



Digitalisation of Administrative Services in Universities: Findings from a Global Pilot Study

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The International Association of
Universities and
A Politecnico di Milano Research
Group



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Part I: Motivation.....	1
Part II: HEIs' Administrative Services.....	3
Part III: The Survey.....	6
Part IV: First implementation results.....	9
Part V: Conclusions.....	16
Part VI: References.....	24
Part VII: Annex.....	25

Part I: Motivation

The process of digitalization of Higher Education Institutions (HEIs) has the main purpose to improve their organizational, administrative, and didactic power through the exploitation of the potential of ICT technologies, with the view to promote innovation, sustainability, and transparency.

On one side, it better arranges and streamlines the work of the various employees across the hierarchy, making the system much more efficient and resilient. Undoubtedly, taking advantage from the instruments and tools developed with the Digital Revolution guarantees a better management of the activities and of the tasks to be performed, and establishes the basis for an improved administration of financial, human, and technical resources available. On the other side, it assures and supports the provision of high-quality services, engaging the final users in the accomplishment of the tasks and maintaining the correct - eventually enhanced - functioning of the systems even under critical conditions.

Actually, because of the boundless and continuous process of digitalization, educational institutions and, more in general, public administrations know no alternatives but to take account of the most recent developments resulting from the innovative technologies and progressively moving away from the working customs they have long adopted. Optimization and modernization of primary and administrative processes as well as the interactions between the country's services and governance and its citizens and businesses through the exploitation of Information and Communication Technologies (ICT) are essential to improve the HEI quality rapidly and efficiently (Deutsch et al., 2021). The need for transformation is a challenge, an opportunity, as well as an urgent requirement – especially after the spread of the Covid-19 pandemic – to exploit the tangible and intangible digital assets the public institutions themselves have at their disposal, learn, and preserve. Nonetheless, nowhere digital transformation has been more apparent than at universities: they are pioneers in using digital technologies and they have spent many years establishing digital solutions (Crawford et al., 2020; Bygstad et al., 2022), thus making them the ideal progressive environment for its implementation. Especially with the spread of the Covid-19 pandemic, the universities were and still are putting the foundations to transcend their physical and institutional borders from the technical, pedagogical and organizational perspectives. On one side, technology facilitates and supports the creation as well as the dissemination of knowledge; on the other, it also gets the credit for establishing an automated platform for the storage of personal data and the provision of customized services, as well as for the management of administrative and bureaucratic activities, previously performed exclusively by hand by specific institutional profiles (Dneprovskaya et al., 2018).

Certainly, the digitalization process of HEIs has already started before the pandemic, but this last has encouraged, or better, required steep advancements, with a view to carry on the same activities as before and to provide at least the same benefits - possibly enriched - to the final consumers. Besides, the emergency gave the opportunity to speed up the technological process to deal with the altered conditions established, as well as to create a base for a blended administrative and learning environment, thus taking advantage from the financial, technical, and organizational efforts made to manage the pandemic also in the future.

In line with this, it is fundamental to monitor how the digital and technological development of HEIs' primary and administrative services has evolved during these recent years of emergency. In particular, great attention should be paid to the latter services, essential for the smooth running of primary ones and, consequently, to the capability of HEIs to generate value. To the best of our knowledge, there are not previous studies addressing HEI's digitalization process from the point of view of this kind of fundamental services.

The objective of the present report is to develop and test a methodology to quantitatively measure and compare the ongoing process of digital transformation of administrative services in HEI context. To this aim, first we develop a framework aimed at mapping the main support services of HEI's value chain reported in most institutions worldwide. Then, we test its validity by designing and distributing a survey on a global scale.

The survey is tailored on the abovementioned framework and is aimed to collect, for each administrative service, the level of digitalization before, during and after Covid-19 emergency. Obviously, in this last case the respondent is required to make a forecast according to his/her personal experience.

The temporal analysis of the digitization degree gives rise to further interesting considerations: the application of a common methodology for mapping the digitalization level of HEI's administrative services enables not only their comparison on a worldwide scale, but also to extend such comparison through time.

Part II: HEIs' Administrative Services

To investigate properly the level of digitalization of HEI's administrative services, the first fundamental step is to define, as well as categorize, the different processes characterizing HEIs' value chain. In particular, it is possible to group HEI's processes into two main families: core activities and support activities.

Core activities refer to tasks that must be completed so that the organization can successfully operate and generate value, achieving the purposes it was created for. In line with this definition, three main core services are provided by HEIs: (i) Education and teaching, (ii) Research and (iii) Community services. Education and teaching services refer to learning and teaching activities that enable students to engage with a facilitator to learn the knowledge or skills required in order to achieve the desired educational outcome. Research processes are all the services related with reporting, designing, conducting, or consulting on research in counselling with human subjects and contributing to issues of certain influence in different fields. Finally, community services indicate the different activities aimed at disseminating the knowledge generated by the HEI and supporting the community (Darmalaksana et al., 2018).

On the other hand, support activities (i.e. administrative services) assist the HEI as a whole, providing infrastructure, inputs or tools that allow the core activities to take place on an ongoing basis, contributing to the success of the institution indirectly. There is a wide variety of literature contents dealing with the definition and categorization of this second class of services (Groves et al., 1997; Sison, et al., 2000; Makkar et al., 2008; Mora et al., 2008; Pathak and Pathak, 2010; Hutaibat, 2011; Darmalaksana et al., 2018). In general, it is possible to group the support services into three main branches: (i) governance, (ii) staff support activities and (iii) student support activities. Governance refers to all the activities specifically meant to facilitate management and control of the organization in achieving its mission, while staff support services sustain the faculty and the administrative staff in their tasks, whenever any assistance is needed during critical stages or when facing snags. Student support activities guarantee the management of the contact points between the students and the administration as well as all the activities involving people to be targeted when dealing with bureaucratic issues and procedures.

This classification can be further detailed by introducing five main macro areas of support services: (i) general administration, (ii) teaching services, (iii) research services, (iv) student services and (v) third mission services.

General administration family of services refers to all the activities pertaining to stakeholders management, financial planning, facilities management and ICT management that support the administration of university's daily operations. Management of balance sheet and budget, management of teaching and technical/administration staff, facility management, institutional assessment, management of partnership, management of ICT infrastructure, communications (corporate or marketing communication) and equity, diversity, and inclusion office are the main services ascribable to this macro area.

Teaching services are all the services supporting the provision and fruition of the educational offer, both online and in presence. Student admission and enrolment, technical and IT support to teaching process, exam provision and reporting, work placement and internship services as well as management of student mobility and international exchange programs are the principal support services referring to this macro area.

Research services are all the services supporting academic staff to undertake a research task as well as monitoring and managing the related research outcome. The main services falling in this macro area are: assistance to the management and reporting on financed contracts, control of scientific productivity and internal evaluation of research and management of library patrimony and resources.

Student services are all the services supporting the academic and post-academic experience of students. Under this label are commonly included career services, housing management, food services, extracurricular activities, medical and/or psychological support and management of scholarships and bursaries.

Finally, third mission services are all the services supporting the dissemination of the knowledge outside the academic environment. The support to third mission projects is the main activity involved in this last macro area.

Figure 1 – HEI's value chain

The above-described framework covers the large majority of HEI's support services defined by the existing literature. For this reason, it could be adopted as effective methodology to measure and compare the different level of digitalization registered by various HEIs. To assess its validity, a survey is designed following the present framework's structure. For each macro area, HEIs are required to report the level of digitalization of their own support services before and during Covid-19, as well as to make a prediction about their future digital maturity after the pandemic. The structure of the questionnaire will be described in the next section.

