

Communication

# Digital Technology in Managing Erasmus+ Mobilities: Efficiency Gains and Impact Analysis from Spanish, Italian, and Turkish Universities

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**Abstract:** The European Union is investing in the areas of digital skills, digital infrastructures, digitisation of businesses, and public services to speed up numerous administrative processes and to facilitate access to citizens from member countries and neighbouring ones as well. This study provides a quantitative assessment of the efficiency gains that can be attained by the ongoing digital transformation in the realm of Erasmus+, the European Commission's programme for education, training, youth, and sport for the period 2021–2027. This programme manages a sizable budget allocated to education and training opportunities abroad for millions of students, teachers, and other staff of Higher Education Institutions within the EU and beyond. The management of such experiences has significantly grown in complexity over the last decades, entailing notable expenses that the EC aims to reduce through the end-to-end digitalisation of administrative procedures. Our analysis of the savings attained by the so-called Erasmus Without Paper project (EWP) was conducted by taking a close look at the workload, resources, and money invested in Erasmus+ proceedings by four universities from Spain, Italy, and Turkey. The analysis revealed significant savings in terms of paper wastage (a reduction of more than 13.5 million prints every year for the whole Erasmus+ programme) and administrative time, which may translate into lower staff effort and increased productivity, to the point of managing up to 80% more mobilities with the same resources and staff currently available.

**Keywords:** digital transformation; Erasmus+; EWP; ICT; student mobility



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## 1. Introduction

Digital transformation is defined as facilitating the work of individuals, improving processes, increasing the efficiency of operation, and creating new business models with the use of various digital technologies [1]. On the axis of this definition, it is seen that the main components of digital transformation are the individual, the process, and the technology. The change affects people, strategies, structures, and competitive dynamics in many areas such as politics, health, society, economy, agriculture, and industry in line with the needs of society. According to Pereira et al. [2], educational organisations that do not take advantage of this moment to improve and transform themselves in digital transformation are in danger of disappearing or being replaced by more agile organisations. In addition to this, Căpuşneanu et al. [3] argue that to ensure the successful implementation of digital transformation, organisations and companies need to guarantee that they are fully aware of the failures or risks they face over a certain period of time, for which they must identify the key influencing factors.

Higher education institutions (HEIs) draw attention as one of the areas affected by digital transformation processes, which have been studied in many research works so

far. According to Rodrigues [1], HEIs are under pressure to provide new and innovative digital experiences for their stakeholders, which can only be achieved by using a framework that enables them to manage all digital initiatives and approaches in a holistic and integrated way. Benavides et al. [4] stated that digital transformation in higher education institutions requires rethinking, restructuring, and reinventing, from its multi-purpose, multi-disciplinary, multi-state, and multifactorial character. Their statement suggests that the digital transformation inside institutions does not simply imply technological progress; rather, it is more transcendental and generates changes of meaning, affecting the culture immersed in the university, administration, formative activities and their evaluations, pedagogical approaches, teaching, research, extension, and administrative processes.

According to a literature study by Mohamed et al. [5], digitalisation can provide a competitive advantage to higher education institutions as long as it is implemented with a correct combination and an integrated approach linking impactful changes. The level of digital maturity, though, varies across countries and regions. A recent UNESCO report [6] enumerated factors needed for a healthy digital transformation in the field of education in the Asia Pacific, ranging from data security, strategy unity, equality of opportunity, structural and sustainable digital technology requirements of educational institutions, family support, blended learning strategies, etc. It was noticed that while 50% of high-income countries in the region have an operational policy on digital remote learning, only 27% of low- and lower-middle-income countries do. According to the survey of Marks et al. [7], a consolidated framework covering the aforementioned factors is missing also in the context of the United Arab Emirates, where none of the examined institutions had a stand-alone digital transformation vision or plan. In developing countries, on the other hand, the discussion embraces the choice of online learning methods. For example, the cross-sectional surveys carried out by Essel et al. in Ghana [8] and by Argüelles-Cruz et al. in Latin America [9] showed that the choice might be largely influenced by the availability of IT infrastructure and by the professors' levels of IT skills. Finally, an OECD Report on the Digital Transformation of Higher Education in Hungary [10] identified policy recommendations to address persistent gaps in the current policy framework supporting digitalisation, which is common in other EU countries as well.

