COVID-19
CORONAVIRUS
RESPONSE

Executive summary

This Note offers recommendations in 11 key areas to policy makers at the national, regional and institutional level on how to address the crisis using lessons learned so far and start preparation towards the post-pandemic era of tertiary education:

1. Continue to develop creative and sustainable responses that enable staff to deliver **teaching and learning** when there is no access to a physical campus. Innovate teaching and learning methods to better engage students and allow for a more interactive education. Continuously monitor data and collect feedback.
2. Redesign **examinations** for the specific context of institutions, faculties, students or courses. Consider substituting final examinations with alternative models for student assessment and implementing online/remote proctoring as a solution to supervise remote examinations.
3. Balance the **research** portfolio, diversify funding for research, and consider implementing a long-term research strategy to ensure long-term sustainability of research activities at TE institutions in the post-pandemic future. Facilitate networking and international collaboration of researchers.
4. Diversify institutional **funding** streams and avoid over-reliance on tuition fees in order to achieve more balance between public and private funding and build a resilient funding model. Strengthen institutional contingency planning to maintain sustainability in crisis.
5. Explore possibilities of raising or at least keeping the existing level of institutional autonomy. Consider introducing a shared **governance** model and support institutional autonomy. Postpone all the network processes - such as mergers/closures of institutions – to the post-pandemic time, and if this is not possible, then make them as transparent as possible, with all the stakeholders engaged in the consultations.
6. Adapt national and institutional **quality assurance** regulations for a more flexible approach in review and assessment of online and blended delivery of academic programs. Foster development of the virtual tools for the internal and external quality assurance in tertiary education. Pay attention to cyber security to ensure the virtual safety and prevent education fraud.
7. Prioritize **equity** issues. Ensure internet access and continue to provide devices and comprehensive support services to disadvantaged students, including academic support, counseling and mental health services. Provide support to graduates to navigate the crisis related uncertainties of the labor market.
8. Continue assessing the adequacy of **student financial support** provision - policies that target funding directly at disadvantaged students, including grants, income-contingent loans, and specific tuition fees, can become a powerful tool for ensuring access and preventing drop-out of at-risk students during the crisis as well as in the post-COVID era.
9. Continue providing additional support and flexible pathways for international students. Intensify "internationalization at home" efforts as a response to the crisis affecting student and staff mobility, but also as a long-term solution aiming to provide **international perspectives** to the local students who are not likely to be mobile in the coming years.
10. Support regular and consistent communication with **staff** to ensure engagement and to address operational challenges at all levels. Slow the timing of decisions on tenure and reappointment to account for the new and unexpected tasks faculty members have had to shoulder. Suspend as much as possible staff dismissals during the period of the crisis.
11. Continue to assess tools and online support services required for critical processes at university such as teaching and learning, management, timetabling, student records, assessment, and collecting feedback. Think about **infrastructure** in a long-term way which will allow flexibility in shifting to online and remote work in time of crisis. Monitor and strengthen cyber security to ensure the virtual safety.

Introduction

The ongoing COVID-19 pandemic has had unprecedented effects on countries all over the world during the past year, and many tertiary education institutions had to quickly suspend campus-based operations. As the epidemiological situation has been constantly shifting, some countries have introduced gradual reopening of universities (Russia, Uzbekistan). Others continued closures and online delivery (Austria, Kyrgyz Republic), while some introduced hybrid models (Germany, France, Kazakhstan, Italy, Turkey). But even with a big effort and progress made in transition to distance teaching and learning, most institutions are still impacted by a learning crisis, caused by COVID-19 pandemic, which is affecting around 40 million students in ECA[2].

Fundamental changes in teaching and learning modalities, delayed research activities, raised inequalities, ad-hoc exam procedures, disruptions in international mobility, additional unexpected financial and infrastructure needs, and the need for new models of quality assurance – all represent challenges that gained prominence during 2020 and will have to be further tackled in the coming months and years. Moreover, the crisis will have a significant impact on countries' competitiveness and their ability to foster advanced skills and regional development. With student and academic mobility being a key dimension of the Bologna Process (a pan-European higher education reform process), mobility restrictions particularly affected tertiary education in ECA. At the same time, universities emerged as key players in developing and implementing the response to the global health crisis by applying research and training of medical professionals.

1. Teaching and Learning

The COVID-19 outbreak has caused a huge impact on the tertiary education system. Even with the best efforts made during distance teaching and learning, majority of tertiary education institutions are still impacted by the COVID-19-related learning crisis.[3] The sudden closure of campuses as a social distancing measure to prevent community transmission has shifted face-to-face classes to online learning systems.

Challenges are still evident as the quality of teaching and learning is deteriorating, many students are missing out on the practical components of their education, which may impact their future work prospects[4], many students are experiencing stress and psychological difficulties due to lack of face-to-face teaching.