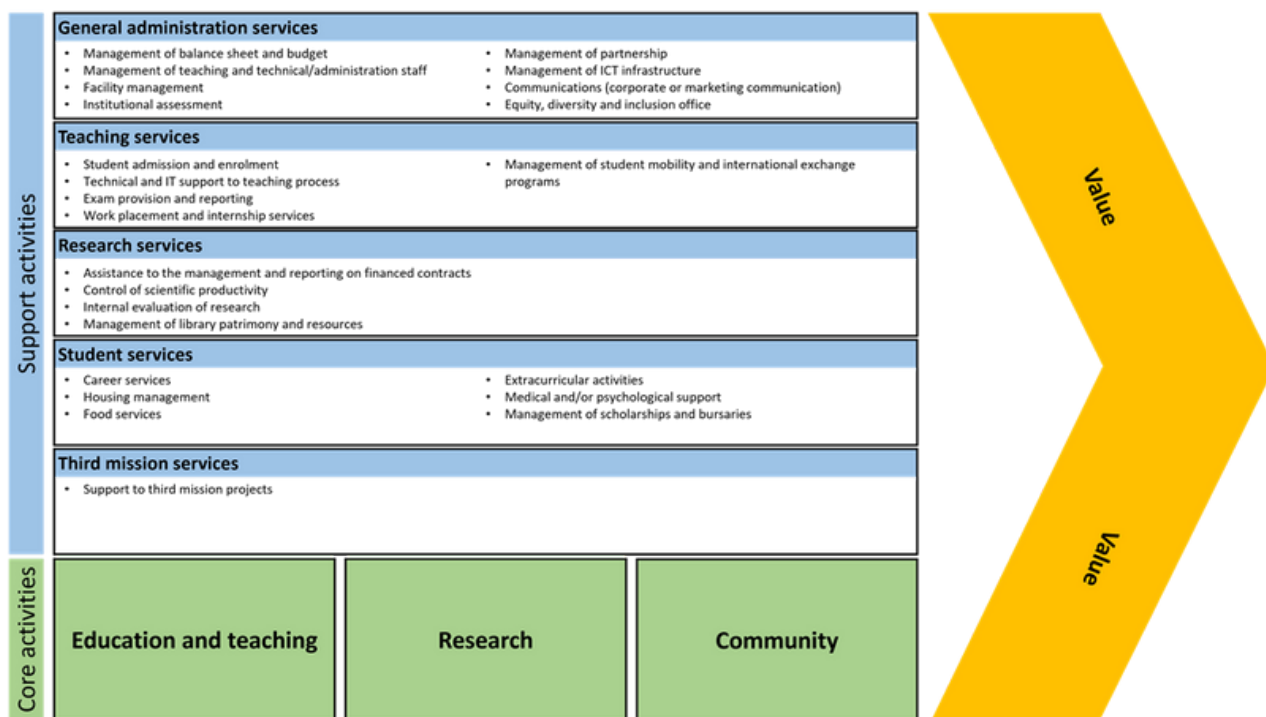


Figure 1 – HEI's value chain

Part III: The Survey

The International Association of Universities (IAU) and a Politecnico di Milano (PoliMi) research group collaborated to conduct a global assessment on the state of digital transformation in higher education administrative services using a closed multiple choice questions survey developed and provided through the online platform Microsoft Forms. The questionnaire touches on different services found in most institutions worldwide. These range from student services to facility management to administrative support for teaching, learning and research. Specific examples are student admission and enrollment, work placement and internship services, student mobility and international exchange programmes, finance, and communication management. These support services are grouped in five macro areas - general administration, teaching services, research services, student services and third mission services - according to the framework described in the previous chapter. For each of them, HEIs are required to provide the level of digitalization before and during Covid-19, together with a personal prediction about the future digital status of the service. The impact of technology on the administrative processes is evaluated from two angles: specific software and dedicated apps, any software and/or digital application specifically developed for a service, and communication platforms, any digital platform used to communicate and share information within and outside the university. More precisely, for any activity in every macro area, respondents of each of the participating universities are asked the extent to which that specific activity is supported by specific software and dedicated apps and by communication platforms before, during and after the Covid-19 pandemic. The answer ranges along seven degrees of frequency, sorted from smallest to biggest: never (1), rarely (2), sometimes (3), for about half of the tasks (4), often (5), almost always (6) and always (7).

For more details, the original text of the survey can be found in the Annex section.

The survey is distributed worldwide, lasted four months and was completed by eighty universities. Despite this appreciable number of answers to the questionnaire, the analysis of these observations would not assure the statistical significance of the results obtained, but still allows the validation of the methodology developed. Actually, the framework formulated gives the possibility to measure, as well as compare, the administrative services of various HEIs located all over the world.

Figure 2 displays the geographical distribution of the Higher Education Institutions that have replied to the questions in the survey. The data appear to be more intensively spread in the European continent (37%) with respect to the rest of the world, with some countries showing up more than once: among them, Germany, Bulgaria, Spain, and Andorra. However, the European prominence is not so overwhelming, as it is immediately followed by the Asian representation, covering 33% of all the observations. The following continents by representation are America – especially the South America region - with 15%, Africa (12%) and Oceania (3%).

It is important to note that every continent is represented in the resulted dataset: this gives the opportunity to perform more accurate, reliable, and comprehensive comparative investigation.

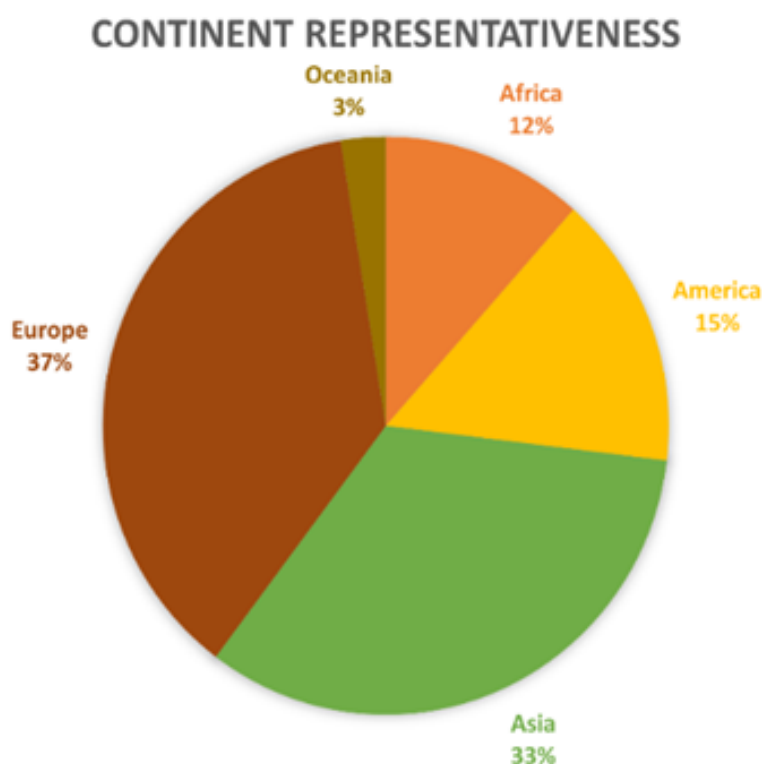


Figure 2 – Geographical distribution of the HEIs in the survey

Regarding the professional profiles and institutional roles of the respondents, Figure 3 represents the distribution of the people who answered to the proposed survey. As it is possible to see, there is a great prevalence of people fulfilling the role of Rector (or Vice Rector), of Teacher, of Dean member, of responsible for the ICT department, and of the International Relations Office.

This enables us to generalize when investigating the results collected: undeniably, the Rector has an all-encompassing view of the University (s)he is directing, and his/her judgment would hopefully be the most impartial and reliable one. Moreover, when getting to the ICT responsible, (s)he should have deeper knowledge of the digitalized and technological current availability and potential evolution, that represent the basic concepts and trends we are investigating through this study.

