

Digital Strategy Action Plan

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The Rectorate of the University of Geneva aims to be a driving force for the digital transformation of the institution and wishes to support the University community in this process. To this end, the Rectorate has launched a Digital Strategy, with the objective of developing and promoting University expertise in digital technologies and related issues, supporting digitally-driven innovation in teaching, research and IT services, as well as developing strategic collaborations with key external partners.

This Action Plan describes the Rectorate's priority projects for the implementation of the University's Digital Strategy. The Action Plan was developed by the University's Digital Strategy Office based on a range of consultations undertaken in 2017 and 2018, including a series of workshops open to the entire University community as well as external partners, and one-on-one meetings with a range of researchers and heads of administrative departments and divisions as well as presentations to faculty deans and to the University's General Assembly. A project development phase, during which the measures described here will be planned and associated financing defined and negotiated, will start in 2019.

This plan is not an exhaustive list of digital projects, and therefore provides only a partial picture of what the University is doing in the digital realm. Certain flagship programs of our University, such as the creation of MOOCs, are not present in this plan, since such initiatives are already well established and already have the support of the Rectorate. The same is the case for a large part of the activities in the IT, which supports much the University's digital services and infrastructure.

Rather, this document focuses on a series of new or priority actions that the Rectorate would like to push forward over the coming four years. The document will be reviewed and updated regularly in order to integrate new technological developments and initiatives that can strengthen the Digital Strategy of the institution.

The activities and projects in this Action Plan are organized in six programs, each touching on several of the major themes of the Digital Strategy, in order to facilitate the steering and follow-up of the projects.



1. Digital Skills for All

The University of Geneva wishes to develop the digital skills of its entire community so that everyone can benefit from digital technology and master essential tools as well as become aware of the challenges of the digital transformation. To this end, the institution intends to put in place a series of measures to meet targeted needs from the various bodies of the institution - students, researchers and administrative staff – as well as other more general

1.1 OPEN ACADEMIC POSITIONS DEDICATED TO DIGITAL TRANSFORMATION IN ALL FACULTIES

Digital technology offers powerful tools for research and teaching, both for the exact sciences and for the social sciences and humanities. Likewise, it transforms the disciplines taught in the various faculties, both in terms of methodologies and content. These developments make it necessary to create new professorial posts dedicated to the various facets of digital transformation. These positions will contribute to the development of new fields of research and teaching within the University and will provide expert advice to researchers wishing to integrate digital technologies into their work.

1.2 CREATE A CHAIR IN DIGITAL HUMANITIES

In the digital age, research in the humanities are being developed in new ways. The UNIGE Faculty of Letters plans to open a teaching position in Digital Humanities directly attached to the Dean's office. Researchers in fields such as linguistics, literature, history, archeology or philosophy will be able to benefit from the know-how of this new chair to fully develop the potential of their research.

1.3 ENSURE CAREER PATHWAYS FOR A NEW GENERATION OF DIGITAL RESEARCHERS

The Rectorate proposes to finance faculty-level bridging positions related to digital technology and its consequences, in priority for researchers from all parts of UNIGE, but also in some cases for researchers from other institutions. The duration of the funding is from one to three years maximum. At the end of this period, the faculties will fully take over the funding of these positions. The purpose of this measure is to encourage faculties to include digital in their academic planning by changing the nature of certain positions (for example those held by colleagues approaching retirement), to transform them into positions related to digitalization.

1.4 IMPLEMENT AN ONLINE PLATFORM FOR SELF-EVALUATION AND SELF-LEARNING OF DIGITAL SKILLS

An important objective of the Digital Strategy is to support all members of the University community in the development of their digital skills. Indeed, understanding digital technology requires a certain general knowledge and the handling of software or tools for which training is necessary. The University is planning to develop a web platform on which any student, researcher or administrative staff of the institution will be able to test their digital skills and fill any gaps by consulting explanatory videos on the operation of specific tools, or on broader issues related to digital technology. Workshops will also be offered in this context.

1.5 CREATE A CROSS-CUTTING COURSE ON DIGITAL TRANSFORMATION

The University plans to set up a cross-cutting course on digitalization that will encompass the technical, social, ethical, cultural, economic and legal aspects of digital technologies. This course will be based on all disciplines taught in faculties and interfaculty centers. It will give students a deep awareness of how digital technology is transforming society, as well as ways to reflect on and act critically on these changes.

