. (2021) emphasize that international student mobility is (still) elitist and often inaccessible to disadvantaged students with lower socio-economic backgrounds. When comparing the advantages and

disadvantages of traditional and virtual mobility, Lopez-Duarte et al. (2023) emphasize that in the future, more students may prefer virtual mobility and turn away from traditional mobility programs because families' financial resources are shrinking, and they do not want to burden their families. Kmiotek-Meier et al. (2019) confirm these findings that wealthier families have a higher chance of undertaking international mobility/experiences and add that this could be generalized at country level, as wealthier countries support students with generous government grants.

3.1.3. Situational factors

Situational factors for students can be classified into three main categories: destination country & city, academic factors related to the home institution and academic factors related to the host institution (Figure 5).

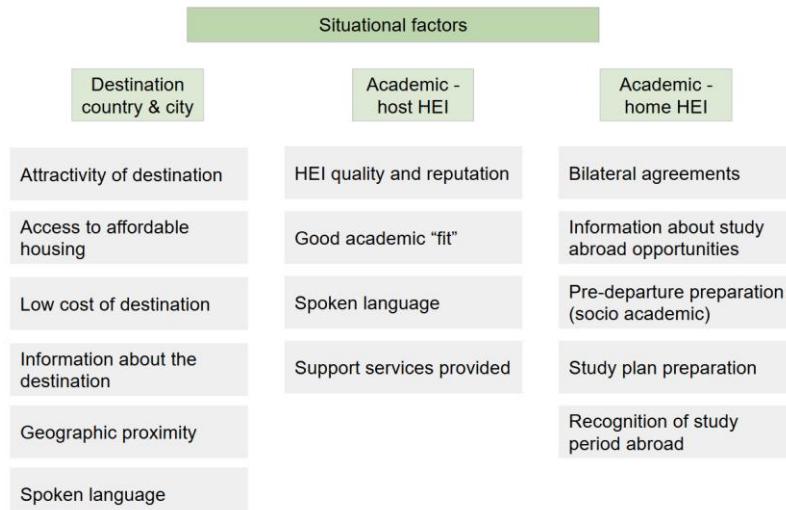


Figure 5. Situational factors for mobility from student perspective

Destination city & country

The push-pull model is one of the most commonly used frameworks for studying motivation for mobility (Sousa et al., 2024). It suggests that pull factors play a key role in selecting a destination country. Sousa et al. (2024) observe that students use the same factors to choose their study-abroad destinations as they do for planning holidays. In fact, many students prioritize cultural and tourism experiences over academic benefits, leading to discussions about "academic tourism" (Silva et al., 2017; Sin et al., 2017; Sousa et al., 2024). As a result, promoting low living costs, assistance in finding accommodation, and leisure opportunities may be more effective than emphasizing academic quality and career prospects when seeking to motivate students to participate in mobility programs. In Cirkvenčić and Lončar (2021), the authors note that limited accommodation, among other factors, is an obstacle that may decrease the quality of life of exchange students. Additionally, security and freedom of the destination country are important. Students may even select their destination based on political and cultural freedom (Sousa et al., 2024). For Cirkvenčić and Lončar (2021), the perception of security is a key factor of satisfaction during mobility in Zagreb. Besides the destination country's attractivity, the overall level of knowledge about the country and the availability of information appears to be important factors in choosing a mobility destination. These factors are ranked higher than personal recommendations from friends or relatives who have previously visited the host country (Sousa et al., 2024). Moreover, the authors highlight that geographical location and proximity of tourist destinations is an important factor in students' choice of mobility destination (Sousa et al., 2024, Cirkvenčić and Lončar, 2021; Pineda et al., 2008). Additionally, different studies indicated that the language spoken at the destination is another important factor for students (Sousa et al., 2024; Mocanu and Llurda, 2024), with differences in assigning importance to learning the local language or English. Finally, insufficient funding was already recognized as a clear barrier to mobility (Pineda et al., 2008; Rodríguez González et al., 2011). For some students, Erasmus scholarships are insufficient to support their mobility, so families' contributions and home-

country financial support serve as the second major funding sources. Therefore, the perceived low cost of a destination might be the decisional factor for student mobility (Sousa et al., 2024, Cirkvenčić and Lončar, 2021).