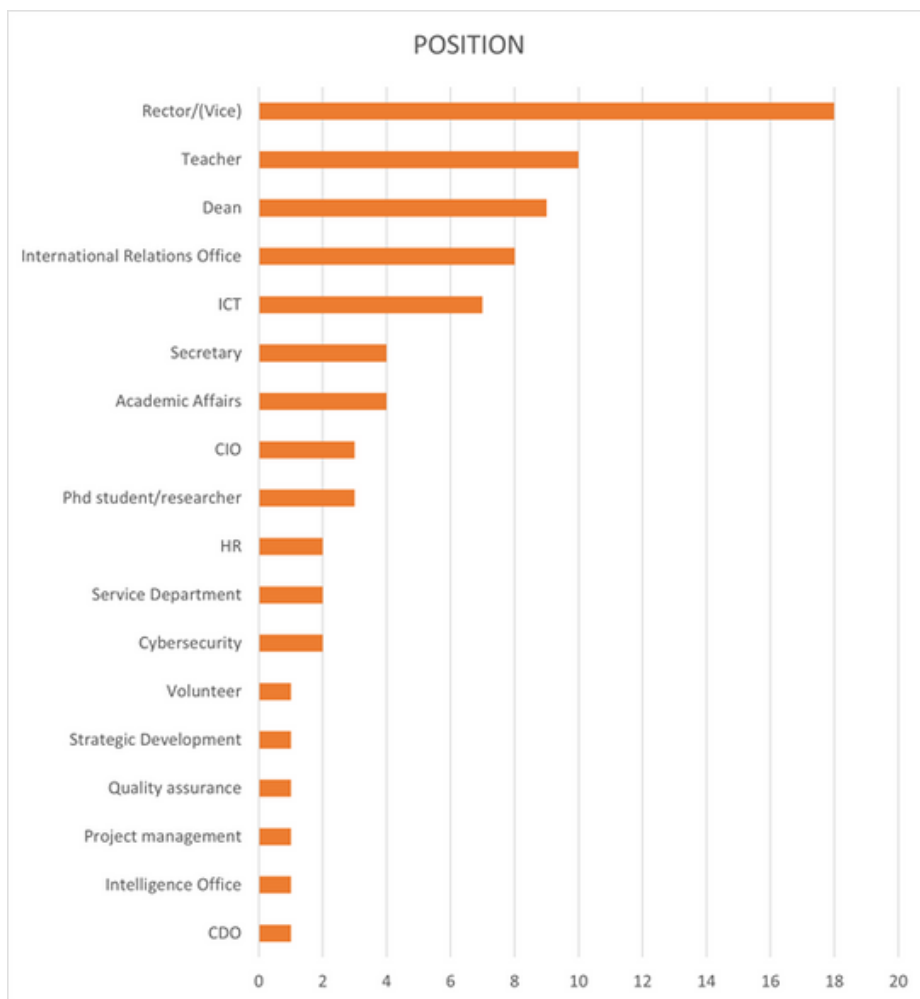


Figure 2 – Geographical distribution of the HEIs in the survey

Part IV: First implementation results

Grouping together all the activities belonging to the same macro category, it is possible to highlight, on one side, the areas of the educational institutions having a higher level of technological development already at the beginning, before the spread of the Covid-19 pandemic. On the other, the categories that seem to have experienced the deepest digital evolution across time are pointed out.

Figure 4 displays the evolution in the usage of specific software and dedicated apps across time. Basically, it can be seen that all the macro categories analyzed show the same evolutionary trend across time: starting from a given level of digitalization, that depends on the field being considered, they show a strong positively sloped line when the Covid-19 pandemic hit the whole world and finally they stabilize or minimize the slope of their curve when predicting the future usage after the pandemic emergency.

General administration category begins with a greater degree of digitization before the pandemic if compared to the other sections; however, during the pandemic and in the forecasts after the emergency, it is outrun by the other categories; on the contrary, student services line is further down the evolutionary graph throughout the whole period being considered. General administration and student services are also the only macro categories that do not stabilize in the post-Covid situation: on the contrary, they show higher values for the forecasts of the future usage than during the emergency. This denotes how, in the time to come, their digital exploitation of specific software and dedicated apps is expected to be higher than during the pandemic period for these services.

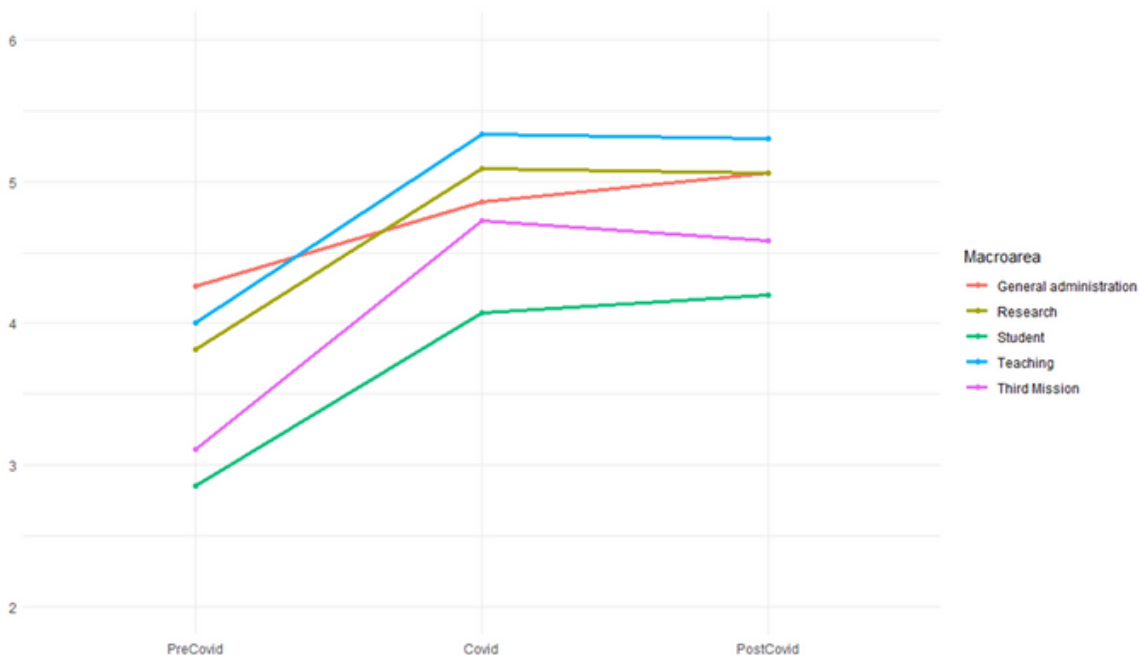


Figure 4 - Digital evolution of specific Software and dedicated apps

Switching to the representation of the evolutionary trend in the usage of communication platforms, the student services category still ranks in the last place. However, as opposed to the previous graph, when dealing with the forecasted scores for the future, the curve presents only a slightly decreasing slope, even if not as severe as the rising line experienced between pre and during the pandemic. This fact highlights that, even after the Covid-19, the digital level is expected to achieve a similar score than that maintained during the pandemic. This tendency is more pronounced for the other categories, and it is a signal of the common perception that, in the future, after the pandemic, most of the tools that were introduced to allow and facilitate the online communication among distant people – who were denied the possibility to interact personally – would be less common as the original context and circumstances would be hopefully restored; nevertheless, they would still be exploited much more than in the past.



Figure 5 - Digital evolution of Communication platforms

Once having compared the performances of the different categories, in terms of past, current and forecasted digital development across time, it is now necessary to deepen the analysis of the fields, considering them one by one.

In particular, it is interesting to understand what is the impact of each of the several activities belonging to the same macro area in the achievement of a certain digital degree, whether its trend changes across time, as well as what typology of digital tools it was used, is used and would get accustomed to exploit.

For what concerns the specific software and dedicated apps introduced and exploited in the realm of general administration activities, the area that seems to be foreseen as the most digitized one in the post-pandemic is the Management of ICT infrastructure: in fact, it is the most strictly linked to the technological evolution and it is predicted to carry on its transformation even after the emergency. Notwithstanding, the activity currently having the highest degree of digitization refers to the Management of teaching and technical/administration staff. Except for this last service, all the other activities show an increasing trend from the pre to the post Covid-19 periods, suggesting that the applications and software launched and set up before the pandemic are assumed to be used also in the future, always refined, and updated coherently with the dynamic environment and changing requirements.

Relating to the communication platforms, the curves displayed have a different shape: the dizzying increment in score from the “pre” to the “during” pandemic periods seems to have come to a standstill in the forecast for the post Covid-19. This sounds to be reasonable: as anticipated before, the tools linked to the communication platforms have been extremely exploited during the pandemic, when governmental limitations prevented people from meeting and communicating in presence. As soon as the crisis and the emergency period abate, then these means would not be any more necessary to carry on all the tasks. However, as being available and their functioning understood, they would be used when necessary: in fact, as the graph shows, the level of usage, even after the pandemic, is well above the degree of the pre-pandemic situation.