In the long term, this course will be part of an offer of training courses for students from all faculties, which will include another cross-cutting course in sustainable development launched in September 2018. The course on digitalization will be offered to students at the Bachelor level, and potentially also Master's students. It will provide ECTS credits. It will be articulated over three semesters during which students will be able to approach the various facets of digital technology, deepen their understanding of particular aspects and complete a practical project inspired by digital challenges.

1.6 DEVELOP A PEER-TO-PEER SUPPORT NETWORK FOR DIGITAL LEARNING

The Rectorate plans to set up an open directory of digital experts within the University community. These people can voluntarily offer their services as part of a network of exchange of skills and good practices. Thus, any person requiring special and prompt help on a specific aspect of a digital tool or process can call on a member of the network.

1.7 TRAIN YOUNG RESEARCHERS IN DIGITAL TECHNOLOGIES AND RELATED ISSUES

The digital transformation opens up new fields of research and disrupts practices, for example in the management of research data, publication of results or methodologies used. The University wishes to train young researchers in various aspects of digitization for their research. This will be done in the context of the Graduate Campus recently set up by the Rectorate, through training for all doctoral students of the institution, whatever their discipline. Several modules will be proposed to them, ranging from the management of research data to the use of specific IT tools, via ethical or legal issues related to digital technology or the dissemination of their research.

1.8 COLLABORATE WITH OTHER UNIVERSITIES TO BROADEN THE RANGE OF COURSES AVAILABLE ONLINE

As part of the LERU, the University of Geneva is participating in the project "Virtual exchange for LERU students", giving the possibility to students enrolled in a partner institution to obtain credits by taking courses online, such as MOOCs, offered by other universities. In this context, the University of Geneva has launched a call for projects for the creation of online distance courses for its students and those of other universities that are members of the LERU. These online courses will be integrated into existing study plans and the students who will follow them will be able to receive ECTS credits after passing a face-to-face exam.

Joining this pilot project is an opportunity for the University of Geneva to expand the choice of optional courses offered to students, facilitate student mobility, develop students' intercultural and digital skills and enable them to become familiar with an online mode of training that they can use in their future careers.



2. Digital Services and Support to Transform the University

Thanks to the following measures, the University wishes to enrich the offer of digital services available to the university community and enable it to take full advantage of the potential offered by digital technology. Whether it be technological improvements, the simplification of certain administrative processes, new services for the web and social networks or the creation of regulations for teleworking, these measures meet needs identified during consultations within the institution.

2.1 ENSURE A SEAMLESS ONLINE EXPERIENCE FOR STUDENTS

At present, students benefit from a wide range of digital solutions that allow them to enroll at the University, view their schedules or register for exams. So far, most of these tools have been developed independently and so their interoperability can be improved.

The University has initiated a process of overhauling these IT services, referred to collectively as “Students Information System”, with the objective of considerably facilitating and enriching the student experience. In the long term, students will connect to a unified and coherent digital service from which they can access various important resources and initiate administrative procedures. This redesign will also benefit the University's various administrative departments and faculties, which will be able to more easily manage admissions, the scheduling of classes and exams, and the communication of marks to students. It is also an important opportunity to offer new services to users and coordinate this project with the tools and other media used by students, such as the UNIGE Mobile App. This action also targets the consolidation of online learning platforms, the real-time dissemination of courses, as well as the generalization of online exams.

2.2 EXPAND THE SERVICES OFFERED BY THE UNIVERSITY MOBILE APP

UNIGE has created a free mobile App that already offers several practical features for the daily life of students. For example, everyone can access, from their mobile phone, the level of occupancy of libraries or the schedules of conferences in different sites of the campus.

In a desire to progressively improve the Mobile App, the team in charge of its development is working on the addition of new functionalities to the service of the University community, particularly in connection with the “Students Information System” (see action 2.1), which is currently in the development phase. A next action is to implement the course schedules of several faculties in the application, allowing students to easily organize their schedule or consult class schedules anywhere and at any time.