Recommendations:
- Build the capacity of university staff, faculty and students and learn new skills to strengthen the distance teaching and learning environment[5]. Ensure that teachers have the pedagogical skills, necessary tools, platforms and guidelines to teach students at their level and implement the adapted curriculum in an online environment and students have online learning support to stay on top of their workload and to keep making progress in their learning[6]. Going forward, support to teacher development is a key to ensure the continuity of the teaching and learning process.
- Continue to develop creative and sustainable responses that enable staff to deliver teaching and learning when there is no access to a physical campus. Enlarge training programs for the staff, incentivize the creativity, empathy and judgement of university teachers[7]. Online teaching is a fundamentally different process than face-to-face teaching – it is not just doing the same work from a different place. In most countries staff had already experienced a lack of training on digital skills, digital pedagogy and IT tools before the crisis. This has made the shift to fully digital teaching and research so difficult[8]. Innovate teaching and learning

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[2] https://databank.worldbank.org/id/c755d342?Code=SE.TER.ENRL&report_name=EdStats_Indicators_Report&populartype=series#

[3] Salmi, J. (2020). Learning from the Past, Coping with the Present, Readying for the Future: Impact of COVID-19 on Higher Education from an Equity Perspective.

[4] Salmi, J. (2020). Learning from the Past, Coping with the Present, Readying for the Future: Impact of COVID-19 on Higher Education from an Equity Perspective.

[5] Marinoni, G., Land, H., Jensen, T. (2020). The Impact of COVID-19 on Higher Education around the World. IAU Global Survey Report.

[6] https://www.sheffield.ac.uk/apse/digital/coronavirus/teachonlinestudents

[7] Education During COVID-19 and Beyond: Commentary on the Secretary-General's Policy Brief. https://www.un.org/en/un-chronicle/education-during-covid-19-and-beyond-commentary-secretary-general%E2%80%99s-policy-brief

[8] Trade unions are concerned about the impact of COVID-19 pandemic on higher education and research staff. https://www.csee-etuce.org/en/policy-issues/covid-19/3974-trade-unions-are-concerned-about-the-impact-of-covid-19-pandemic-on-higher-education-and-research-staff-3

methods and conduct student satisfaction surveys in order to be able to better engage students and allow for a more interactive and experiential education[9].

- Introduce new assessment instruments (such as oral examinations[10], flexible modes of examination, varying sets of exam questions, reduced time limits, open book written examinations, formative assessments[11], remote online exams[12]) to reflect changed curriculum and the difficult physical conditions faced by tertiary education institutions and students. Continuously monitor the data and collect feedback at the student, teacher, and university level to analyze the lessons learnt, tailor further interventions, and prepare for the post-pandemic recovery.
- Build / increase collaboration among universities in sharing good practices and experiences from better-equipped and prepared universities to their less-prepared peers in their region or country[13].

2. High-stakes Exams

As the world was tackling the school and university closures at the end of school year 2019-2020, many countries decided to cancel the school leaving examinations and calculate the students' performance based on the annual subject assessments (UK, France, Ireland, Italy, Norway, the Netherlands, Moldova, Tajikistan, Uzbekistan, Ukraine, and Kazakhstan). Many countries conducted university entrance exams as planned with health and safety measures in place (Germany, Belarus, Croatia[14], Kazakhstan, Uzbekistan[15], South Korea[16], Tajikistan), rescheduled or postponed (Austria, Bulgaria, Estonia, Spain, France, Belarus, Ukraine, Sweden[17],Turkey), or were replaced with other options (Finland[18]). Institutions faced several challenges associated with the shift of student examinations online including a possible increase in dishonest behaviors, difficulty in assessing practical knowledge and skills, a need to ensure a fair treatment of test takers and the risk of technical failure.[19]

As the universities are approaching end of academic year 2020/2021, there is a need to prepare for upcoming examinations in advance.

Recommendations:
- Consider redesigning examinations for a specific context of institutions, faculties, students or courses (oral examinations[20], flexible modes of examination, varying sets of exam questions, reduced time limits, open book written examinations, formative assessments[21], remote online exams[22]).
- Consider substituting final examinations with alternative models for student assessment such as Google Forms, remote projects, remote testing[23], Open Methods like open-book, open-net and take-home examinations[24]; Collaborative Methods like small group instruction diagnosis, cooperative experiences, peer-reviews, capstone tools and other online and offline-group simulations; Portfolios like online and offline portfolios, wiki-based approaches, bundling of short research projects and social media portfolios; and Writing-based methods like reflective student essays, articles, dissertations and multiple-choice question preparation).[25]