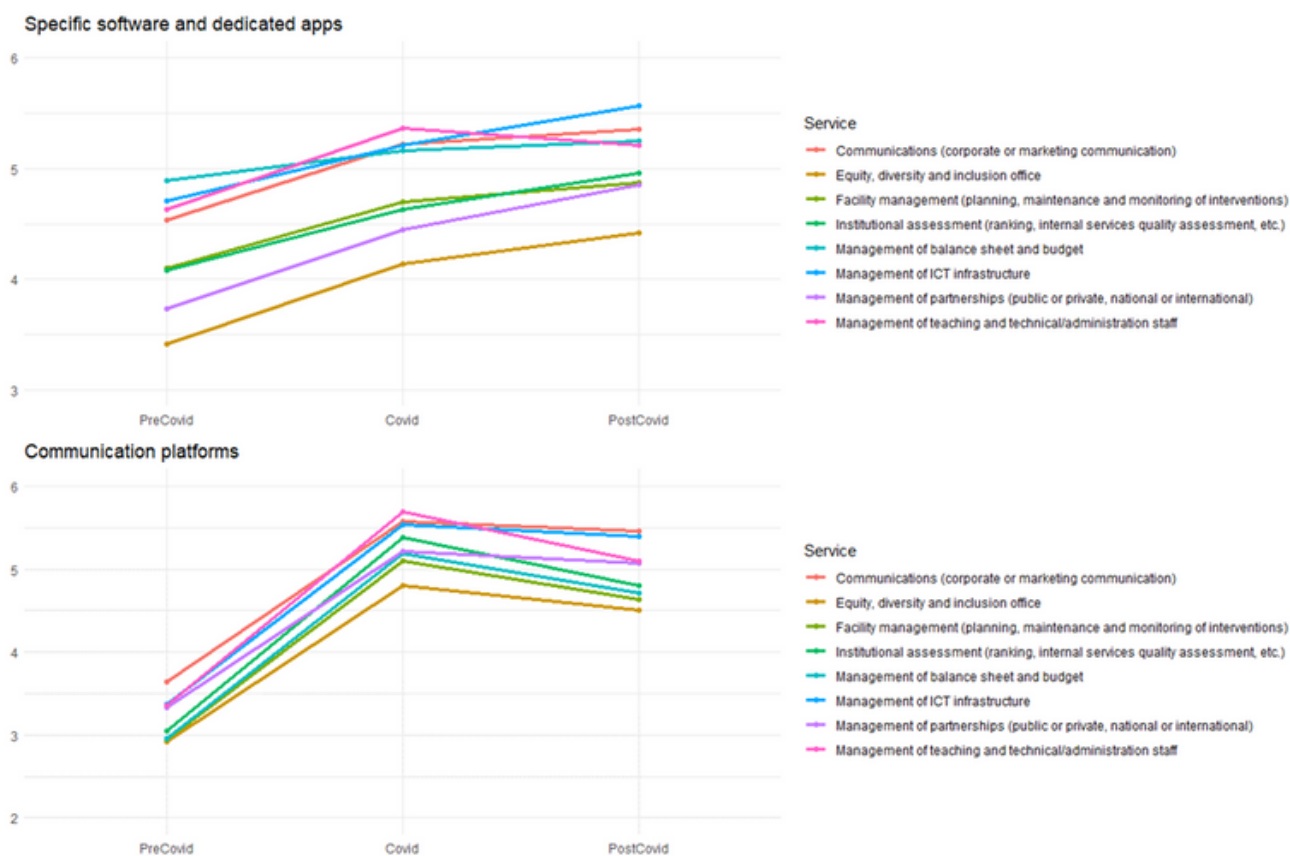


Figure 6 - Digital evolution of General administration services

Regarding the digital evolution of the teaching services from the point of view of specific software and dedicated apps, the most impactful sectors on the final digital score of the whole category are the Student admission and enrolment (including management of university tuition fees) and the Technical and IT support to teaching process, whilst the least intense effect is brought from the Work placement and internship services. Despite this, this last activity, together with the Exam provision and reporting, has experienced the steepest increment in digital score with the pandemic, foreseen to stabilize in the post Covid. One reason for that could be the necessity to implement alternative solutions to carry on the education, evaluation and working tasks even during the emergency, introducing specific digital tools. As plausible, the functions related to the Technical and IT support to teaching process, in terms of specific and dedicated apps, appear to be the most digitized during the pandemic, so that the provision of knowledge and information was guaranteed even in those critical conditions.

The supremacy of the functions of Technical and IT support to teaching process is still evident for what concerns the communication platforms used during the emergency, immediately followed by the Exam provision and reporting and the Student admission and enrolment (including management of university tuition fees). All the sectors show a steep increase with the pandemic, but they are assumed to decrease the usage of communication platforms after it, especially the tasks linked to the Exam provision and reporting: the evaluation processes would be held in presence and the exploitation of the tools introduced would, as a consequence, substantially decrease.

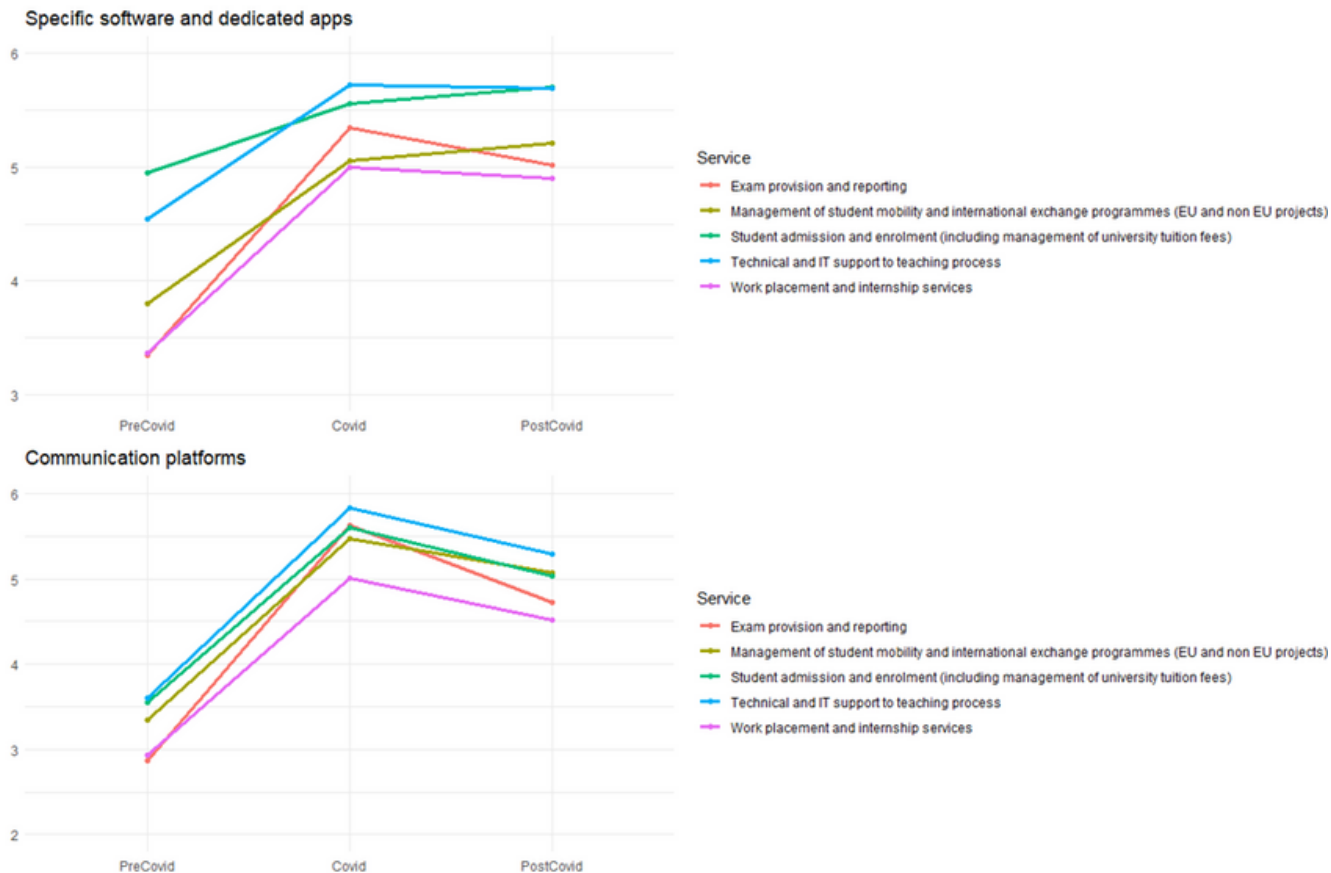


Figure 7 - Digital evolution of Teaching services

Coming to the evolution of the services belonging to the research field, the Management of library patrimony and resources was, is and is forecasted to be the most representative, in terms of degree of digitization: it started already with a high degree of technological development, experienced a significant improvement with the pandemic, only partially muffled in the period post Covid. On the other hand, the curves of the remained two services seem to overlap, at least in terms of shape. However, they appear to slightly diverge in the prediction of the future behavior: whilst Control of scientific productivity and internal evaluation of research is expected to still boost its digitization degree in the post-Covid, the technological level of Assistance to the management and reporting on financed contracts is believed to stabilize.

Concerning communication platforms, the Management of library patrimony and resources still overcomes the other tasks, but the gap is less evident than in the usage of dedicated apps and software. A possible explanation for this behavior may be that there is not any substantial distinction in the communication approach for the different activities of the category, that is to say, when the pandemic eliminated the chances to meet and communicate, alternative solutions had to be built, independently on the kind of tasks being performed.