2.3 INTRODUCE TELEWORKING

Recognized as a driver of productivity and motivation, working from home or other remote locations is currently not formally part of University policy. The University plans, with the help of the Human Resources division, to establish by next summer a general framework, to be applied to all University staff, that officially regulates teleworking.

2.4 ACCELERATE THE DIGITALIZATION OF ADMINISTRATIVE PROCESSES

In order to complete the digitalization of certain internal processes to the University, and in order to facilitate the everyday life of users of University services, it is necessary to accelerate efforts to replace paper forms with digital ones in most administrative processes. In this context, the Rectorate wants to study the possibility and impact of the integration of electronic signatures for administrative processes within the institution.

Other promising technologies, such as blockchain, will also be tested and analyzed to provide electronic certification services, for example for degrees. The Rectorate will also make proposals for other processes that can be digitalized, such as the management of employee reimbursement claims, the management of scholarships, the rental of student housing, the management of IT assets and of consumables in scientific laboratories.

2.5 REINFORCE CYBERSECURITY MEASURES FOR THE UNIVERSITY

With the rapid progress of digitization and the increased risk of attacks on computer systems, strengthening cybersecurity is an institutional priority. This means not only developing the know-how of users, but also implementing tools such as strong authentication for access to sensitive data, increasing the ability to detect threats on the computer systems, deploying a new generation antivirus software based on artificial intelligence and evolving the architecture of the computer network to better secure it.

2.6 ESTABLISH A DIGITAL ARCHIVAL POLICY FOR THE INSTITUTION AND ITS HERITAGE

The University of Geneva employs more than 6,000 people who produce significant amounts of data and documents that are now stored in paper form. Without taking into account the natively digital traces of this information, the risk of dilution of institutional memory increases. Given the rapid increase in the volume of information and documents, it is necessary to act quickly and set up a project to define a concept and policy for the institutional and heritage archiving of the University's digital documents with clear conservation criteria and the implementation of a simple and effective technical solution ensuring access, durability and security of this information.

2.7 BUILD A PLATFORM FOR UNIVERSITY DIGITAL PUBLISHING IN OPEN ACCESS

Through the Conference of Rectors of Swiss Universities, the University of Geneva is co-signatory of the "Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities", making publication in Open Access one of its strategic objectives. In 2008, the Rectorate adopted a directive on the subject that led to the creation of the UNIGE Open Archive. The University intends to develop and make available to its community an online publishing platform for Open Access journals. The goal is to provide a solution for hosting and managing the publication process for open access journals published by researchers at the University.

2.8 TEST ARTIFICIAL INTELLIGENCE SERVICES FOR THE UNIVERSITY COMMUNITY

Artificial intelligence is a rapidly advancing technology that has already proven itself in a number of areas, such as learning user preferences, controlling autonomous cars, and providing personal voice assistance. In view of these developments, the University wishes to test the effectiveness of artificial intelligence in some of its administrative services by setting up AI-enhanced conversational agents, also known as chatbots. The purpose of these pilot projects is to establish to what extent artificial intelligence can facilitate access to information for students and collaborators, or even eliminate laborious or repetitive tasks now carried out by employees.

2.9 STRENGTHEN THE UNIVERSITY PRESENCE ON THE WEB AND ON SOCIAL NETWORKS

Currently, the University is present on many platforms, such as YouTube, Facebook, Twitter, LinkedIn and Instagram for its institutional communication. Many researchers are also present and promote their research this way.

The University is convinced of the utility of social networks to ensure the visibility of its activities. Easy to access, they can convey concise messages, accompanied by enriched content such as photos, videos or links to web pages. They are particularly appreciated by a young and connected public. In this context, it is planned to



create a new position of "social media manager". The person will have the task of coordinating and contributing to existing University activities on social networks, as well as transferring social media skills to other levels of the institution. The person will therefore be a reference for social networking for members of the University community who wish to learn more, and will organize short courses on the subject.

2.10 ESTABLISH A WEBSITE SUPPORT UNIT FOR THE INSTITUTION

Currently, updates of the site "unige.ch" are carried out via a software system enabling the publication of web pages. This process allows webmasters of departments and faculties to make changes without extensive web-language skills and to quickly empower people who want to manage websites. However, the limits of this method are quickly reached since the possibilities of graphic and technical customization are small.