https://forbes.kz/process/dast_li_koronavirus_impuls_razvitiyu_onlayn-obrazovaniya_v_kazahstane/
[10] https://www.sheffield.ac.uk/staff/elevate/alternative_assessment_cv19
[11] https://onlinelibrary.wiley.com/doi/epdf/10.1002/au.30219
[12] https://www.oecd-ilibrary.org/docserver/f53e2177-en.pdf?expires=1607593723&id=id&accname=guest&checksum=64ADEE7BE4BB429F09B7F8629F2B1E7D
[13] https://www.vsnu.nl/files/documenten/Dutch%20universities%20in%20times%20of%20corona.pdf
[14] https://mzo.gov.hr/UserDocsImages/dokumenti/Vijesti/2020/27-5-2020/Drzavna_matura_upute_27_05.pdf
[15] https://ru.euronews.com/2020/09/04/uzbekistan-open-air-exams-nsn
[16] https://www.latimes.com/world-nation/story/2020-12-02/south-korea-all-important-college-exam-covid-19-cases-rise
[17] https://www.edexlive.com/news/2020/sep/02/covid-19-pandemic-sweden-cancels-2020-university-entrance-exams-14325.html
[18] https://www.unifi.fi/uutiset/university-entrance-exams-to-be-replaced-by-alternative-admissions-procedures-this-spring/.
[19] https://www.oecd-ilibrary.org/docserver/f53e2177-en.pdf?expires=1607087646&id=id&accname=guest&checksum=D9C6A13C5F1C8FFABDE7A3D018702C06
[20] https://www.sheffield.ac.uk/staff/elevate/alternative_assessment_cv19
[21] https://onlinelibrary.wiley.com/doi/epdf/10.1002/au.30219
[22] https://www.oecd-ilibrary.org/docserver/f53e2177-en.pdf?expires=1607593723&id=id&accname=guest&checksum=64ADEE7BE4BB429F09B7F8629F2B1E7D
[23] https://community.pepperdine.edu/seaver/center-teaching-excellence/keep-on-teaching/online-tests.htm
[24] Open-Book and Take-Home Exams | UNSW Current Students
[25] https://www.universityworldnews.com/post.php?story=20200925151506665

- Consider implementing online/remote proctoring as a solution to supervise remote examinations in order to reduce a risk of student academic dishonesty.[26] Some proctoring software allows to lock down students' browsers and record them during the examination to prevent them from relying on external help.

3. Research & Innovation

The first wave of COVID-19 pandemic has brought many challenges to research in tertiary education[27]. Even though only 9% of HEI's research activities have been stopped in Europe (compared to 43% in Africa and 31% in Asia & Pacific)[28], some projects and clinical trials slowed down as universities closed the campuses, and the priority was given to work related to the coronavirus (i.e. UK[29], Belgium[30], Switzerland[31]). Research projects conducted with industrial partners and smaller start-ups suffered from reduced funding[32]. Another issue was a shift of priorities towards COVID-19 related research[33]. More funding opportunities arose for scientific projects on coronavirus (i.e. EU[34]); however, some countries had to review the budgets due to extended expenses on fight with COVID-19 pandemic (i.e. Russia[35]).

Despite various negative aspects of the crisis, the pandemic has pushed universities to reconsider their research role not only in the local community, but also in global dimension[36]. The pandemic revealed a need for innovations in many areas[37], which is why universities should think how to better organize and raise their research capacities in order to better inform national policies and contribute to global knowledge.

Recommendations:
- Balance the research portfolio, diversify funding for research, and consider implementing a long-term research strategy. Continuity of funding, multiple funding streams, and research support mechanisms are important elements for ensuring long-term sustainability of research activities at TE institutions in the post-pandemic future. Strategic approach is even more important if research funds decrease is expected.
- Ensure networking and facilitate international collaboration of researchers: (i) online events help sharing information and increase the capacities of institutions highlighting the advantages that society receives from research; (ii) online platforms (i.e. AUF platform[38]) promote exchanges and transfer of expertise between scholars, and may contain information and tools about remote research methods[39], advice on how to manage a research group online and communicate efficiently, how to restart a project after quarantine, blogs and best practices from coworkers[40]; (iii) Open Science practices[41] could accelerate critical research at crisis times; (iv) establishing of consortia helps to engage partners who can contribute both technical expertise and financial support, which is especially needed during pandemic and in post-pandemic future.

[26] https://library.educause.edu/resources/2016/5/7-things-you-should-know-about-remote-proctoring
[27] https://www.iau-aiu.net/IMG/pdf/iau_covid19_and_he_survey_report_final_may_2020.pdf
[28] https://www.iau-aiu.net/IMG/pdf/iau_covid19_and_he_survey_report_final_may_2020.pdf
[29] https://www.bioworld.com/articles/433882-biomedical-rd-takes-hit-as-university-labs-trials-shut-down-due-to-covid-19
[30] https://www.ugent.be/en/news-events/ugent-corona-policy-stringent-measures.htm
[31] https://ethz.ch/content/dam/ethz/main/research/Allgemein/Corona/Weisung_Corona_Forschung_EN.pdf
[32] https://voxeu.org/article/challenges-and-opportunities-start-ups-time-covid-19
[33] https://www.nature.com/articles/d41586-020-03388-w
[34] https://ec.europa.eu/info/sites/info/files/research_and_innovation/research_by_area/documents/ec_rtd_coronavirus-new-research-projects.pdf
[35] https://www.rbc.ru/economics/06/10/2020/5f7b372b9a7947fe8e8d644f
[36] https://www.universityworldnews.com/post.php?story=20201128082044454
[37] https://blogs.worldbank.org/voices/innovation-and-sound-policies-are-critical-protect-people-during-crisis
[38] https://aneuf.auf.org/
[39] https://www.ugent.be/en/research/pandemic-research
[40] https://www.birmingham.ac.uk/university/colleges/mds/news/2020/04/home-working-blog.aspx
[41] Open Science is "a growing movement aimed at making the scientific process more transparent and inclusive by making scientific knowledge, methods, data and evidence freely available and accessible for everyone… Open Science facilitates scientific collaboration and the sharing of information for the benefit of science and society, creating more and better scientific knowledge, and spreading it to the wider population". (Source: https://news.un.org/en/story/2020/11/1077162)