Academic host institution

Choosing a university for an exchange semester can be a challenging process for students. There are numerous factors to consider, and it is often necessary to find a balance between the desired destination—both the country and the specific institution—and several key elements such as compatibility of study programs, overall support for students, and the community of exchange students. Situational factors related to the host institution are to some extent connected to both motivational factors and barriers. A significant incentive for students is the perceived quality or prestige of the institution, which they often see as more challenging than their home institution (Sin et al., 2017). However, some research indicates that the reputation of the institution is not highly regarded when choosing host institutions, with a mean score of 2.82 ($sd = 1.30$) on 5-point scale (Sousa et al., 2024). For some students, the quality of the HEI is evident in international recognition of the HEIs' qualifications (Sousa et al., 2024) or the institution's position in global rankings (Rodríguez González et al., 2011), while for other students, quality is defined by campus attributes, including the quality of professors, peers, teaching and assessment methods, along with the availability and quality of resources offered to students at the host institution (Granato et al., 2024). However, for some students, personal recommendations from friends who studied at the institution may be the important quality indicator in choosing a HEI for study abroad (Sousa et al., 2024).

Another important factor is the availability of courses that match the program at the home institution. Finding courses at the host institution that can substitute for mandatory courses at the home institution is quite challenging. Not only do the courses need to be available in English, but the semester—whether winter or summer—must also align appropriately. Well-prepared and structured course catalogues can facilitate students' choice of courses at the host institution (Shanaida et al., 2018). For courses to align with the study program and the semester at the home institution, it is essential for most students that these courses be offered in English (Sousa et al., 2024). Furthermore, it is important that all staff at the host institution can communicate in English (Silva et al., 2017).

In addition to academic challenges, moving to another country and culture can cause culture shock for incoming students and, therefore, HEIs should put effort into actively supporting socio-academic integration of international students and support for different aspects of culture shock (i.e. through international relations officers' support and buddy programs). Support for incoming students starts several months pre departure, immediately after students are nominated for a semester at the host institution. Besides developing their study plan, students often face the very challenging task of finding accommodation in the host country. Assistance from the host institution or associated accommodation services is much appreciated in that process (Nada et al., 2023; Perez-Encinas et al., 2017). Upon arrival, an orientation or welcome week aimed at integrating students into the new environment figures among the most important student services for incoming students (Nada et al., 2023; Perez-Encinas et al., 2017). However, Nada et al. (2023) found that support for socio-academic integration varies significantly among Erasmus students at different institutions. To address the lack of institutional support, HEIs often rely on organizations like the Erasmus Student Network (Nada et al., 2023; Perez-Encinas et al., 2017).

Academic home institution

Although the support from home institutions is not prominently evident in the analyzed papers, the procedures, practices, rules, and supporting mechanisms at these institutions play a crucial role in the student credit mobility cycle. This includes informing students about mobility opportunities, assisting them with the application process, developing their study plans for the mobility period, and providing support for the recognition of courses upon their return. Additionally, it helps with their reintegration after an intensive academic, social, and cultural experience during the mobility period. To facilitate student mobility, there are two essential requirements for the home institution. First, the institution must establish bilateral agreements with partner HEIs. Second, they need to inform students about the available mobility opportunities. Mobile students depend on bilateral agreements between institutions when selecting an international destination, which can limit their choices (Kmiotek-Meier et al., 2019). Therefore, HEIs play a crucial role in initiating these agreements with institutions that offer compatible study programs. This collaboration helps students adapt more easily to their study programs and ensures proper recognition of their time spent studying abroad. The information about opportunities for students to study abroad is usually available on the institutional websites, but Silva et al. (2017) highlighted the significance of social networks in facilitating student mobility. According to Nada et al. (2023), some previous studies have shown that pre-departure preparation at students' home institutions significantly impacts their positive experiences during their study abroad period. Preparing

study plans for the period abroad is another important pre-departure activity resulting in signing a trilateral learning agreement for students, signed by the student, home and host institution (Shanaida et al., 2018). The differences in institutions and curricula around the world are closely linked to the validation and recognition of study abroad, as a crucial aspect of the Erasmus student experience (Nada et al., 2023). Even though a well-prepared and structured host institution course catalogue can help students to be as independent as possible in preparing their study plan (Shanaida et al., 2018), the support of academic advisors from the home institution can greatly facilitate that process for students and ensure smoother recognition of courses upon students' return from the mobility period.

