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Egyptian Higher Education Report

UNESCO National Commission in alliance with the Ministry of Higher Education and Scientific Research, Egypt

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Abstract

Around the world, government leaders have taken significant measures to deal with the global effects of crises. In response to such situations as COVID-19, UNESCO monitors education responses at the national and local levels. This white paper aims to facilitate policy discussions and experience sharing by collecting and analysing data. This white paper seeks to solve the question: How do universities plan for the future with rapid global changes and challenges? This manuscript describes upskilling and technology systems that would be recommended to be put into place to ensure envision the universities of the future. As university/academic institutions transition to a world where digital transformation is a norm, the central aspect of the plan provides policies to support the change. Take-away notes provide 'policy pillars for Egyptian Higher Education and Scientific Research' explaining the procedures to overcome adversity until academic institutions are back to normal. By employing comprehensive and inter-sectoral approaches to addressing current and future needs, this white paper provides an opportunity to rethink the overall purpose, role, content, and delivery of education over the long run. Egyptian higher education institutions are being tested on their ability to adapt to change. These problems shape Egypt's 2030 HE system. It is critical for the Ministry of Higher Education and Scientific Research (MoHESR) to initiate a complete and integrated vision of Egyptian higher education and educational and research institutions to establish worldwide connections in this sector and ensure a robust Egyptian economy. In light of rising international standards, this decision was made to put Egyptian educational and research institutions on a par with their global counterparts in a bid to attract more international students and researchers.

Content

Acronyms

COBIT	Controlled Objectives for Business and Information Technology
COVID-19	coronavirus disease of 2019.
DX	Digital Transformation
EKSC	Electronic and Knowledge Services Center
EfS	Education for Sustainability
ICT	information and communications technology
ITIDA	Information Technology Industry Development Agency
MIS	Management Information Systems
MoHESR	Ministry of Higher Education & Scientific Research
SCU	Supreme Council of Universities
SECC	Software Engineering Competence Center
SURA	Smart University Reference Architecture
TOGAF	The Open Group Architecture Framework
UNESCO	The United Nations Educational, Scientific and Cultural Organization

Presentation

Several social, political, economic, and technological trends test the sector's and the institutions' adaptive capacities. These challenges have brought the vision toward Egypt's Higher Education (HE) system by 2030.

It has become urgent for the Ministry of Higher Education and Scientific Research (MoHESR) to launch a comprehensive and integrated vision of the higher-education process and Egypt's educational and research institutions to promote global ties in this sector and foster a vibrant Egyptian economy. This decision was made in the context of rising international education standards and the aim of putting the Egyptian educational and research institutions in the ranks of their global counterparts to further attract international students and researchers from all over the world with an accurate and precise added value on the educational process and international competitiveness of the Egyptian education worldwide.

This white paper is organized into three parts. First, we present the current higher education landscape, the main challenges, and seven recommendations for long-term and medium-term actions for Egyptian higher education.

Current situation of higher education

Historical enrolment and graduation rates

The rate of students enrolment in higher education has been raining in the last three years. The enrolment rate in 2020 was 34%. Figure 1 shows the curve of enrolment in the previous decade (2012-2022). We have an institutional framework of higher education that ensures students' enrolment in higher education that all Egyptians have the right to join governmental universities if they can achieve an academic score in high school.