- Prepare for a gradual reopening of labs and facilities in advance and provide clear guidelines at governmental (UK[42]) and institutional (i.e. ETH Zurich[43], The Norwegian University of Science and Technology[44]) levels. Such instructions should be regularly updated and should contain explicit information related to safety at workplace and research[45].
- Prepare future field visits in advance by using streaming and online collaboration tools in the initial phase, in order to make later physical exchanges more effective once they happen. When giving access to facilities, prioritize the most critical research projects and vulnerable groups of staff and students (Denmark[46]) and use online system for booking time slots at the labs to maintain social distancing (i.e. The University of York[47]).

4. Financing and Governance

The two areas that require significant rethinking during and post COVID-19 pandemic in order to ensure recovery and boost resilience of HEIs are institutional financing and governance. Institutional expenses related to overcoming challenges of the pandemic have been significant so far and continue to rise. Issues include staff layoffs, uncertain future of education abroad programs, fundamental changes in teaching and learning techniques, research funding, funding for partnership and community engagement, and enrollment management strategies[48].

In order to reach short-term solutions and respond to immediate challenges through local or national economic relief programs, many countries (i.e. Denmark, France, Finland, Germany, Singapore, Taiwan, the UK, and the US) have adopted economic rescue packages that include support for HEIs[49]. Such support could, in turn, allow institutional leadership to focus on developing mid- and long-term strategies for their institutions, while also tackling some underlying structural issues - such as over-dependence on tuition fees, lack of funding diversification, lack of institutional endowment[50], and lack of contingency planning. The silver lining of the pandemic for the TE sectors across ECA countries may lie in the opportunity to finally focus on building more balanced, resilient and sustainable institutional financing models, as well as innovative approaches to governing and managing TE institutions.

Recommendations:

- Consider diversifying institutional funding streams and avoid over-reliance on tuition fees in order to achieve more balance between public and private funding and build a resilient institutional funding model in the post-pandemic era. The number of tuition-paying students (especially international) is likely to decrease in the coming year, and possible cuts in public investment for TE will have a detrimental effect on the sector. For example, ministries of education in EU countries should take advantage of the COVID-19 relief packages and funding opportunities provided by the EU, such as the new Recovery and Resilience Facility (RRF)[51]. TE institutions should become proactive on local and international students' market, but also use national programs of support during COVID pandemic that were launched almost in all countries of the ECA region.
- Explore possibilities of raising or at least keeping the existing level of institutional autonomy. Several challenges in this area have already gained prominence: i) greater public control over student numbers (Ireland, Sweden) in view of unemployment predictions, ii) staffing autonomy in terms of possible staff recruitment restrictions, iii) autonomy in teaching and learning while governments push for sole online

[42] https://www.gov.uk/guidance/working-safely-during-coronavirus-covid-19/labs-and-research-facilities
[43] https://ethz.ch/services/en/news-and-events/coronavirus/researchers.html
[44] https://innsida.ntnu.no/wiki/-/wiki/English/Temporary+guidelines+for+necessary+work+in+laboratories+due+to+corona#section-Temporary+guidelines+for+necessary+work+in+laboratories+due+to+corona-Guidelines+for+necessary+work+in+laboratories+and+workshops
[45] https://ethz.ch/services/en/news-and-events/coronavirus/researchers.html
[46] https://mitsdu.dk/en/service/coronavirus/coronavirus-update/coronavirus-update-210420
[47] https://www.nature.com/articles/d41586-020-02815-2
[48] https://www.iau-aiu.net/IMG/pdf/iau_covid-19_regional_perspectives_on_the_impact_of_covid-19_on_he_july_2020_.pdf
[49] https://www.luminafoundation.org/wp-content/uploads/2020/11/covids-lessons-for-global-higher-education.pdf
[50] https://www.luminafoundation.org/wp-content/uploads/2020/11/covids-lessons-for-global-higher-education.pdf
[51] https://ec.europa.eu/info/business-economy-euro/recovery-coronavirus/recovery-and-resilience-facility_en

teaching[52], and iv) increase in centralized prescription of action (England)[53]. But academic freedom is "an indispensable aspect of quality learning, teaching and research in higher education as well as of democracy" [54] as it is stated in Roma Communique of EHEA countries Ministers.