Digital transformation processes call to rethink and plan international student and academic mobility in HEIs in a multifaceted way. In this line, the Erasmus+ programme—one of the largest student and academic mobility activities worldwide—faces a challenge due to the significant size it has achieved. The number of HEIs that have the Erasmus Charter for Higher Education has increased from a few hundred at the beginning of the 2000s to more than 5200 as of July 2022, from 33 countries (the 27 EU members plus Iceland, Liechtenstein, Norway, North Macedonia, Serbia, and Turkey). Accordingly, the number of students and staff benefiting from the Erasmus+ programme has been growing by the day, entailing a plethora of challenges in management and coordination. To overcome these challenges, the European Commission (EC) has decisively invested in digitisation, launching the Erasmus Without Paper (EWP) project [11] to define common interfaces, document types, and management procedures. On such foundations, it is possible to develop an ecosystem of digital applications that will facilitate management and participation. Integration of these developed digital platforms was declared among the priority areas by the EC, which made it compulsory to complete the digitalisation process for all HEIs by 2025.

This communication reports on an experiment conducted in the SUDTE project (“Supporting Universities in the Digital Transformation in Erasmus+”) [12] to numerically reveal the benefits of the digital transformation process by comparing traditional methods and digital tools used in the execution of Erasmus+ mobility processes between HEIs. Knowing that many processes are affected by institutional or national regulations and their peculiarities and circumstances, the project's partner institutions have surveyed such details as paper wastage, workload, and time invested in managing mobility processes in their respective countries (namely Spain, Italy, and Turkey) using different digital applications:

three from different commercial providers and one built in-house. Thereupon, a statistical analysis was conducted to characterise the savings that may derive from digitalisation, providing the first quantitative evidence of savings in terms of paper wastage and administrative time, which may translate into lower staff effort, increased productivity, and greater diligence from the point of view of the beneficiaries of the mobilities: fewer errors, shorter or no delays, etc.

This study focuses on the savings in workload, paper, and time savings gained by the digital transformation process that higher education institutions are going through within the scope of the Erasmus+ programme for international offices. The structure of this paper is as follows. The academic literature related to the study is discussed in the background section after the introduction. Next, the methodology section presents information and justifications of the processes used in the study. In the results section, the data obtained from the intervening staff. The computed results are given for later analysis in the discussion section. In the conclusion, a roadmap is drawn for new studies to be carried out in the future.

## 2. Background

Since it was launched in 2016, the EWP project has made substantial progress in the implementation of a framework supporting the electronic exchange of students' data by interlinking the databases of thousands of HEIs. Those databases may be hosted by in-house systems or third-party providers that cater for different needs and resources, from large universities with thousands of outgoing students every year to small institutions that send just a few of them whenever a specific collaboration opportunity with a foreign institution appears. In the short term, EWP is seen by the EC as a strategic means to more efficiently manage a budget of 26,000 million euros allocated for international mobilities, attaining time savings, reductions in paper usage and increases in staff productivity [13]. In the longer term, it would provide the foundations to develop and implement far-reaching digital transformation plans for all types of education and training institutions, all levels and for all sectors.