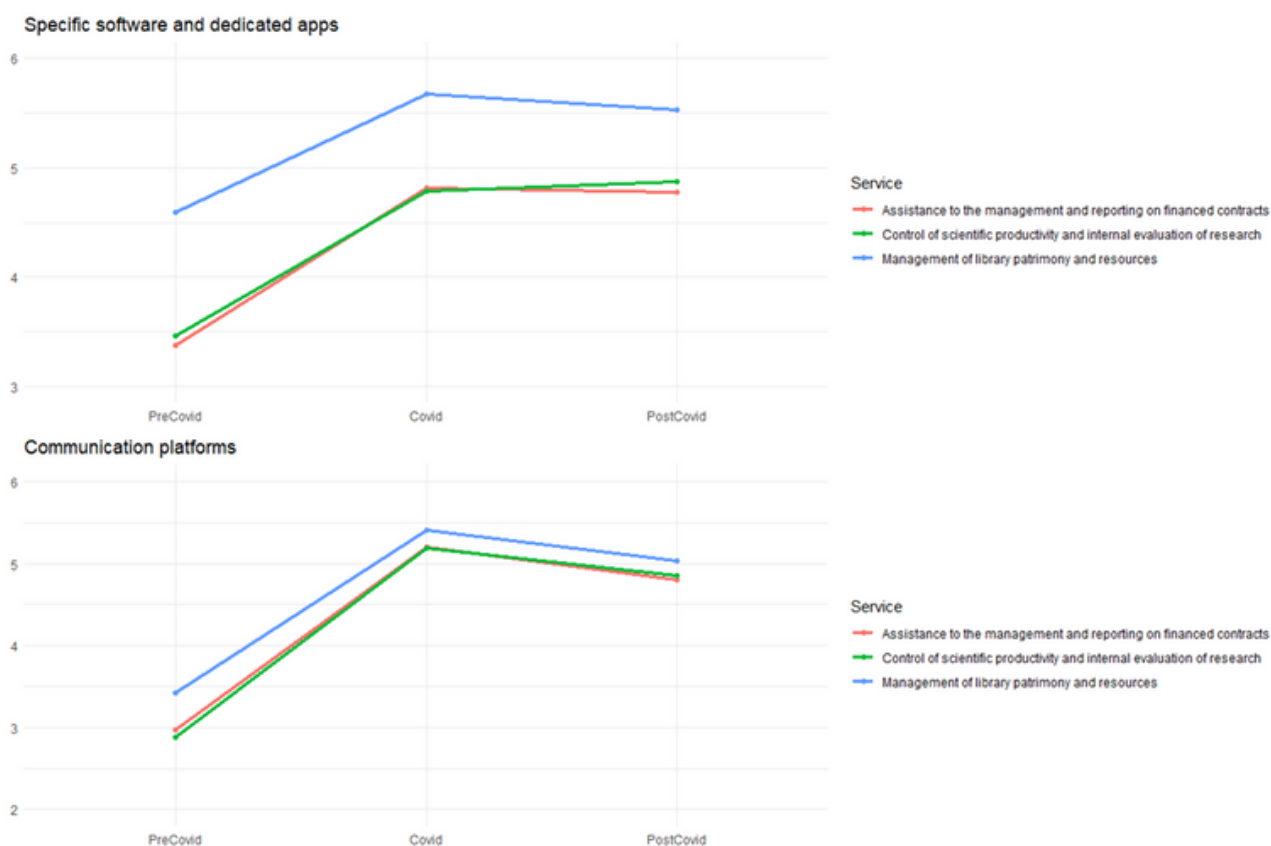


Figure 8 - Digital evolution of Research services

The student services category is the most populated one in terms of number of activities belonging to it. Concerning the digital evolution of the specific software and dedicated apps, Management of scholarships and bursaries overcomes all the other services in the Pre-Covid, Covid and Post-Covid periods. In the future projection of performance, it is immediately followed by the Career services and Extracurricular activities tasks. On the contrary, Food services appears to be the lowest-performing one.

Regarding the communication platforms, the Career services and the Management of scholarship and bursaries are the services that better implemented and used digital platforms during the pandemic, as well as present a prediction of high usage also in the future. Indeed, those activities require deep national and international communication with the companies looking for new employees, with the other educational institutions - also around the world - to organize interchange programs and with the government, to allocate financial funds for the enhancement of the most deserving students.

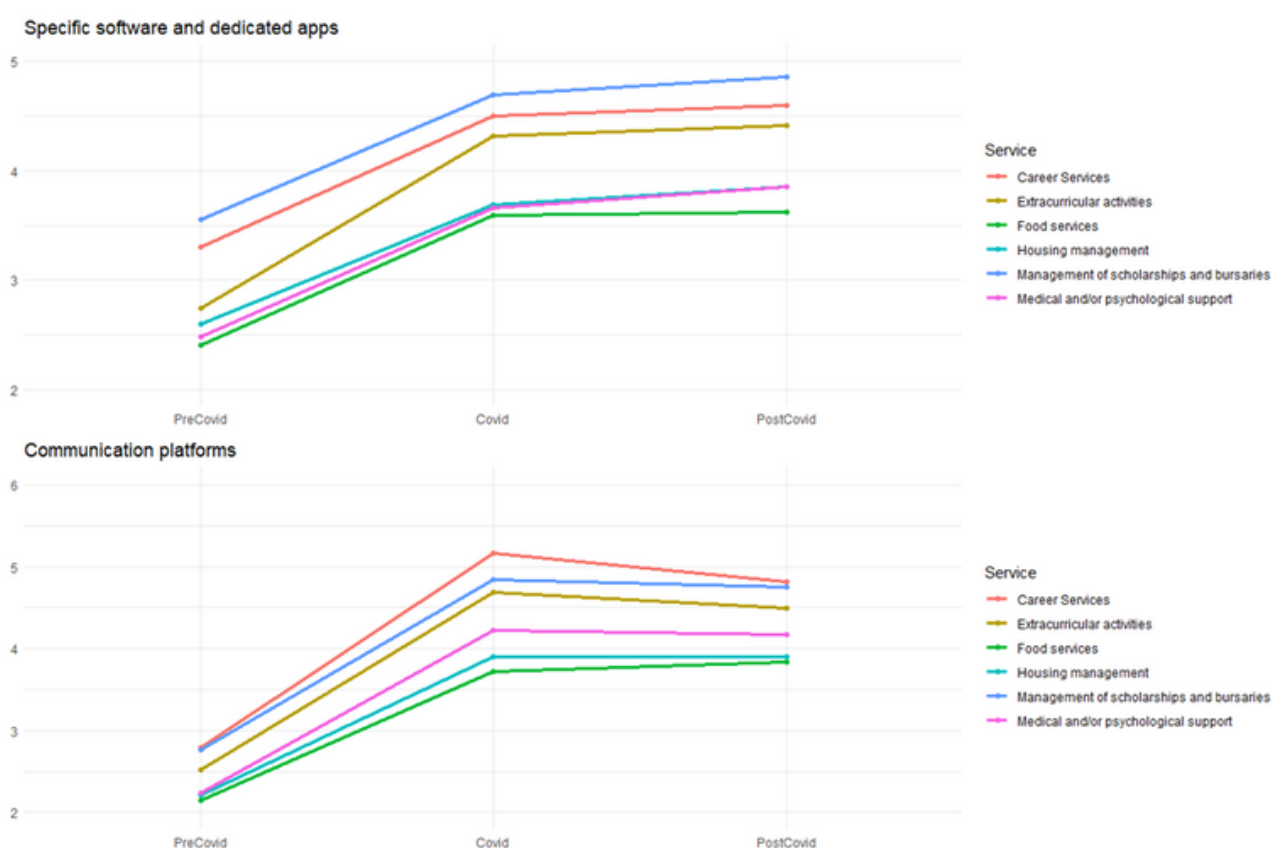


Figure 9 - Digital evolution of Student services

Regarding third mission services, both in the realms of specific software and dedicated apps and communication platforms the curve is steeply increasing with the Covid pandemic, with an inverse trend – even if less pronounced – in the following period, after the emergency.