- Postpone all the network processes - such as mergers/closures of institutions – to the post-pandemic time, and if this is not possible, then make them as transparent as possible, with all the stakeholders engaged in the consultations. Pay attention to the possible rise of differentiation between various types of institutions as a result of these mergers and the overall pandemic crisis. Private institutions that are usually most vulnerable in such situations may need potential government support during and after pandemic.
- Consider introducing/strengthening institutional contingency planning. This process should involve performing thorough risk assessments followed by incorporating mitigation measures designed to respond to the medium- and long-term consequences of the crisis (e.g. the expected upcoming economic recession) as well as incorporating lessons from the ongoing pandemic[55]. Improved Higher Education Management Systems (HEMIS) could help a lot in these processes, especially in situation of campus lockdowns. In order to achieve this the TE sector could explore the expertise and experience of the private/business sector on how to maintain sustainability in crisis and emergency situations.

5. Quality Assurance

This year has been exceptional due to the global Covid-19 pandemic. It forced tertiary education institutions to move online on very short notice not only teaching, learning and research but also internal quality assurance procedures. In this new reality quality assurance agencies had to adapt their procedures accordingly, while being responsive and supportive to the needs of the sector. The pandemic has also given more urgency to the discussions on the future of quality assurance in Europe.

Recommendations:
- Foster development of the virtual tools for the internal and external quality assurance in tertiary education - these tools will be useful in post-pandemic era as well. The existing European experience revealed that virtual mode did not negatively impact the efficacy of the review process[56]. Both ENQA and EQAR declared that transfer to online processes in the situation of pandemic is fully permissible under the ESG, and both organizations encourage their members to offer flexibility to tertiary education institutions in this regard[57].
- Adapt national and institutional quality assurance regulations for a more flexible and less formalized approach in review and assessment of online and blended delivery of academic programs, considering specific national and institutional contexts. All parties involved in the process, including national authorities, agencies and institutions, should maintain a dialogue to address any issues that may hinder this flexibility.
- Work on mechanisms for detecting education fraud in work submitted online. Until now such tools have rarely been tested in an examination environment. Employers, professional bodies and other stakeholders in tertiary education are highly concerned that the value of qualifications awarded under emergency conditions may be questionable[58]. Encourage tertiary education institutions and quality assurance agencies to develop and implement fit-for-purpose approaches to quality assurance of digital

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[52] Trade unions are concerned about the impact of COVID-19 pandemic on higher education and research staff. https://www.csee-etuce.org/en/policy-issues/covid-19/3974-trade-unions-are-concerned-about-the-impact-of-covid-19-pandemic-on-higher-education-and-research-staff-3

[53] Enora Bennetot Pruvot, Thomas Estermann, Veronika Kupriyanova, Hristiyana Stoyanova. EUA, Public Funding Observatory. Financial and economic impact of the Covid-19 crisis on universities in Europe. https://eua.eu/downloads/publications/pfo%20part%201_ppt%20-%20im.pdf

[54] Rome EHEA Ministerial Communique. https://ehea2020rome.it/storage/uploads/5d29d1cd-4616-4dfe-a2af-29140a02ec09/BFUG_Annex-I-Communique_Statement_Academic_freedom.pdf

[55] https://www.luminafoundation.org/wp-content/uploads/2020/11/covids-lessons-for-global-higher-education.pdf

[56] 2020 European Quality Assurance Forum. https://www.eua.eu/events/72-2020-european-quality-assurance-forum.html#tab2

[57] EQAR COVID-19 consequences. https://www.eqar.eu/covid-19/#how-should-we-handle-the-esg-requirement-to-have-site-visits ENQA statement on COVID-19 pandemic. https://enqa.eu/index.php/home/enqa-statement-on-covid-19-pandemic/

[58] Dennis Farrington. The consequences of COVID-19 on the education system: the legal perspective. https://www.coe.int/en/web/education/article-the-consequences-of-covid-19-on-the-education-system-the-legal-perspective

education, micro-credentials and other non-traditional forms of tertiary education, using the flexibility of the ESG and exploring the room for innovation[59].

- Start preparation of the future post-pandemic QA evaluation and reflection if sustained changes to external quality assurance arrangements are appropriate and fit-for-purpose[60]. While exceptional measures are needed in a time of crisis, as the situation progresses there will be a certain need in evidence-based policymaking related to adoption of the new virtual QA policies or return to the pre-pandemic ones.

6. Equity

The experience of institutional closures due to the pandemic and transition to online learning disproportionally affected disadvantaged students[61] . These student populations - including students of lower socioeconomic status, minorities, refugees, and students with learning disabilities - were often faced with a lack of access to the technology necessary for participation in online learning, as well as with limited or no access to campus services. For many at-risk students, dormitories constitute their primary residence and campus facilities secure their meals, health care and support services, including academic and mental health counselling. Generally, life on campus provides these students with the necessary preconditions to focus on their academic commitments[62]. Without consistent access to technology, coordinated institutional guidance, counseling, and support, the most vulnerable students are likely to fall out of tertiary education.