In order to allow the University community to benefit from a greater potential in the development of websites, the University intends to create a Website Support Unit. The latter will aim to respond to requests for the creation of websites for events or structures with a strong communication component and going beyond the strict framework of the standard web pages of the University website. This centralization of web expertise will also help to maintain a graphic consistency of the University websites.



3. Towards a Responsible Digital Society

The University and the community that it represents are a part of broader society. The University provides services to society through research, innovations and training. Faced with the growing influence of digital technologies in the daily lives of people, and for running businesses and administrations, the University aims to develop its digital expertise to serve the Geneva region by making its training more widely accessible and sharing its expertise in digital matters.

3.1. IDENTIFY THE IMPACTS OF ARTIFICIAL INTELLIGENCE

Given the importance of current developments in the field of artificial intelligence, it is important to think carefully about the impact that the latter may have on the University's missions and, more broadly, on society. Some projections show radical changes in certain professions, for example in law, in medicine or in translation and interpretation. There are also ethical, legal and security issues related to the delegation of tasks to machines.

As a result, UNIGE intends to create an interdisciplinary working group to reflect on the opportunities and risks of artificial intelligence for the institution and for society. This group will be responsible for making proposals to the Rectorate for both AI as a subject of research and teaching and AI as a tool in the service of the university community and the city.

3.2 CREATE A COMPETENCE CENTER FOR DIGITAL LAW

The digital world raises multiple legal issues that affect many areas of law in Switzerland and internationally. These issues concern, for example, the legal status of data and their protection, in particular personal data. They cover more generally all the legal challenges raised by digital technology developments, in particular those related to artificial intelligence.

The University of Geneva has progressively developed various training and research activities in the field of digital law. The objective of the creation of a competence center is to continue to structure these activities and strengthen the position of the University of Geneva as a center of expertise in this area. The goal is to further profile the University nationally and internationally on these themes, capitalizing on the positioning of Geneva and Switzerland as a forum for debate and regulation of digital and internet governance in the field. The center of competence aims in particular to take advantage of Geneva's privileged ecosystem in the field of law and digital governance that has developed through activities on these themes launched in numerous international and non-governmental organizations.

3.3 DEVELOP A GENEVA DIGITALIZATION CENTER IN COLLABORATION WITH INTERNATIONAL GENEVA

For more than 100 years, Geneva has hosted an ecosystem of international organizations that play an important role in the world. These institutions produce a multitude of documents of all kinds - data, session reports, letters, photos, agreements - that are important sources for researchers working to shed light on pivotal periods in history. However, the use of these archives remains limited, because they are for the most part not digitized. Thus, their accessibility and their durability are not assured.

The digitization of large archives, and making the resulting data useful to researchers, is a complex procedure that requires meticulous planning and know-how. The University of Geneva plans to provide its knowledge in this field and contribute to the development of an exceptional heritage, as it has done with the archives of the Bodmer Foundation. Ultimately, the aim is to develop, in collaboration with the Faculty of Humanities, a



center of expertise in digitalization of archives that would work in close collaboration with the organizations of International Geneva.

3.4 PROVIDE A CERTIFICATE OF OPEN STUDIES FOR HUMANITARIAN AND DEVELOPMENT CONTEXTS

The Rectorate wishes to create a new complementary training qualification, the certificate of open studies, to meet the needs of isolated, exiled or refugee people who, thanks to digital technology, can access University of Geneva training courses in their countries, in exile or in refugee camps.

This action is motivated by the development of innovative formats in a humanitarian context, delivered in remote underserved areas or in refugee camps, in response to very specific training needs.

3.5 DISCUSSING DIGITAL TRANSFORMATION

The University has significant expertise in digital technology and related issues, both in faculties or interfaculty centers and in administrative services. In the same way, the Geneva ecosystem is home to a multitude of players involved in digital issues: companies, political representatives, members of administrations, teachers, international organizations, associations, etc.

The University intends to encourage meetings between these various audiences around digital issues in the form of regular meetups. These events, open to all, aim to inform the University community and a broader public about the latest digital advances and their impact on society. Presented by experts, these events will deal with topics related to digital technology in an accessible and popularized way and will be followed by open discussions.