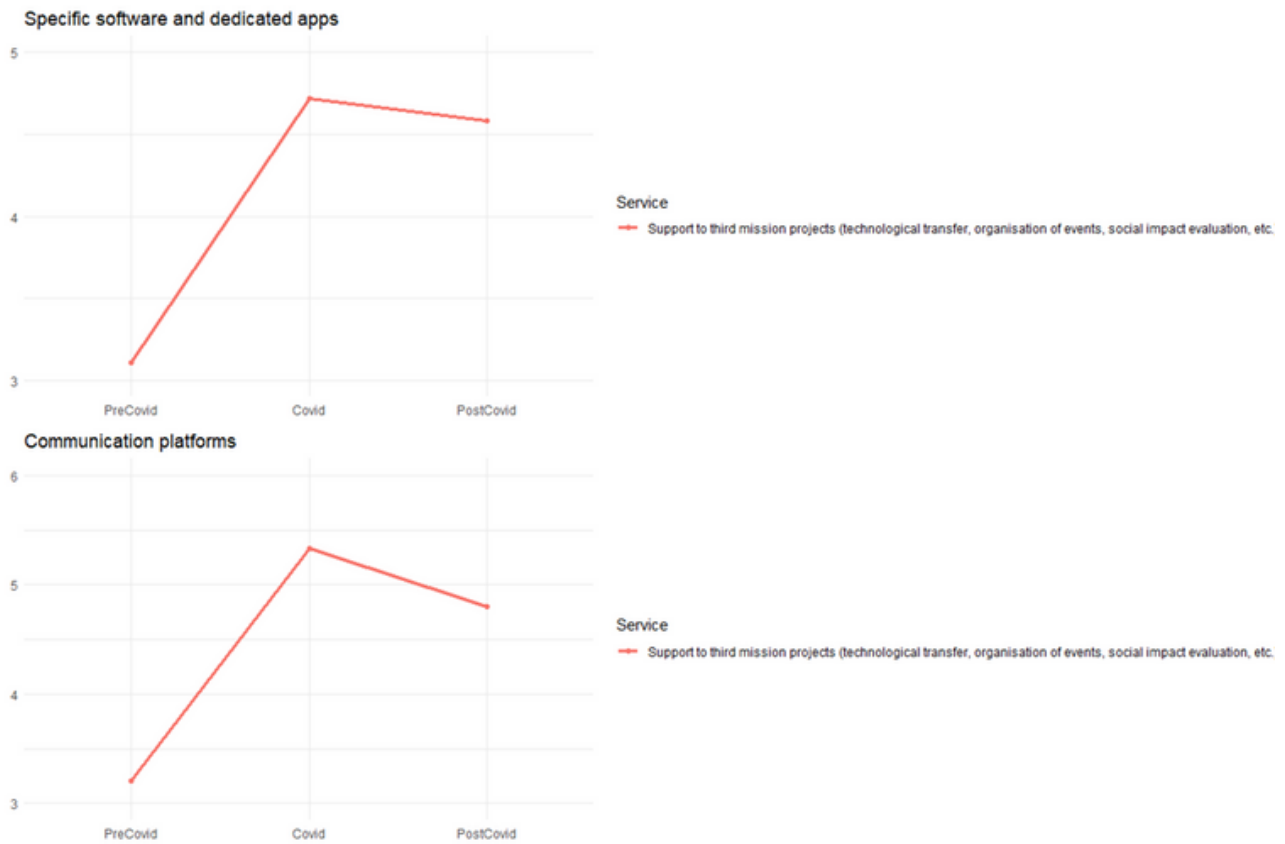


Figure 10 - Digital evolution of Third mission services

Part V: Conclusions

In recent years, the influence, and the consequences of the new digital technologies in both the public administration and the higher education realms have been progressively and incrementally growing. This ongoing digital transition has encouraged and justified the efforts made to understand the development of the technological ecosystem under changing conditions and in different contexts. Enhancing the knowledge about this topic and monitoring the progress in the field result to be of particular interest to all internal and external stakeholders that affect, are actually affected, or perceive themselves to be affected by the functioning of the HEI, in terms of managerial, organizational and administrative services and in terms of learning and educational processes. Specifically, the study deepens the analysis of these perspectives from the point of view of administrative services, pointing out how the HEIs around the world have been adapting to the innovations and modern tools brought by the technological development. To quantify their level of digitalization, we develop a new methodology summarizing the main HEI's administrative activities identified by the literature, grouped in five macro areas of services.

To the best of our knowledge, this is the first attempt to provide a clearly operational framework for measuring, as well as comparing, various grade of digitalization of different HEIs worldwide. Furthermore, this methodology can be used as a valuable identifier of HEIs' digital trends across time: mapping their level of digitalization before, during and after the current pandemic.

The present study reports the results emerged by the first implementation of such framework, tested through the survey developed by the joint efforts of International Association of Universities (IAU) and Politecnico di Milano and distributed to the HEIs all around the world. The proposed questionnaire relates to the evaluation of the perceived and actual level of digitalization in the time frames before, during and after the Covid-19 pandemic, in terms of specific software and dedicated apps and communication platforms. Specifically, the research investigates the five macro areas of the HEIs administrative services, exploring the different activities that characterize each area.

As emerged from the descriptive analysis performed, the evolutionary trends of technological progress show a significant boost during the emergency period: because of the temporary necessities brought by the pandemic, it was needed to implement alternative tools, applications and communication means with a view to carry on all the educational and administrative activities that, instead, in the past, were performed in-person. Evidence shows that the forecasts for the future evolution in the exploitation of these digital instruments follow two different paths shared, in general, by all the macro categories studied. For what concerns the specific software and dedicated apps, their implementation, exploitation, and refinement are expected to carry on their improvement also in the near future after the pandemic, even if at a lower rate if compared to the emergency period. This behavior could be explained by the fact that the emergency conditions have deeply boosted the technological switch, spreading digital knowledge among the several actors of the institutions and allowing them to develop new digital skills. These last are now supporting us in the preservation of the made efforts to perpetuate and enhance the big digital switch realized during the pandemic, riding the wave of digitalization without ever looking back. Regarding the communication platforms, their usage trend highlights a drop after the pandemic; this appears to be reasonable: as soon as the initial situation would be set up again, most of the activities would return to be held in presence, and the need and usage of communication tools would be reduced. However, their degree of utilization would still be higher than the one before the pandemic: in fact, these new instruments would be exploited at the proper time and in the adequate manner, preventing their implementation, needed during the emergency, from being vanished in the future.

The number of universities available constitutes certainly one of the main limits of this study: the investigation of the eighty observations would not assure the statistical significance of the results obtained. Nevertheless, it is important to underline that the core objective of the present report is to demonstrate that our developed methodology could be employed, in an effective way, as a tool for measuring and comparing the digital degree of various HEIs' administrative services across the world. In accordance with this, our research could be seen as a pilot study: a small-scale preliminary study conducted to assess the feasibility of future large-scale quantitative researches.

Another limit that is important to highlight is the subjectivity of the forecasts regarding post Covid-19 digital situation of HEI's administrative services. Obviously, these data are only a personal forecast of the respondents to the survey, not to be considered as actual objective information: specifically, they give some hints about how and how much the named digital tools are expected to be used, in the near future, by the institution.

Undeniably, a broader spectrum of universities and a larger set of points of view about their representatives would offer more reliable information and insights concerning the level of digitalization among higher education administrative services, guaranteeing a more objective depiction of the state-of-the-art context, as well as of the post pandemic situation. Other future research analyses can be conducted to understand which regions of the world have been boosted by the pandemic in their digitization process, which had already undertaken a technological switch, whether and how the spread of the Covid-19 has affected the underlying administrative and learning structures. Furthermore, when approaching countries with different development degrees, we are given the opportunity to make a forecast of the potential digital evolution of some of the emerging states, as well as to confront their improvement curves. As a result, further studies are required to better understand the numerous aspects regarding the process of progressive digitalization charactering HEIs' administrative services.

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Digital Transformation of Administrative Services at the University

Introduction:

The International Association of Universities (IAU) and a research group of the Politecnico di Milano (PoliMi) have teamed up to carry out a global survey on the state of digital transformation in the administrative services of higher education institutions * (HEIs).

We rarely look at these services that are essential for the smooth running of HEIs. The Survey will compare the pre-pandemic situation with the situation today and with future expectations. In addition, it aims to identify the level of digital transformation administrative services are undergoing.

The survey touches on services found in most institutions worldwide. these range from student services to facility management to administrative support for teaching, learning and research. Specific examples are student admission and enrollment, work placement and internship services, student mobility and international exchange programmes, finance, and communication management.

we thank you for your contribution and collaboration and we look forward to sharing the results with you!

The International Association of Universities and Tommaso Agasti from PoliMi.

Practical information:

>> We recommend that your contribution be coordinated by the institutional leadership in charge of administrative services. Please note the invitation to participate may reach several persons within each institution. However, we only need one answer per institution.

>> As the questions pertain to different services across the institution, we recommend that you consult with colleagues and collect the information before replying to the online questionnaire. Download the survey glossary and the survey questions in PDF format at the following links:

- Survey glossary: <https://iau-aiu.net/IMG/pdf/survey.gloassaryiaupolimi.pdf> (<https://iau-aiu.net/IMG/pdf/survey.glossaryiaupolimi.pdf>).
- PDF version of the survey: https://iau-aiu.net/IMG/pdf/survey_iau_polimi.pdf (https://iau-aiu.net/IMG/pdf/survey_iau_polimi.pf).