Erasmus+ mobility management requires that activities that will take place over a long period of time be recorded from beginning to end. In the process, the HEIs' International Relationships Offices (IROs), the academic coordinators and the beneficiaries of the mobilities must produce and manage many documents and substantial amounts of data. In the paper-based process, even simple confirmations required several people in different institutions to print out, sign, archive and transport tens of pages. Also, HEIs and NAs required extra documents to be transferred. A poll conducted by Jahnke in 2017 [14] –getting 1050 answers from HEIs of all types and sizes from 31 countries– showed that almost 90% of the HEIs that sent out ~1000 students abroad on Erasmus mobilities per year considered the management workload “very high” or “high”. Only 9.6% of the institutions answered that the workload was “average”, and not even 1% answered that the workload was either “low” or “very low”. Putting the workload into a historical context, the poll found that more than 67% of the HEIs perceived the workload had increased since 2014, whereas only 8.1% perceived the workload to have decreased. In one study conducted two years later, Mincer-Daszkiwicz [15] reported that the workload and the variety of documents required for the management of mobilities were still increasing steadily and that the expectation for the EWP solutions was that they would enable interoperability between more than 2000 in-house systems and more than 50 commercial systems to exchange data electronically and securely, and concerning tens of thousands of mobility activities every year.

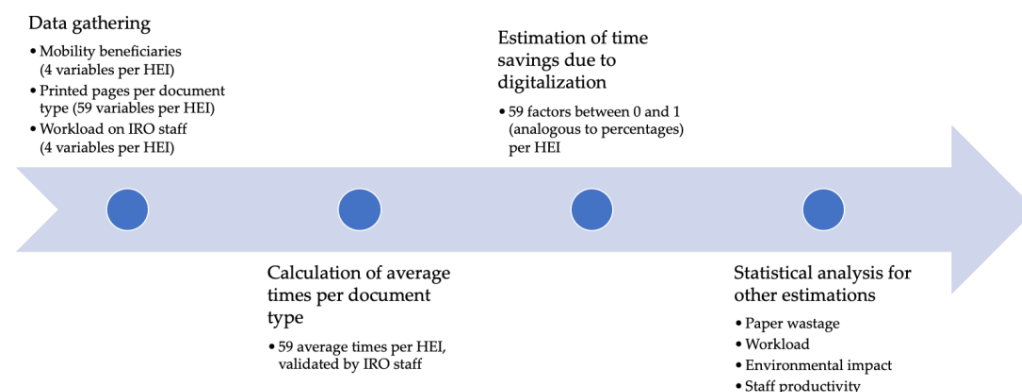
As of August 2022, the EWP project has almost reached the foreseen gigantic dimensions, with thousands of HEIs, commercial providers and other organisations integrating into the digital ecosystem and taking up the new tools that come with it. As the implementation deadlines set by the European Commission get closer, they are also working together to detect and solve persisting integration and interoperability problems, make the solutions available in all pertinent languages, fully train the management staff, and

make the processes accessible and understandable by the beneficiaries of the mobilities. At this point, it is necessary to conduct studies that numerically reveal the benefits of digitalisation, as done in the recent past for other areas such as business, industry, justice or healthcare [16–18]. As explained in [19], the agenda for HEIs has been complicated by the COVID-19 pandemic and the sudden massive adoption of online learning schemes. Numerical evidence will help strengthen the HEIs' and NAs' motivation to complete the transition from paper-based processes, notwithstanding the cost that complex software systems entail in terms of licensing, operation, maintenance and/or evolution.

This brief literature review covers almost the last six years in which the paperless Erasmus studies have been launched. This communication gives novelty and added value to the field since not much research has been conducted regarding the efficiency and gain analysis of digital transformation in the Erasmus+ programme so far.

### 3. Methodology

As shown in the diagram of Figure 1, the starting point for our study was the acquisition of numerical information about paper wastage, workload and time invested in managing mobility processes during the academic years before the adoption of digital processes.