4. A Digital Backbone for Advanced Research

Digital solutions for research are based on information services. These services require state-of-the-art infrastructures whose capabilities are evolving on a daily basis, software that can optimize processes, but also ongoing reflections on how to pool expensive equipment and rare expertise. These facilities are intended to serve researchers through, for example, the deployment of new algorithms, the use of specialized software or the hosting of research data.

The University aims to meet institutional needs for computing power and data storage thanks to the development of IT infrastructures and the support of researchers in the use of these facilities through the development of general guidelines, practical tools and expert support.

4.1 DEVELOP DIGITAL INFRASTRUCTURES AND SERVICES FOR RESEARCH

The institution wants to increase the capacity of the current IT infrastructure available to researchers and set up mechanisms for allocating and accessing these resources. In the context of cooperation with other academic institutions in the Lake Geneva region, it plans to pool certain resources, further develop the storage capacities and computational performance of existing IT installations and draw up charters governing their use.

4.2 ASSIST RESEARCHERS IN THE USE OF SCIENTIFIC COMPUTING

In order to take full advantage of existing state-of-the-art IT infrastructure, researchers and those working to install these infrastructures need to be supported by people who are experts in scientific computing. The University plans to develop a platform that will support researchers in the use of high performance computing and supercomputing software, the implementation of new computational methods and algorithms, as well as data visualization techniques.

4.3 CREATE A DATA SCIENCE CENTER

In the age of Big Data, Machine Learning and Artificial Intelligence, it is important that researchers at the University be equipped with the skills needed to deal with and exploit the full potential of their research. The creation of a network of experts will pool existing skills within the institution and make them accessible through a single point of contact to researchers from all faculties. This center will provide scientists with extraction and data management tools as well as methodological tools.

4.4 PROVIDE A SERVICE FOR SCIENTIFIC DATA MANAGEMENT

Academic research is increasingly based on digital tools and technologies, leading to growing data production and new requirements for data preservation and sharing. Various services have been set up within the University to support researchers facing these developments, such as the digital services catalog, workshops on data management plans (DMP) and a website for research data. The University aims to provide researchers with extensive and coordinated support for data storage, data stewardship, sharing, support and funding mechanisms, as well as legal aspects, by bringing together diverse skills into one virtual support center.

4.5 PREPARE A ROADMAP FOR OPEN SCIENCE

In line with the movement for open science and to meet the requirements of funding agencies for Open Access and research data management, the Rectorate has decided to set up a steering committee to establish a roadmap for actions in the areas of scientific publication, research data, training and awareness, research evaluation and integrity. The implementation of the roadmap measures will be the responsibility of the various



bodies concerned (faculties, services) and will subsequently be integrated into this Action Plan of the Digital Strategy.

4.6 ESTABLISH A CHAIR IN MACHINE LEARNING

Artificial Intelligence has recently undergone a theoretical revival and achieved spectacular practical successes. Together with the underpinning technology of machine learning, AI is anticipated to affect all sectors of our society as well as becoming a key tool in many areas of research. By creating a Chair in Machine Learning, the University of Geneva aims to establish a focal point for reflecting on the potential of artificial intelligence throughout the entire institution.



5. An Open Ecosystem for Digital Innovation

Innovation requires an environment conducive to reflection, sharing of ideas and collaborative work. This space is being built thanks to the pooling of human and material resources from different sectors of the University, as well as exchanges of experience and expertise in multi-institutional partnerships.

By appointing a Vice President in charge of Digital and Innovation, the University of Geneva intends to emphasize the particular importance it gives to innovation, in particular by developing an innovation ecosystem based on collaborations with strategic partners in the Geneva region.

5.1 ESTABLISH A DIGITAL INNOVATION HUB

In order to better manage collaborations with local partners, the University aims to create a new Digital Innovation Hub. This will coordinate and federate initiatives already under development, such as the creation of an innovation workshop for students and members of the faculties (FaLab) or the development of an Accelerator for Digital Sciences and Services that manages projects where researchers, IT managers and students work to design, test and develop new services. This hub will also collaborate with other innovation hubs established on other campuses of the University and the University Hospitals, HUG. This action is in line with a coherent and comprehensive innovation policy that the Rectorate intends to concretize in the future, to serve the institution and the region.