3.1.4. Supporting mechanisms

Several different supporting mechanisms are recognized in the literature: student-oriented processes, partner-oriented tasks, tools, documents and framework conditions. However, it should be noted that supporting mechanisms are not covered in the existing literature to the extent to which student decisional factors are.

Student-oriented processes encompass the tasks performed by international relations officers, academic coordinators, and other relevant staff at HEIs to support students throughout their entire mobility experience. The literature reviewed acknowledges these processes to varying degrees, as noted by several authors (Cirkvenčić and Lončar, 2021; Granato et al., 2024; Fleaca et al., 2015; Konakli et al., 2024; Shanaida et al., 2018), but further research is necessary to explore them more thoroughly. The primary student-oriented processes are: 1) Promotion of the programs, 2) Recruitment of the mobility students, 3) Student application, 4) Eligibility screening and grant selection process / student ranking (criteria), 5) Student decision for participation; 6) Preparing students for the study abroad period, 7) Nominating students, 8) Student application to selected partner university, 9) ECTS recognition and 10) Post-departure reintegration.

Both the reviewed literature and practical experience emphasize the significance of partner-oriented tasks, evident in establishing and sustaining bilateral partnerships, particularly for student exchange initiatives. This is an ongoing process that runs alongside various student-related activities, such as recruitment, application, and selection. Several activities are involved in this process, as noted by different authors (Fleaca et al., 2015; Granato et al., 2024; Konakli et al., 2024) and corroborated by the present authors' practical experience: 1) Signed ECHE (Erasmus Charter for Higher Education), 2) Development of partnerships with the formally signed inter-institutional bilateral agreement (IIA) as an outcome; 3) Management of inter-institutional agreements, i.e. creating the IIA on the Erasmus Without Paper (EWP) dashboard or other mobility management platforms, changes to the agreement if needed, etc. and 4) Renewal of inter-institutional agreements.

While the primary mission of international relations officers (IROs) in HEIs remains the same over time, e.g. creating quality opportunities for student mobility, promoting those opportunities and then managing each student mobility project from start to finish, enormous changes have taken place over the last twenty years concerning the digital tools used to promote and manage international student mobility. The information about opportunities for students to study abroad is usually available on their institutional websites, but Silva et al. (2017) highlighted the significance of social networks in facilitating student mobility. The pervasive use of mobility management platforms such as Beneficiary Module (required for Erasmus +) or platforms of third-party providers such as MoveOn, Mobility-Online, SoleMove and others have not been examined in the literature reviewed here. These are tools which have revolutionized the day-to-day operations of IROs across the world. Contrastingly, the EWP initiative and its attendant tools (digital IIA, Online Digital Learning Agreements (OLA), the European Student Identity Card and the Erasmus + app) are one of the focal points addressed by Konakli et al. (2024) and in policy documents (i.e. Erasmus Student Network, 2023).

In addition to digital tools, it must be stressed that different initiatives and funding mechanisms (European or otherwise) may be considered another type of "tool" supporting student mobility, i.e., Blended Intensive Programs, the European Universities Initiative, even the Strategic Internationalization Plan (Rumbley and Hoekstra-Selten, 2024).

An international student mobility project is structured and formalized by a series of documents that either facilitate the cooperation between institutions (i.e. IIA), facilitate the integration of a student into the program of a host institution (i.e. OLA), and/or attest to the reality of the mobility and the academic results obtained for credit transfer (i.e. Transcript of records) and in case of audit. The critical importance of structured and reliable course catalogues, meticulous course mapping and preparation of the learning agreement, to the success of an international study mobility, are the focus of Shanaida et al. (2018).