>> Please note that **each question will appear 3 times to assess the situation**: a) prior to the pandemic, b) currently and c) your expectations for the future

>> Once you have gathered all the necessary information, it will take you **20 minutes** to complete the online questionnaire.

>> Please note that the contribution of your university to this important survey will be duly noted and the name of your university added to the list of contributing institutions, unless you indicate you wish not to be listed.

By continuing you agree that IAU and the research group of the PoliMi may use the data entered for research, presentations and publications. The core data will not be shared with any third parties nor be sold. It may appear in aggregated form or as examples as part of the data analysis, but treated anonymously. The name and email will not be part of the analysis and will only be used in order to communicate the results of the survey.

* Compulsory

Pre-pandemic period

1. Before Covid-19 pandemic, how much of the following **general administrative services** was supported by **specific software and dedicated apps** (excluded software and apps commonly used like spreadsheets or mail programs)?

*

Please, take into account all activities offered by the service when giving your answer

	Never	Rarely	Sometimes	For about half of the tasks	Often	Almost always	Always
Management of balance sheet and budget	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management of teaching and technical/administrative staff	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Facility management (planning, maintenance and monitoring of interventions)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Institutional assessment (ranking, internal services quality assessment, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management of partnerships (public or private, national or international)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management of ICT infrastructure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Communications (corporate or marketing communication)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Equity, diversity and inclusion office	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. Before Covid-19 pandemic, how much of the following **general administrative services** was supported by **communication platforms** (Microsoft Teams, Zoom, Skype, etc.)? *

Please, take into account all activities offered by the service when giving your answer

	Never	Rarely	Sometimes	For about half of the tasks	Often	Almost always	Always
Management of balance sheet and budget	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management of teaching and technical/administrative staff	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Facility management (planning, maintenance and monitoring of interventions)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Institutional assessment (ranking, internal services quality assessment, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management of partnerships (public or private, national or international)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management of ICT infrastructure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Communications (corporate or marketing communication)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Equity, diversity and inclusion office	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3. Before Covid-19 pandemic, how much of the following **teaching services** was supported by **specific software and dedicated apps** (excluded software and apps commonly used like spreadsheets or mail programs)? *

Please, take into account all activities offered by the service when giving your answer

	Never	Rarely	Sometimes	For about half of the tasks	Often	Almost always	Always
Student admission and enrolment (including management of university tuition fees)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Technical and IT support to teaching process	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Exam provision and reporting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Work placement and internship services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management of student mobility and international exchange programmes (EU and non-EU projects)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

4. Before Covid-19 pandemic, how much of the following **teaching services** was supported by **communication platforms** (Microsoft Teams, Zoom, Skype, etc.)? *

Please, take into account all activities offered by the service when giving your answer

	Never	Rarely	Sometimes	For about half of the tasks	Often	Almost always	Always
Student admission and enrolment (including management of university tuition fees)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Technical and IT support to teaching process	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Exam provision and reporting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Work placement and internship services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management of student mobility and international exchange programmes (EU and non-EU projects)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5. Before Covid-19 pandemic, how much of the following **research services** was supported by **specific software and dedicated apps** (excluded software and apps commonly used like spreadsheets or mail programs)? *

Please, take into account all activities offered by the service when giving your answer

	Never	Rarely	Sometimes	For about Sometime half of the tasks	Often	Almost always	Always
Assistance to the management and reporting on financed contracts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Control of scientific productivity and internal evaluation of research	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management of library patrimony and resources	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

6. Before Covid-19 pandemic, how much of the following **research services** was supported by **communication platforms** (Microsoft Teams, Zoom, Skype, etc.)? *

Please, take into account all activities offered by the service when giving your answer

	Never	Rarely	Sometimes	For about Sometime half of the tasks	Often	Almost always	Always
Assistance to the management and reporting on financed contracts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Control of scientific productivity and internal evaluation of research	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management of library patrimony and resources	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

7. Before Covid-19 pandemic, how much of the following **third mission services** was supported by **specific software and dedicated apps** (excluded software and apps commonly used like spreadsheets or mail programs)? *

Please, take into account all activities offered by the service when giving your answer

	Never	Rarely	Sometimes	For about half of the tasks	Often	Almost always	Always
Support to third mission projects (technological transfer, organisation of events, social impact evaluation, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

8. Before Covid-19 pandemic, how much of the following **third mission services** was supported by **communication platforms** (Microsoft Teams, Zoom, Skype, etc.)? *

Please, take into account all activities offered by the service when giving your answer

	Never	Rarely	Sometimes	For about half of the tasks	Often	Almost always	Always
Support to third mission projects (technological transfer, organisation of events, social impact evaluation, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

9. Before Covid-19 pandemic, how much of the following **student services** was supported by **specific software and dedicated apps** (excluded software and apps commonly used like spreadsheets or mail programs)? *

Please, take into account all activities offered by the service when giving your answer

	Never	Rarely	Sometimes	For about half of the tasks	Often	Almost always	Always
Career Services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Housing management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Food services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Extracurricular activities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Medical and/or psychological support	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management of scholarships and bursaries	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

10. Before Covid-19 pandemic, how much of the following **student services** was supported by **communication platforms** (Microsoft Teams, Zoom, Skype, etc.)? *

Please, take into account all activities offered by the service when giving your answer

	Never	Rarely	Sometimes	For about half of the tasks	Often	Almost always	Always
Career Services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Housing management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Food services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Extracurricular activities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Medical and/or psychological support	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management of scholarships and bursaries	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Pandemic period

11. During Covid-19 pandemic, how much of the following **general administrative services** is supported by **specific software and dedicated apps** (excluded software and apps commonly used like spreadsheets or mail programs)? *

Please, take into account all activities offered by the service when giving your answer

	Never	Rarely	Sometimes	For about half of the tasks	Often	Almost always	Always
Management of balance sheet and budget	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management of teaching and technical/administrative staff	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Facility management (planning, maintenance and monitoring of interventions)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Institutional assessment (ranking, internal services quality assessment, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management of partnerships (public or private, national or international)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management of ICT infrastructure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Communications (corporate or marketing communication)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Equity, diversity and inclusion office	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

12. During Covid-19 pandemic, how much of the following **general administrative services** is supported by **communication platforms** (Microsoft Teams, Zoom, Skype, etc.)? *

Please, take into account all activities offered by the service when giving your answer

	Never	Rarely	Sometimes	For about half of the tasks	Often	Almost always	Always
Management of balance sheet and budget	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management of teaching and technical/administrative staff	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Facility management (planning, maintenance and monitoring of interventions)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Institutional assessment (ranking, internal services quality assessment, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management of partnerships (public or private, national or international)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management of ICT infrastructure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Communications (corporate or marketing communication)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Equity, diversity and inclusion office	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

13. During Covid-19 pandemic, how much of the following **teaching services** is supported by **specific software and dedicated apps** (excluded software and apps commonly used like spreadsheets or mail programs)? *

Please, take into account all activities offered by the service when giving your answer

	Never	Rarely	Sometimes	For about half of the tasks	Often	Almost always	Always
Student admission and enrolment (including management of university tuition fees)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Technical and IT support to teaching process	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Exam provision and reporting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Work placement and internship services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management of student mobility and international exchange programmes (EU and non-EU projects)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

14. During Covid-19 pandemic, how much of the following **teaching services** is supported by **communication platforms** (Microsoft Teams, Zoom, Skype, etc.)? *

Please, take into account all activities offered by the service when giving your answer

	Never	Rarely	Sometimes	For about half of the tasks	Often	Almost always	Always
Student admission and enrolment (including management of university tuition fees)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Technical and IT support to teaching process	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Exam provision and reporting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Work placement and internship services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management of student mobility and international exchange programmes (EU and non-EU projects)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

15. During Covid-19 pandemic, how much of the following **research services** is supported by **specific software and dedicated apps** (excluded software and apps commonly used like spreadsheets or mail programs)? *

Please, take into account all activities offered by the service when giving your answer

	Never	Rarely	Sometimes	For about half of the tasks	Often	Almost always	Always
Assistance to the management and reporting on financed contracts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Control of scientific productivity and internal evaluation of research	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management of library patrimony and resources	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

16. During Covid-19 pandemic, how much of the following **research services** is supported by **communication platforms** (Microsoft Teams, Zoom, Skype, etc.)? *

Please, take into account all activities offered by the service when giving your answer

	Never	Rarely	Sometimes	For about half of the tasks	Often	Almost always	Always
Assistance to the management and reporting on financed contracts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Control of scientific productivity and internal evaluation of research	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management of library patrimony and resources	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