5.2 PARTNER ON DIGITAL TECHNOLOGY WITH THE CANTON OF GENEVA AND THE UNIVERSITY OF APPLIED SCIENCES AND ARTS OF WESTERN SWITZERLAND.

Faced with the challenges posed by digitalization, the Canton of Geneva, the University of Geneva and the University of Applied Sciences and Arts of Western Switzerland (HES-SO) have established a framework agreement to enhance collaboration. The purpose is to facilitate and encourage collaborations in the areas of education, continuing education, applied research and service delivery related to the digital transformation.

This collaboration will lead to joint activities around digital innovation leveraging the skills of the three institutions by involving both students and academic researchers from UNIGE and HES-SO as well as the administrative staff of the Canton. The agreement specifies the availability of internships, the organization of common digital events, collaborations with students on diploma work and collaboration in cantonal, national and international research projects.

5.3 COLLABORATE ON DIGITAL INNOVATION WITH CERN

Among the University's partners in International Geneva, CERN is recognized worldwide as a place of innovation in open digital technologies for research. The example of the Web is well known, but there are also more recent initiatives like Zenodo, which has become an international standard for archiving research data. The University of Geneva intends to strengthen its collaborations on digital and open science with CERN, notably by becoming an academic member of CERN openlab, a digital innovation laboratory working on the development and testing of new information technologies in partnership with major international IT companies.

The aim of the academic partnership with CERN openlab is to enable the University's students and researchers to participate in this network, to contribute their know-how and to benefit from the experience of CERN and partner companies in the context of research projects often financed by private partners. A series of projects in areas of common interest will be launched, starting with the Smart Cities and Mobility sector. Other areas of collaboration anticipated include medical research and quantum telecommunications.

6. An Agile and Participative Governance

As digital technology has implications for all activities carried out within the University, it is essential to establish an adequate governance of the institution's digital transformation, which takes into account the various components of the University. This governance should allow the institution to remain informed about relevant digital activities and projects carried out throughout the University and elsewhere. Above all, the governance should enable the institution to innovate and develop new knowledge by bringing together key actors of the institution and fostering collaborations with external partners.

6.1 ENSURE A CLEAR GOVERNANCE FOR THE DIGITAL TRANSFORMATION OF THE UNIVERSITY

In order to ensure coherent management and effective governance of the University's digital transformation, a new Vice Rector for Innovation and Digital Technology will be appointed at the beginning of the Rector's next mandate in July 2019. This new configuration will rationalize the management of the University's digital transformation, increase communication between the various stakeholders and facilitate pooling of resources around common projects. At the operational level, a Digital Transformation Office will oversee the implementation of the Digital Strategy and its Action Plan.

6.2 ESTABLISH A DIGITAL TRANSFORMATION OFFICE

In 2016, the Rectorate created a Digital Strategy Office (DSO) responsible for monitoring and coordinating internal and external activities and digital projects as well as developing a Digital Strategy for the entire institution. The Strategy having been published, the mission of the Office is now moving towards the implementation of the Action Plan.

The Digital Strategy Office will therefore evolve into a Digital Transformation Office (DTO). In addition to managing the implementation of the action plan and following up on its progress, the DTO will also have direct responsibility for certain activities and institutional projects, some of which appear in this Action Plan.

6.3 MONITOR AND COMMUNICATE ON THE DIGITAL PROJECTS AND ACTIVITIES OF THE INSTITUTION

The University, because of the diversity of its expertise and the professions that work in it, houses a panoply of digital activities and projects. It is therefore essential that the institution has the means to monitor its own digital activities and projects, and contribute to the internal and external visibility of those activities, in order to promote collaborations within the University community and with the region.

Based on this observation, the University, through the Digital Transformation Office, will work to identify the digital activities conducted internally, with the aim of creating and supporting a digital community within the University. This will be complemented by internal and external communication on digital activities, including a digital newsletter. These monitoring and communication activities will enhance the visibility of some of the University's digital activities and projects and will provide the university community with access to relevant news about digital initiatives at UNIGE and other institutions. This information will also be accessible on a website and will be systematically relayed on social networks.