3.1.5. Stakeholders

Four types of actors are recognized within the proposed ISME: Students, Higher education institutions (HEIs), Policy makers, and Society. Internationalization in HEIs is driven by actors at national and supranational levels, from policy makers (ministries, national agencies, the European Commission) and different “societal” agencies such as the Erasmus Student Network or the European Association of International Education, to top management at universities, and deployed by academic faculty and administrative staff. The ultimate stakeholders, the students carrying out a mobility period, and their lived experiences are understandably the focus of most of the literature reviewed here (i.e. Sousa et al. 2024, Granato et al., 2024). There are, however, many other stakeholders in the internationalization of HEIs, of which student mobility is seen as one of the key vectors. Depending on the HEI, roles like international relations professionals/officers, Erasmus coordinators and study abroad coordinators (Konakli et al., 2024) are essential for managing the study abroad process from an organizational perspective. When it comes to credit recognition and creating a study plan, positions such as academic advisors, academic coordinators / ECTS coordinators, or even a committee for recognition in some cases, play a key role. Names differ from institution to institution, but the roles included in the student mobility process are similar throughout Europe (and beyond). Within the reviewed literature, there are only a few papers directly referring to stakeholders. While Cirkvenčić and Lončar (2021) carry out a brief review of relevant stakeholders and then focus their attention on the student mobility experience, the papers of Konakli et al. (2024) focus on the work being done by study abroad coordinators.

3.1.6. Outcomes

Outcomes of student exchange are recognized for the students, HEIs and society as stakeholders in internationalization. Students benefit greatly as individuals from participating in a student mobility program. As mentioned earlier, the personal, academic, and professional motivations for engaging in mobility have been identified. These motivations can also be viewed as outcomes that students recognize after completing their studies abroad. However, outcomes on the level of HEI and society are rarely recognized within the literature analyzed here, despite their being recognized in policy documents (European Commission, 2018). This area needs to be researched further.

The government has the responsibility of implementing programs that promote peace, prosperity, and well-being for citizens. The European Union's Erasmus mobility framework is a key example of an initiative for positive societal change. Achieving societal goals through higher education internationalization allows governments to reap significant benefits, as student mobility leads to impactful outcomes. Mobility programs contribute to a stronger European identity by promoting European values, culture, and a sense of belonging to the European community, reinforcing European citizenship (Mocanu and Llurda, 2024; Krzaklewski and Cuzzocrea, 2024, Lopez-Duarte et al., 2021; Rodríguez González et al., 2011), which is one of the EU endeavors. The development of European identity/citizenship is strongly connected with the “feeling of belonging to a common social and cultural space” (Lopez-Duarte et al., 2021). Besides contributing to the development of European identity, for some students, mobility experiences help to develop a vision of themselves as global citizens, broadening their perspectives and enhancing their global mindset (Krzaklewski and Cuzzocrea, 2024; Cuzzocrea and Krzaklewski, 2022). Moreover, mobility strengthens the European labor market, improving employability and developing a skilled workforce (brain gain) by encouraging the retention of international students after graduation (Lopez-Duarte et al., 2021; Rodríguez González et al., 2011). On the economic front, in traditional mobility students have the opportunity to organize different meetings, trips and travel (Konakli et al., 2024; Pineda et al., 2008; Sousa et al., 2024), which is known as “academic tourism” (Unurlu, 2021 in Sousa et al., 2024), even “compared to the joy of holidays” by some students (Krzaklewski and Cuzzocrea, 2024). These activities promote intercultural dialogue, enhance knowledge sharing, and stimulate local economies through tourism-related engagements.

Additionally, mobility initiatives can raise awareness of climate-related challenges, promoting sustainable travel (green) practices and contributing to broader societal efforts to mitigate climate impact (European Commission, 2024; Rumbley et al., 2024).

4. Discussion

This paper presents the Institutional Student Mobility Ecosystem (ISME), which is based on a systematic literature review of 321 initially retrieved papers from the Web of Science (WoS) database. Out of these, 22 papers met the quality criteria and were analyzed in detail, supplemented by an analysis of 11 policy and professional papers. Through the process of coding and categorizing the data from these analyses, the concept

of ISME for student credit mobility is proposed, addressing the research question: "What are the main elements of the Institutional Student Mobility Ecosystem (ISME)?" Four primary ISME pillars are identified: 1) student decisional factors, 2) supporting mechanisms, 3) stakeholders, and 4) outcomes.