**Figure 1.** Methodological steps followed in the study.

Specifically, the staff of the International Relationships Offices of the four HEIs in the SUDTE consortium (SU—Selçuk University; IZTECH—Izmir Institute of Technology; UVIGO—University of Vigo; UNINA—University of Naples Federico II) were asked to provide the following data:

- The Average Numbers of Beneficiaries (ANB) of the four types of Erasmus+ mobilities: SMS (Student Mobility for Studies), SMP (Student Mobility for Placement), STA (Staff Mobility for Teaching Assignment), and STT (Staff Mobility for Training).
  - This input yielded four variables for each HEI: ANB<sub>SMS</sub>, ANB<sub>SMP</sub>, ANB<sub>STA</sub>, and ANB<sub>STT</sub>.
- The Number of Printed Pages (NPP) used for each one of the documents required by each type of mobility (see Table 1), which would rely on templates provided by the EU or models created by each HEI.
  - This input yielded 59 variables for each HEI, corresponding to the 59 types of documents listed in Table 1 (those in the rows of STA and STT are counted twice): NPP<sub>GA\_SMS</sub> for the Grant Agreements of SMS mobilities, NPP<sub>LA\_SMS</sub> for the Learning Agreements, etc.
- The Number of IRO Staff Members (NSM), their Yearly Hours of Work (YHW) per person, the Percentage of the yearly hours taken by SMS/SMP/STA/STT PaperWork (PMPW), the ‘M’ meaning ‘mobilities’, and the Percentage taken by Other Paper-Work (POPW), such as interinstitutional agreements, visa letters, passport letters, and internal communications.

**Table 1.** Documents counted for the four types of mobilities (**bold** documents are used by some institutions only).

Mobility Types	Documents
SMS (Student Mobility for Studies)	<ul style="list-style-type: none"> <li>• Grant agreement</li> <li>• Learning agreement/work programme</li> <li>• Outgoing application form</li> <li>• Acceptance form</li> <li>• Certificate of arrival</li> <li>• Departure certificate</li> <li>• Transcript of records</li> <li>• Bank details form</li> <li>• Social security/tax declaration</li> <li>• Letter of acceptance to entrants</li> <li>• Copy of incoming ID/passport</li> <li>• Copy of incoming insurance</li> <li>• University nomination</li> <li>• Incoming application form</li> <li>• <b>Course recognition sheet</b></li> <li>• <b>Document for visa</b></li> <li>• <b>Course recognition confirmation</b></li> <li>• <b>Transcripts</b></li> <li>• <b>Student mobility survey</b></li> <li>• <b>OLS results</b></li> <li>• <b>Incoming learning agreement</b></li> <li>• <b>Incoming final transcript</b></li> </ul>
SMP (Student Mobility for Placement)	<ul style="list-style-type: none"> <li>• Grant agreement</li> <li>• Work programme</li> <li>• Outgoing application form</li> <li>• Acceptance form</li> <li>• Certificate of arrival</li> <li>• Departure certificate</li> <li>• Bank details form</li> <li>• Social security/tax declaration</li> <li>• Copy of incoming ID/passport</li> <li>• Copy of incoming insurance</li> <li>• Incoming application form</li> <li>• <b>Copy of outgoing ID/passport</b></li> <li>• <b>Grant payment to outgoing students</b></li> <li>• <b>Document for visa</b></li> <li>• <b>Academic recognition document</b></li> </ul>
STA (Staff Mobility for Teaching Assignment) and STT (Staff Mobility for Training)	<ul style="list-style-type: none"> <li>• Grant agreement</li> <li>• Work programme</li> <li>• Application form</li> <li>• Invitation letter</li> <li>• Letter of acceptance</li> <li>• Certificate of attendance</li> <li>• Report of expenses</li> <li>• Certificate of participation</li> <li>• <b>Assignment letter</b></li> <li>• <b>Grant payment documents</b></li> <li>• <b>Work programme for incoming beneficiaries</b></li> </ul>

From the initial data gathered from the IROs, the Average Processing Times (APT) taken by each type of document were calculated for the different types of mobility (second

stage of Figure 1), yielding 59 figures for each HEI from the inputs gathered in the first stage:  $APT_{SMS\_GA}$  for SMS Grant Agreements,  $APT_{SMS\_LA}$  for SMS Learning Agreements, etc.