17. During Covid-19 pandemic, how much of the following **third mission services** is supported by **specific software and dedicated apps** (excluded software and apps commonly used like spreadsheets or mail programs)? *

Please, take into account all activities offered by the service when giving your answer

	Never	Rarely	Sometimes	For about half of the tasks	Often	Almost always	Always
Support to third mission projects (technological transfer, organisation of events, social impact evaluation, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

18. During Covid-19 pandemic, how much of the following **third mission services** is supported by **communication platforms** (Microsoft Teams, Zoom, Skype, etc.)? *

Please, take into account all activities offered by the service when giving your answer

	Never	Rarely	Sometimes	For about half of the tasks	Often	Almost always	Always
Support to third mission projects (technological transfer, organisation of events, social impact evaluation, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

19. During Covid-19 pandemic, how much of the following **student services** is supported by **specific software and dedicated apps** (excluded software and apps commonly used like spreadsheets or mail programs)? *

Please, take into account all activities offered by the service when giving your answer

	Never	Rarely	Sometimes	For about half of the tasks	Often	Almost always	Always
Career Services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Housing management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Food services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Extracurricular activities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Medical and/or psychological support	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management of scholarships and bursaries	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

20. During Covid-19 pandemic, how much of the following **student services** is supported by **communication platforms** (Microsoft Teams, Zoom, Skype, etc.)? *

Please, take into account all activities offered by the service when giving your answer

	Never	Rarely	Sometimes	For about half of the tasks	Often	Almost always	Always
Career Services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Housing management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Food services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Extracurricular activities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Medical and/or psychological support	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management of scholarships and bursaries	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Post-pandemic period

21. In your opinion, once Covid-19 pandemic will end, how much of the following **general administrative services** will be supported by **specific software and dedicated apps** (excluded software and apps commonly used like spreadsheets or mail programs)? *

Please, take into account all activities offered by the service when giving your answer

	Never	Rarely	Sometimes	For about half of the tasks	Often	Almost always	Always
Management of balance sheet and budget	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management of teaching and technical/administrative staff	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Facility management (planning, maintenance and monitoring of interventions)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Institutional assessment (ranking, internal services quality assessment, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management of partnerships (public or private, national or international)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management of ICT infrastructure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Communications (corporate or marketing communication)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Equity, diversity and inclusion office	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

22. In your opinion, once Covid-19 pandemic will end, how much of the following **general administrative services** will be supported by **communication platforms** (Microsoft Teams, Zoom, Skype, etc.)? *

Please, take into account all activities offered by the service when giving your answer

	Never	Rarely	Sometimes	For about half of the tasks	Often	Almost always	Always
Management of balance sheet and budget	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management of teaching and technical/administrative staff	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Facility management (planning, maintenance and monitoring of interventions)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Institutional assessment (ranking, internal services quality assessment, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management of partnerships (public or private, national or international)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management of ICT infrastructure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Communications (corporate or marketing communication)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Equity, diversity and inclusion office	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

23. In your opinion, once Covid-19 pandemic will end, how much of the following **teaching services** will be supported by **specific software and dedicated apps** (excluded software and apps commonly used like spreadsheets or mail programs)? *

Please, take into account all activities offered by the service when giving your answer

	Never	Rarely	Sometimes	For about half of the tasks	Often	Almost always	Always
Student admission and enrolment (including management of university tuition fees)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Technical and IT support to teaching process	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Exam provision and reporting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Work placement and internship services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management of student mobility and international exchange programmes (EU and non-EU projects)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

24. In your opinion, once Covid-19 pandemic will end, how much of the following **teaching services** will be supported by **communication platforms** (Microsoft Teams, Zoom, Skype, etc.)? *

Please, take into account all activities offered by the service when giving your answer

	Never	Rarely	Sometimes	For about half of the tasks	Often	Almost always	Always
Student admission and enrolment (including management of university tuition fees)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Technical and IT support to teaching process	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Exam provision and reporting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Work placement and internship services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management of student mobility and international exchange programmes (EU and non-EU projects)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

25. In your opinion, once Covid-19 pandemic will end, how much of the following **research services** will be supported by **specific software and dedicated apps** (excluded software and apps commonly used like spreadsheets or mail programs)? *

Please, take into account all activities offered by the service when giving your answer

	Never	Rarely	Sometimes	For about half of the tasks	Often	Almost always	Always
Assistance to the management and reporting on financed contracts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Control of scientific productivity and internal evaluation of research	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management of library patrimony and resources	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

26. In your opinion, once Covid-19 pandemic will end, how much of the following **research services** will be supported by **communication platforms** (Microsoft Teams, Zoom, Skype, etc.)? *

Please, take into account all activities offered by the service when giving your answer

	Never	Rarely	Sometimes	For about half of the tasks	Often	Almost always	Always
Assistance to the management and reporting on financed contracts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Control of scientific productivity and internal evaluation of research	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management of library patrimony and resources	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

27. In your opinion, once Covid-19 pandemic will end, how much of the following **third mission services** will be supported by **specific software and dedicated apps** (excluded software and apps commonly used like spreadsheets or mail programs)? *

Please, take into account all activities offered by the service when giving your answer

	Never	Rarely	Sometimes	For about half of the tasks	Often	Almost always	Always
Support to third mission projects (technological transfer, organisation of events, social impact evaluation, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

28. In your opinion, once Covid-19 pandemic will end, how much of the following **third mission services** will be supported by **communication platforms** (Microsoft Teams, Zoom, Skype, etc.)? *

Please, take into account all activities offered by the service when giving your answer

	Never	Rarely	Sometimes	For about half of the tasks	Often	Almost always	Always
Support to third mission projects (technological transfer, organisation of events, social impact evaluation, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

29. In your opinion, once Covid-19 pandemic will end, how much of the following **student services** will be supported by **specific software and dedicated apps** (excluded software and apps commonly used like spreadsheets or mail programs)? *

Please, take into account all activities offered by the service when giving your answer

	Never	Rarely	Sometimes	For about half of the tasks	Often	Almost always	Always
Career Services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Housing management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Food services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Extracurricular activities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Medical and/or psychological support	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management of scholarships and bursaries	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

30. In your opinion, once Covid-19 pandemic will end, how much of the following **student services** will be supported by **communication platforms** (Microsoft Teams, Zoom, Skype, etc.)? *

Please, take into account all activities offered by the service when giving your answer

	Never	Rarely	For about Sometime half of the s tasks	Often	Almost always	Always
Career Services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Housing management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Food services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Extracurricular activities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Medical and/or psychological support	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management of scholarships and bursaries	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The process of digitalization of Higher Education Institutions (HEIs) has the main purpose to improve their organizational, administrative, and didactic power through the exploitation of Information and Communication Technologies (ICT). The Covid-19 pandemic has heavily encouraged this process, giving the opportunity to speed up the technological progress of HEI's services to deal with the altered conditions established. In this regard, it is fundamental to monitor how the digital and technological development of HEIs' primary and administrative services has evolved during these recent years of emergency, with particular attention on the latter, essential for the smooth running of the primary ones.

The objective of the present report is to develop and test a methodology to quantitatively measure and compare the ongoing process of digital transformation of administrative services in HEI context. To the best of our knowledge, this is the first attempt to assess the digitalization process of HEIs from the point of view of this kind of fundamental services. To this aim, an operational framework aiming at mapping the main support services of HEI's value chain reported in most institutions worldwide is initially constructed. Its validity is then tested by designing and globally distributing a survey to institutions listed in the IAU World Higher Education Database (WHED), which was completed by eighty universities. Despite this appreciable number of answers, the analysis of these observations would not guarantee the statistical significance of the results, but still allows the validation of the methodology developed. Actually, the framework formulated could be employed as a tool for measuring and comparing the digital degree of various HEIs' administrative services across the world. In line with this, our research could be seen as a pilot study: a small-scale preliminary study conducted to assess the feasibility of future large-scale quantitative researches.

The descriptive analysis reveals that the evolutionary trends of technological progress for administrative services increased significantly during the emergency. On the other hand, the forecasts for the future digital evolution of this kind of services follow two different paths: for what concerns the specific software and dedicated apps (i.e., any software/application specifically designed for a service) their usage level is expected to carry on their improvement also in the near future after the pandemic, even if at a lower rate if compared to the emergency period. Regarding the communication platforms (i.e., any digital platform used to communicate and share information within and outside the university) their forecasted technological level would be higher than the past one and only slightly lower than the current one. This appears to be reasonable: when the original conditions would be re-established, most of the activities would return to be held in person, and the need for communication tools would be reduced.



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