Student decisional factors, which constitute the first ISME pillar, are subdivided into motivational factors for mobility, barriers, and situational factors. The main characteristics of these factors influence a student's decision to participate in credit mobility. Among these, situational factors are the element most frequently investigated in the papers analyzed, which focus largely on motivations and barriers to student mobility (e.g., Cuzzocrea and Krzaklewska, 2022; Heirweg et al., 2020; Kmiotek-Meier et al., 2019; Sousa et al., 2024; Souto-Otero et al., 2013). The present study reaffirms previous classifications of motivational factors into personal, professional, and academic/educational categories (Krzaklewska and Cuzzocrea, 2024; Sousa et al., 2024). However, the categorization of barriers is less straightforward. For instance, Heirweg et al. (2020) identify financial, technical, organizational, linguistic, psychological, and practical barriers, particularly for students with disabilities. In contrast, Souto-Otero et al. (2013) categorize self-identified barriers to participation in the Erasmus Program into awareness/information, personal background, financial barriers, Erasmus conditions and higher education system comparability. Within the ISME framework, the main recognized barriers are categorized as personal and academic, following the same logic used for categorizing motivational factors. Country, city, and institutional aspects are recognized as motivational factors in some previous research (Sousa et al., 2024). In contrast, the ISME considers these factors as situational and emphasizes that both the home and host institutions play a significant role in the decision-making process for student mobility. However, these situational factors also come into play at the individual student level, influencing the decision to study abroad for a semester. The literature clearly outlines the factors influencing student decision-making. To provide a more detailed breakdown of certain elements, Figures 3, 4, and 5 address the main factors influencing student mobility decisions. The proposed ISME does not rank those factors according to their importance, but serves, rather, as a solid basis for further research into the significance of certain student decisional factors in different contexts (i.e., different HEIs and countries).

In addition to individual-level factors influencing student decisions, supporting mechanisms serve as the foundation containing all elements that support, and to some extent affect, institutional levels. Supporting mechanisms are the second ISME pillar. Each HEI has a set of processes that facilitate student mobility. This encompasses everything from promoting programs and managing student applications to preparing students for their study abroad period, providing support during mobility, and assisting with reintegration upon their return. These internal processes at HEIs are closely connected to partner-oriented tasks that support specific functions. For example, all activities related to signing and managing the Inter-Institutional Agreement (IIA) among partner institutions serve as inputs for creating mobility opportunities for students and facilitating their subsequent application process. To enhance the effectiveness of these processes, they are supported by various documents (e.g., student application forms, Online Learning Agreements) and digital tools (e.g., the Erasmus Without Paper platform). Finally, the frameworks and initiatives that establish the basis for student credit mobility are essential prerequisites around which all other elements at the institutional level are organized. Although the supporting mechanisms are recognized in the literature analyzed here, they are not extensively examined compared to the student decisional factors. Therefore, further investigation into various supporting mechanisms, their interconnections within the higher education system, and their impact on student mobility could be beneficial.

The third pillar of ISME consists of stakeholders who, from various roles and perspectives, influence student decision-making factors and the supporting mechanisms. Students, HEIs, policy makers, and society (including i.e. NGOs and ESN) participate in a network of interconnected processes and activities that are part of student mobility. To develop a clearer understanding of the ISME, it is essential to examine the role and impact of each stakeholder in more detail.

Finally, outcomes from student mobility represent the fourth ISME pillar. According to the systematic review from Roy et al. (2019), outcomes from student mobility are categorized into cultural, personal, and employment/career outcomes, while the present study used the same categorization as for the motivational factors: personal, professional and academic. As explained previously, factors that are seen as motivational before student mobility can be perceived as benefits or outcomes gained from study abroad experience. Additionally, ISME recognizes outcomes for society, i.e. developing European identity/citizenship (Mocanu and Llurda, 2024; Krzaklewska and Cuzzocrea, 2024, Lopez-Duarte et al., 2021; Rodríguez González et al., 2011) and outcomes for HEIs. Sustainability related to student mobility is the outcome factor that requires special attention (Shields and Lu, 2024), as student mobility can have both positive and negative impacts on the environment. On the negative side are increased travel and other mobility-related activities that contribute to global warming. On the positive side, however, international experiences can enhance students' awareness of sustainable practices and encourage them to adopt more sustainable behaviors. Shields and Lu (2024)

highlight the need for increased awareness of the climate impact associated with international student mobility, along with the unique challenges, opportunities, and complexities present in the European higher education landscape.