In the computations, a sum of the products of ANB and NPP variables determined the workload, whereas  $NSM \times YHW \times (PMPW + POPW)$  determined the overall staff effort. It was assumed that, given enough experience with the management procedures, the figures to consider for paper wastage, workload, and time for each type of document were proportional to its number of pages.

It must be noted that it was more convenient to compute the APT figures this way than to ask the IRO staff directly for 59 time estimations because—due to well-known subjective biases in the perception of workload [20,21]—the overall amounts resulting from the latter approach would not match, by far, the yearly hours of work. It was much easier for the staff to check whether the calculated APT values were good approximations of what they experienced in their daily work. They did so with a level of agreement exceeding 92%, which served to validate the abovementioned assumption in the computations.

Subsequently (third stage of Figure 1), the IRO staff were asked to estimate the time savings that they would expect thanks to digitalisation, based on the type of information included in the different documents and on their current familiarity with the EWP tools used in their institutions. This yielded 59 Time Saving Factors (TSF) for each HEI, with values between 0 and 1, equivalent to percentages. For example, a factor of 0.75 means that a proceeding that has traditionally taken 4 min would be expected to take  $4 \times 0.75 = 3$  min with the fully-digital approach. The staff's rationale was that fields such as personal data would require little or no verification after they had been introduced once, and university nominations and incoming application forms could be checked much more quickly than former paper-based forms and photocopies. In contrast, learning agreements and work programmes would still require careful examination because the catalogues used for recognition of the education/training attained in a foreign institution are enhanced with each new pairwise matching of sending and receiving institutions. The same goes for highly sensitive data such as transcripts of records, and bank details.

It is worth noting that the IRO staff could provide negative figures at this stage if their expectation was that some proceedings would take longer with the digital approach for whichever reason.

With the time saving estimations, a statistical analysis was conducted with SPSS as the last stage of Figure 1 and served to characterize the expectations in relation to paper wastage, workload, and time which in turn yielded findings about environmental impact and staff productivity.

#### 4. Results

Following the methodological process explained in the preceding section, the consultations with the IRO staff of the four participating HEIs took place from September 2021 to February 2022. Table 2 shows the amounts of paper used by SU, IZTECH, UVIGO, and UNINA, both in total and per beneficiary of each type of mobility. It is noticeable that the additional documents handled by the Turkish HEIs (presented in bold in Table 1) cause a significant increase in the paper wastage per beneficiary. Most commonly, this is related to the fact that beneficiaries from Turkey need to apply for a Schengen visa in order to enter the EU countries.



**Table 2.** Total and per beneficiary amounts of paper.

Paper Wastage	Number of Printed Pages (NPP)			
	SU	IZTECH	UVIGO	UNINA
Per SMS beneficiary	45	79	31	39
Per SMP beneficiary	31	76	24	36
Per STA beneficiary	25	44	20	25
Per STT beneficiary	24	41	20	25
Total (including other paperwork)	23,647	5664	24,339	43,757

Table 3 shows the calculated times—in minutes—spent yearly by individual IRO staff members from SU, IZTECH, UVIGO, and UNINA with the different documents required by the four types of mobilities.