Disparities in access and retention are also likely to increase even further during pandemic and in post-COVID era as students of lower socioeconomic status and their families become severely constrained by their financial situation amidst the global economic downturn. Specific targeted national and institutional funding policies can become crucial levers for increasing enrollment and attainment among low-income and underrepresented student populations in the coming years[63].

Recommendations:
- Continue with consistent provision of devices and internet access[64] to students in need. Many at-risk students have only sporadic access to technology necessary to adequately participate in online learning, and a large proportion of them share devices with multiple family members. Reach out to these students and ensure they receive adequate technological support.
- Continue providing comprehensive support services to disadvantaged students, including academic support, counseling and mental health services. Additionally, secure accommodation and food service provision for at-risk students, if possible[65]. The accessibility of essential services during the pandemic can significantly lower potential risk of drop-out for disadvantaged student populations.
- Consider coordinated measures and partnerships between the tertiary and secondary education sectors and support with university entrance exams[66], which will be very important in mitigating the potentially dire consequences of the pandemic on the educational outcomes of at-risk students. The pandemic will have an adverse effect on the pipeline of students into tertiary education,[67] as many of at-risk students have already dropped out in their final year of secondary education due to the strain of the crisis.
- Continue assessing the adequacy of financial support provision for needy students. Several countries introduced specific measures aimed at low-income students during the pandemic (Canada, US, Netherlands, Germany, Ireland)[68]. Policies that target funding directly at disadvantaged students[69],

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[59] https://ehea2020rome.it/storage/uploads/74793530-dc2d-47ea-90d6-c05ced30e5ea/EQAR_Statement_EHEA_Ministerial_Conference_Rome2020.pdf

[60] ENQA statement on COVID-19 pandemic. https://enqa.eu/index.php/home/enqa-statement-on-covid-19-pandemic/

[61] https://www.luminafoundation.org/resource/covids-lessons-for-global-higher-education/

[62] https://www.up.ac.za/media/shared/1/2020/September%202020/uncertain-times-paper_final_08092020-1.zp194357.pdf

[63] https://www.iesalc.unesco.org/en/2020/04/14/global-student-financing-policies-funds-for-the-achievement-of-equity/

[64] https://www.un.org/development/desa/dspd/wp-content/uploads/sites/22/2020/08/sg_policy_brief_covid-19_and_education_august_2020.pdf

[65] https://studentski.hr/studenti/vijesti/studentski-zbor-otkrio-hoce-li-menze-raditi-ako-dode-do-zatvaranja-restorana

[66] https://www.universityworldnews.com/post.php?story=20201113085637660

[67] https://www.un.org/development/desa/dspd/wp-content/uploads/sites/22/2020/08/sg_policy_brief_covid-19_and_education_august_2020.pdf

[68] https://www.universityworldnews.com/post.php?story=20201113085637660

[69] https://www.iesalc.unesco.org/en/2020/04/14/global-student-financing-policies-funds-for-the-achievement-of-equity/

including grants, income-contingent loans, and specific tuition fees, can become a powerful tool for ensuring access and preventing drop-out of at-risk students during the crisis as well as in the post-COVID era. An interesting example comes from a Russian university that offered employment to students who lost their jobs due to the pandemic.[70]

- Provide support to graduates in navigating the crisis related uncertainties of the labor market. It is critical to provide support in transition to labor market in order to avoid future negative effects of the COVID-19 pandemic. This support can include specific online career guidance and advice as well as national short-employment programs and special labor-market transition arrangements, including those related to the fight against the epidemic.
- Governments should consider introducing additional targeted funding and support for institutions serving large numbers of underrepresented populations. Introducing financial policies that incentivize institutions to improve equity and completion outcomes - such as specific performance funding indicators related to equity[71] - can help increase enrollment and attainment among low-income and underrepresented student populations in the post-COVID era.

7. Internationalization

COVID-19 impacted all aspects of internationalization of tertiary education across the globe in a profound way. Short-term student mobility as well as global admissions and enrollments will continue to be affected at least until pandemic is put under control worldwide – almost 70% of prospective international students reported that the crisis has affected their plans to study abroad in 2021[72]. Accordingly, a large number of institutions have been affected by significant revenue losses due to decrease in the number of tuition-paying international students. In the *Erasmus+* program, many institutions have already cancelled short-term mobility for the spring semester of 2021 or even the academic year, while others are turning to blended approaches as the European Commission allowed partial virtual exchange replacing the physical one.[73] The health crisis also exposed the need for a more robust international cooperation in the area of research and a better coordination at the European and global level.