Although student mobility has been previously researched in the literature, this paper contributes to the field by proposing a comprehensive view of the student mobility ecosystem, structuring its elements according to the four recognized main pillars. The proposed structure of the ISME follows the structure of the University-Business Ecosystem (UBC), as outlined by Davey et al. (2011), and contributes to the development of tertiary education ecosystems as one of its subsystems (Hazelkorn and Locke, 2023), focused on student mobility as an important part of the higher education system. Beyond its practical implications, the research also advances theoretical development by demonstrating the applicability of the UBC model in a new context within higher education ecosystems, by showing how this conceptual approach can be transferred and adapted to student mobility. *Key stakeholders, Supporting mechanisms and Outcomes* as the main UBC elements were retained in ISME, while *Influencing factors* from the UBC are called *Student decisional factors* in the ISME. However, the *Economic development* as an indirect outcome is not recognized within ISME. At a more detailed level, differences emerge between the two models: while the UBC is designed to explain university-business cooperation, ISME is tailored to student credit mobility, which shapes the interpretation and operationalization of each element. For example, within the UBC the *Supporting mechanisms* include strategies, structures and approaches, activities, and framework conditions, while in the ISME these are grouped as processes, tasks, tools, documents, and initiatives (frameworks). In addition, the ISME provides a more detailed explanation of elements that are specifically relevant to the context of student credit mobility. Referring to the systemic, organizational, and individual levels of student mobility (European Commission, 2018), the proposed ISME addresses all three—primarily the individual level through student decisional factors, the organizational level through supporting mechanisms, and the systemic level partially through stakeholders and outcomes. However, the current version of the ISME does not yet illustrate the interconnections and dependencies between these pillars, which remain to be further analyzed and developed in subsequent research. As such, this study provides a solid foundation for researchers and practitioners looking to enhance student mobility within higher education.

5. Conclusion

The proposed ISME presented in this paper serves as the foundation for future development of the student mobility ecosystem. Further work on the development of ISME can focus on deeper understanding of specific ISME elements on different levels – i.e. the importance of specific student decisional factors or deeper understanding of supporting mechanism at HEIs. In order to gain deeper insight into the connection between individual ISME elements, it is important to include all relevant stakeholders who are recognized as part of the student mobility ecosystem, including students, HEIs representatives (administrative, academic and managerial staff), representatives of governmental institutions and wider society, i.e. the Erasmus student network. Future work on the further development of specific ISME elements will involve conducting a case study at different HEIs along with a student survey and workshops/focus groups with relevant stakeholders within the “SuMoS - Strengthening the ecosystem for sustainable student mobility” project.

In addition to its theoretical contribution, the findings of this study point to the need for policies that enhance inclusiveness in student mobility due to the recognized socio-economic barriers for students. In particular, targeted measures such as EU- or national-level funding schemes and institutional scholarships for students from disadvantaged or underrepresented backgrounds could help address existing inequalities and ensure that mobility opportunities are accessible to all. On the HEI level, more effort should be placed on the academic recognition of the study abroad period and supporting initiatives such as the mobility window. Less rigidity in the academic recognition process would go far in encouraging more students to undertake a semester abroad. Finally, HEIs should dedicate more resources (both human and financial) to International Relations Offices that are often understaffed and overworked, due to the large number of processes they are involved in. The decision-makers heading mobility programmes such as Erasmus+ should go further in streamlining processes, so that IROs can devote more of their time to tasks with high added value, such as individual student advising, as their role is crucial in supporting the entire student mobility lifecycle.

While the proposed ISME provides a strong foundation for researchers in the field of student mobility, it is important to emphasize its research limitations as well. On the one hand, the involvement of several researchers in reading articles and identifying ISME elements can be seen as a limitation. Although there was a meeting to agree on a standardized methodology for analyzing the articles, there is always room for subjectivity and bias among different authors. However, this diversity can also add value to the research, as the researchers come from various backgrounds. They include professionals in international relations with

over 20 years of experience at a strategic level, a vice-dean in international relations, international relations officers with over 15 years of operational experience related to student mobility, as well as academic advisors and professors. Additionally, the researchers represent five project partner countries, each contributing their expertise from different educational systems. This variety enriches the study's findings.

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Appendix 1 - 22 research papers included in analysis

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Appendix 2 - 11 policy and professional documents included in analysis

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