**Table 3.** Total Average Processing Times for the different documents.

Mobility Types and Documents	Total Average Processing Times (In Minutes)				
	SU	IZTECH	UVIGO	UNINA	
SMS and SMP	Grant agreement	15,016	2599	18,367	23,226
	Learning agreement/Work programme	25,377	28,214	18,239	30,613
	Outgoing application form	31,497	21,279	6284	3974
	Acceptance form	1797	743	2292	2285
	Certificate of arrival	1797	743	3118	1852
	Departure certificate	1797	6480	3118	1369
	Transcript of records	2517	1772	3339	1750
	Bank details form	1502	8809	1837	2183
	Social security/tax declaration	2760	0	1837	3974
	Letter of acceptance to entrants	275	101	1214	875
	Copy of incoming ID/passport	295	1519	1281	5352
	Copy of incoming insurance	591	1316	2562	1078
	University nomination	275	4928	1214	2666
	Incoming application form	295	1772	1281	977
	Other documents	5640	13,753	0	0
STA and STT	Grant agreement	2428	1823	2793	1709
	Work programme	2890	405	1648	2466
	Application form	1465	405	410	802
	Invitation letter	425	135	410	279
	Letter of acceptance	470	34	349	279
	Certificate of attendance	470	34	549	279
	Report of expenses	1311	270	1396	773
	Certificate of participation	328	135	349	279
Other documents	1410	1991	0	0	

Table 4 lists the average time saving factors indicated by the consulted IRO staff for the different types of documents.

**Table 4.** Summary of the time saving factors (TSF) indicated by the consulted IRO staff for the different types of documents <sup>1</sup>.

Mobility Types and Documents		Time Saving Factors (See Explanation In Section 3)
SMS and SMP	Grant agreement	0.7
	Learning agreement/Work programme	0.3
	Outgoing application form	0.3
	Acceptance form	0.7
	Certificate of arrival	0.3
	Departure certificate	0.5
	Transcript of records	0.3
	Bank details form	0.1
	Social security/tax declaration	0.2
	Letter of acceptance to entrants	0.7
	Copy of incoming ID/passport	0.2
	Copy of incoming insurance	0.2
	University nomination	0.8
	Incoming application form	0.8
	Other documents	0.8
STA and STT	Grant agreement	0.7
	Work programme	0.7
	Application form	0.6
	Invitation letter	0.3
	Letter of acceptance	0.7
	Certificate of attendance	0.3
	Report of expenses	0.8
	Certificate of participation	0.2
Other documents	0.8	

<sup>1</sup> "Other documents" represent the additional documents used by some institutions only.

From these figures and the calculations of the workload implied by each document type, Table 5 summarizes the overall savings foreseen for the four surveyed HEIs, in the following terms:

- Total working weeks saved in managing their current yearly numbers of mobilities. This was obtained by recomputing the total times invested in the management of the four types of mobilities, computing the post-digitalization values of PMPW (*Percentage of the yearly hours taken by Mobilities PaperWork*) and POPW (*Percentage taken by Other PaperWork*) and taking into account the Time Saving Factors. The difference in minutes from the original value, returned by the equation  $NSM \times YHW \times (PMPW + POPW)$ , was turned to working weeks by making the corresponding divisions.
- Reduction of workload experienced by the IRO staff members. This is simply a percentage value computed by comparing the original amount of time devoted to mobilities paperwork and other paperwork with the updated amount that incorporated the TSF values.
- Potential increase in the number of mobilities that could be handled by the current staff under their current workload. This was computed as an updated value of the variables Average Numbers of Beneficiaries (ANB) of each HEI, not considering the



increase due to paperwork, but to additional efforts made in the preparation and management of mobilities: advice on logistics (travel, accommodation, etc.), cultural awareness, academic and linguistic support, monitoring of incidents and needs, etc. The computation was a conservative one, assuming that the staff's yearly hours not invested in mobilities paperwork or other paperwork (i.e.,  $YHW \times (100 - PMPW - POPW)$ ) would be devoted to those efforts in the Erasmus+ programme.

**Table 5.** Overall savings foreseen for the four surveyed HEIs as a result of the digitalisation of mobility management.