Recommendations:
- Continue providing additional support and flexible pathways for international students. This can include further deferral of admission, the option to study remotely in the case of a late arrival or quarantine period and providing information and administrative help with visa and financial aid issues. It is also important to maintain regular communication with international students in the country and abroad and to monitor their physical and mental well-being.[74]
- Consider tapping into crisis response resources and measures focused on internationalization, like those provided by the EU. Partnerships for Digital Education Readiness[75] focuses on building capacity of institutions to provide high quality, inclusive digital education. International cooperation among countries, tertiary education institutions and digital technology providers will be essential in the post-COVID era as it is during the pandemic.
- Intensify "internationalization at home" efforts as a response to the crisis affecting student and staff mobility, but also as a long-term solution aiming to provide international perspectives to the local students who are not likely to be mobile in the coming years. This approach entails internationalizing curriculum and co-curriculum to support and expand student global learning. These efforts should involve the entire campus community, including management, academic and administrative staff and students.[76]
- Insure adequate institutional funding for internationalization in the post-COVID era. International cooperation among tertiary education institutions has proven crucial in times of crisis, health-related or otherwise[77]. Important knowledge exchanges through student mobility, cross-border research

[70] https://www.dvfu.ru/news/fefu-news/the_university_offers_jobs_to_students_who_have_lost_their_jobs_because_of_the_epidemic_/
[71] https://www.iesalc.unesco.org/en/2020/04/14/global-student-financing-policies-funds-for-the-achievement-of-equity/
[72] https://info.qs.com/rs/335-VIN-535/images/Higher_Education_in_2020_-_How_COVID-19_Shaped_this_Year.pdf
[73] https://www.iau-aiu.net/IMG/pdf/iau_covid-19_regional_perspectives_on_the_impact_of_covid-19_on_he_july_2020_.pdf
[74] https://www.eaie.org/blog/how-higher-education-institutions-respond-covid-19.html
[75] https://ec.europa.eu/programmes/erasmus-plus/resources/documents/second-corrigendum-2020-erasmus-programme-guide_en
[76] https://www.coimbra-group.eu/wp-content/uploads/Final-Report-Practices-at-CG-Universities-in-response-to-the-COVID-19.pdf
[77] https://www.luminafoundation.org/resource/covids-lessons-for-global-higher-education/

cooperation, and knowledge diplomacy[78] will ensure better preparedness of institutions, governments and individual and foster resilience in the face of the upcoming economic and other potential challenges and crises

8. Staffing

The COVID-19 crisis has transformed work in universities, impacted faculty members and their careers[79] and caused rushed transitions to online teaching, disruptions to nearly all research activities and added service and mentoring work. Closure of campuses, reopening and new closure make the life of the university staff unpredictable and challenging, especially for those on precarious contracts. A clear guidance from the national authorities and university management is needed regarding short and mid-term staffing arrangements. Additionally, COVID-19 economic relief packages can protect employment in the tertiary education sector.

Recommendations:

- Keep protocols for regular and consistent communication with staff to ensure engagement and to address operational challenges at all levels. Allow for open dialogue between staff and management. At virtual town halls faculty members can convey their concerns[80]. Without involving employees and their representatives in decision-making, managers could come up with supposed solutions that may be worse than the problems they are trying to deal with[81]. Consider introducing a shared governance model – delegation of some management functions and awarding more power and responsibility to academics and administrators can lead to innovative and effective solutions to various challenges that arose during the pandemic and in the post-pandemic era as well.
- Slow the timing of decisions on tenure and reappointment to account for the new and unexpected tasks faculty members have had to shoulder. Adopt inclusive evaluation practices that recognize the impact of COVID-19 on faculty careers, both in the short and long term. Many university professors were forced to neglect their research duties in order to ensure good preparation and provision of online teaching to their students.
- Suspend as much as possible staff dismissals during the period of the crisis. Job security has already plummeted with all the redundancies happening in universities, e.g. in UK and Australia[82]. Funded extension of academic appointments could be considered at governmental (i.e. Netherlands[83][84]) and institutional (i.e. the Geneva University[85], The University of Lancaster[86]) levels to support researchers whose work has incurred delays due to the coronavirus pandemic.
- Recognize intensified caregiving demands of staff. The pandemic has drastically altered the family and personal lives of faculty members, taking enormous health and financial tolls and negatively impacting their work. Women have already submitted fewer papers in 2020[87] compared to previous years.
- Start preparation for the post-pandemic life. It will not be the same as before, many changes will follow, including those related to the academic staff work and interaction in universities. Consider responses and solutions related to the new aspects emerged in the crisis - such as the change in the nature of the academic work or intellectual property rights. For example, while professors had to prepare their own

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[78] https://kluwerlawonline.com/journalarticle/European+Foreign+Affairs+Review/24.2/EERR2019021
[79] https://www.nature.com/articles/d41586-020-01656-3
[80] Ethel L. Mickey, Dessie Clark and Joya Misra. Measures to Support Faculty During COVID-19. https://www.insidehighered.com/advice/2020/09/04/advice-academic-administrators-how-best-support-faculty-during-pandemic-opinion
[81] Working from home during COVID-19: What do employees really want? https://theconversation.com/working-from-home-during-covid-19-what-do-employees-really-want-148424
[82] This is how many jobs each Australian university has cut – or plans to – in 2020. https://www.businessinsider.com.au/australian-university-job-cuts-losses-tally-2020-9
[83] https://www.vsnu.nl/en_GB/news-items/nieuwsbericht/569-information-on-the-coronavirus-in-relation-to-universities-update-of-19-march.html
[84] https://www.rijksoverheid.nl/ministeries/ministerie-van-onderwijs-cultuur-en-wetenschap/documenten/kamerstukken/2020/10/06/antwoord-op-vragen-over-de-oproep-tot-een-continuiteitspakket-voor-jonge-wetenschappers-in-de-knel
[85] https://www.unige.ch/coronavirus/en/recherche/
[86] https://www.lancaster.ac.uk/research/research-services/impact-of-covid-19/
[87] Colleen Flaherty. Something's Got to Give https://www.insidehighered.com/news/2020/08/20/womens-journal-submission-rates-continue-fall