Productivity Gains Derived from Time Savings	SU	IZTECH	UVIGO	UNINA
Total working weeks saved in managing the current yearly numbers of mobilities.	185	240	128	220
Reduction of workload experienced by the IRO staff members (in % of time devoted to paperwork).	56.6%	56.9%	53.2%	54.8%
Potential increase in the number of mobilities that could be handled by the current staff under their current workload.	75.9%	75.7%	87.8%	82.5%

## 5. Discussion

Our analysis reveals a potential to achieve substantial gains as a result of digitalising the management of Erasmus+ mobilities. The following are the key takeaways derived from the results of the preceding section:

- With more than 300,000 higher education students participating annually in Erasmus+ mobilities, saving an average of 45 printed pages in management paperwork (see Table 2) implies a reduction of more than 13.5 million prints every year, which entails enormous environmental impact not only in relation to paper, but also transport, packaging, ink, electricity, and storage. The mobilities of teachers and administrative staff imply an extra 3.6 million prints saved yearly.
- In terms of staff productivity, the figures in Table 5 reveal an expectation of average reductions above 55% of the time spent on paperwork, which would result in a reduced workload for the IRO staff members, and contribute significantly to improving management diligence from the point of view of the beneficiaries of the mobilities: fewer errors, shorter or no delays, etc. The IRO staff would be able to use the saved time on aspects that have traditionally stood out in the satisfaction polls as needing improvements or more extensive coverage [22], such as the cultural preparations and logistic support given to beneficiaries before their mobilities, the follow-up and support offered during their stays abroad, and the dissemination of the attained results after returning.
- From a different perspective, the time savings reveal an opportunity to manage an average of 80% more mobilities with the same resources and staff currently available. Effectively, this removes one bottleneck that has prevented HEIs from offering the Erasmus+ experiences to a greater number of people, thus paving the road for more effective usage of the programme's budget and multiplication of the return from the massive public investment, whose figures are already positive as reported by D'Hombres [23].

## 6. Conclusions

From the aforementioned figures, it is concluded that, although the digital transformation in the Erasmus+ mobilities of higher education seems difficult and costly, it would provide a great convenience in the effective and efficient management of HEI processes, fully in line with the Digital Decade targets of the European Union [24] in the areas of digital skills, digital infrastructures, digitalisation of businesses, and public services. Nevertheless, thinking about the long term, it is necessary to assess the environmental sustainability of the paradigm shift taking into consideration the fact that, for every HEI that goes paperless, there will be an expanding data centre footprint and significant amounts of e-waste [25]. Thus, as highlighted in a World Economic Forum report from 2019 [26], data centres may lead to an unintentional but unchecked negative impact of digital technology, exacerbated by quick technology obsolescence. It will therefore be necessary to assess the question of whether it is possible to decouple digital transformation in higher education from e-waste and the negative impact of digital technology.

In line with the aims of the European Commission, with this change of paradigm, the administrative burden for the four HEIs participating in this study to manage Erasmus mobilities has been reduced drastically by using digital tools. In relation to the specific implications of these achievements on the Erasmus+ programme, the first highlight is that it is possible to carry out more mobilities with fewer staff members, thanks to the reduction in work intensity. Alternatively, in keeping the same staff, the saved extra time could be devoted to improving the quality of the mobilities or to different focal points. Beneficiaries are expected to show more interest in the programme thanks to the reduction of bureaucratic procedures and the lower probability of administrative mishaps. It is recommended to develop digital technologies like an Erasmus app to be used by academic and administrative staff in the new Erasmus Without Paper programme, which demands an investigation of expectations and possibilities.

This communication reports on one dimension of the digital transformation of HEIs, which—as noted in the introduction—is an extremely complex endeavour that also touches many different psychological, social, economic, and legal aspects. The literature on these aspects is extremely scarce as of 2022, calling for intense research in the following years. As part of our ongoing research, besides including the cases of more universities to further substantiate the findings of this communication, it is planned to conduct research on the points of view of students, professors, and other staff about the ease with which they go through the new digital procedures, with a particular interest in recruiting a sufficient sample of people who engaged in Erasmus+ mobilities both before and after digitalisation.

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