teaching materials, the copyright of these materials was often not ensured by universities nor national legislation.

9. Infrastructure

The COVID-19 disruption to tertiary education exposed many significant infrastructure challenges[88], including demand for improved digital technologies and facilities to support continued distance and blended learning models, data collection[89], and prevent cyber-security threats to universities[90]. Pandemic showed that success or failure depends not just on staff and TE leadership, but also on proper IT infrastructure[91] that enables critical processes in universities.

Recommendations
- Continue to assess tools and online support services required for critical processes at university such as teaching and learning, management, timetabling, student records, assessment, and collecting feedback. Tools for blended learning are needed at early stages of reopening campuses and they could become essential in the post-COVID era. Think about infrastructure in a long-term way. Secure systems and cloud-based technologies (such as National Research and Education Networks (NRENs)[92] and Virtual desktop infrastructure (VDI)[93]) will allow flexibility in shifting to online and remote work in time of crisis. Investing in ICT, artificial intelligence and online support services for scientists could facilitate their research work off campus. Technology and robots[94] may be a solution for field work and data collection during the quarantine. Tools for collecting feedback[95] are important to analyze how information is delivered through online platforms in terms of content and language and how long an individual can stay focused in an online learning setting.
- Design guidelines for infrastructure use in close collaboration with research facilities users to ensure that instructions are evidence-based, clear, realistic and fair and keep them up to date (i.e. Scotland[96]).
- Assess and plan for security issues related to (i) vacant buildings filled with expensive technology and laboratories; (ii) cyber security to ensure the virtual safety (i.e. UK universities[97]). Consider the opportunities and risks of working with specific providers.

Outlook

Over the past year, countries, tertiary education institutions, as well as individuals had to pause, reconsider, and revamp their activities in light of COVID-19. Much of the initial discussion has focused on infrastructure for online teaching and learning and connectivity, whereas in the last few months of 2020 the focus has shifted towards the medium- and long-term prospects for the TE sector across ECA. Stronger emphasis should be placed on developing blended learning models that could become the "new normal" for many institutions across the region. However, other areas require rethinking as well - building resilient institutional funding models; providing comprehensive support services to students (including support with the labor market transition) and staff; reimagining student financial aid mechanisms; balancing research portfolio and implementing long-term research strategies; and improving institutional internationalization efforts are all important elements for ensuring long-term sustainability of the sector.

Besides the broad issues it poses, the COVID-19 crisis might retrospectively be considered as an opportunity to strategically revamp systems, introduce risk management mechanisms, and prepare for challenges to come.

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[88] https://www.itu.int/en/ITU-D/Conferences/GSR/2020/Documents/GSR-20_Impact-COVID-19-on-digital-economy_DiscussionPaper.pdf
[89] https://www.nihr.ac.uk/blog/the-pandemic-data-collection-challenge/25102
[90] https://www.universityworldnews.com/post.php?story=20200607084916387
[91] https://www.openaccessgovernment.org/why-universities-must-put-their-best-foot-forward-with-digital-infrastructure/95817/
[92] https://www.openaccessgovernment.org/why-universities-must-put-their-best-foot-forward-with-digital-infrastructure/95817/
[93] https://blogs.vmware.com/emea/en/2020/04/empowering-business-continuity-and-online-education-at-wsb-university-in-wroclaw-with-vmware-horizon/
[94] i.e. University of Windsor in Canada https://www.uwindsor.ca/dailynews/2020-10-07/underwater-robots-help-great-lakes-scientists-collect-data-during-pandemic
[95] i.e. The University of British Columbia UBC Survey Tool https://it.ubc.ca/services/teaching-learning-tools/survey-tool
[96] https://www.gov.scot/publications/coronavirus-covid-19-guidance-for-laboratories-and-research-facilities/
[97] https://techmonitor.ai/boardroom/innovation/how-universities-responding-covid-19

The social and economic fallout of the crisis will become more and more visible in the months and years to come and will likely result in some short-sighted, reactionary decisions. Protecting a sector which is crucial not only for social cohesion and regional development but also for competitiveness and innovation as well as the productive and sustainable growth of societies is the task at hand. This issue can only be addressed in a collaborative way, through cooperation among individuals, institutions, and countries. In this, as in so many other ways, the COVID-19 pandemic might expose the challenges and potential solutions to the problems we will see in the future.