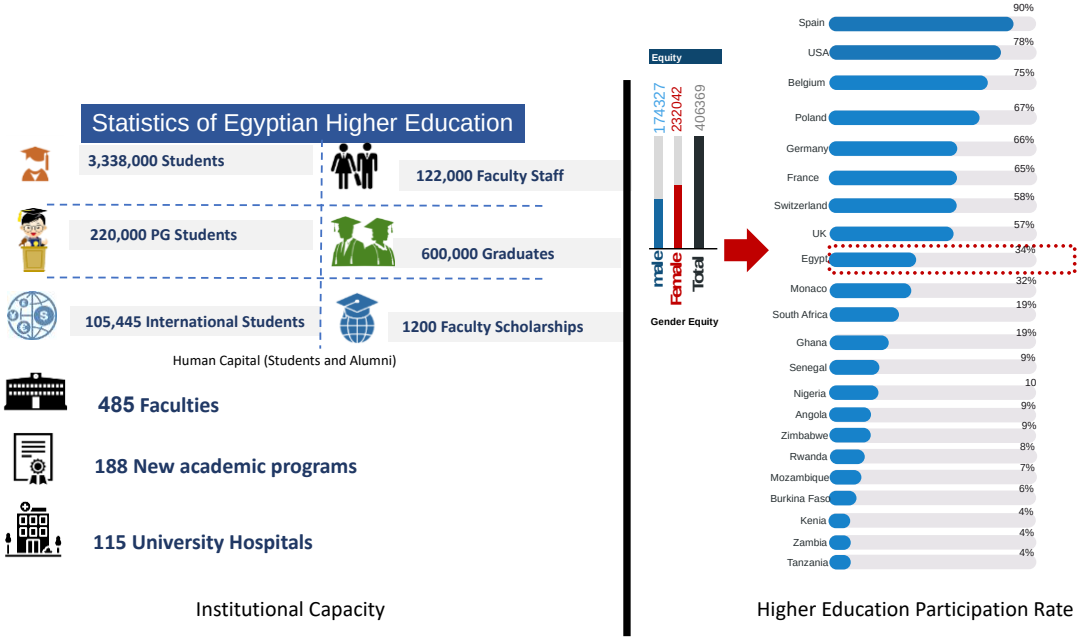
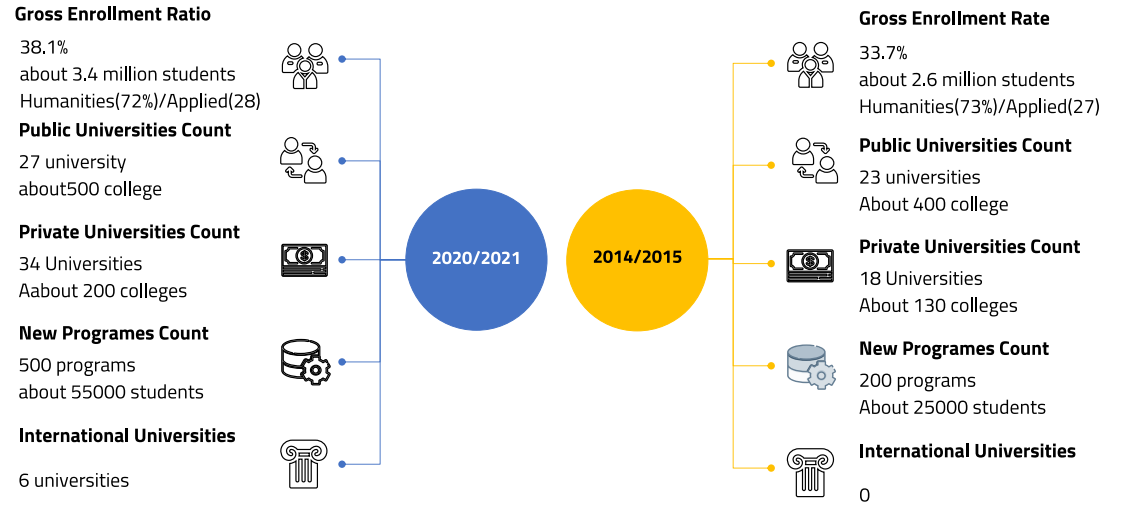


Figure 1 Statical landscape of Egyptian education in the academic year 2021-2022

Quantity and types of higher education institutions

Universities and higher education institutions are distributed in Egypt territories (Figure 1). The types of instruction in higher education systems are varied and range from governmental universities to private, public, and international universities. In the last few years, MoHESR was adapted to extend the branches of governmental institutions. In 2022, Egypt will have 27

governmental universities, 32 private universities, three technical universities, six international branch universities and nine public universities. The following tables show the distributions of these instructions.



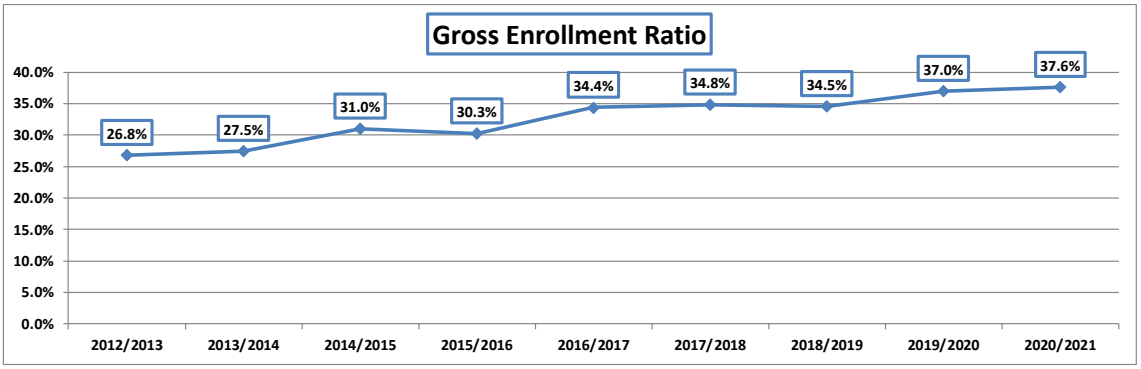


Figure 2. The rise of the higher education landscape from 2015 till 2021 (top) and gross enrolment rate during the last 10 years (down)

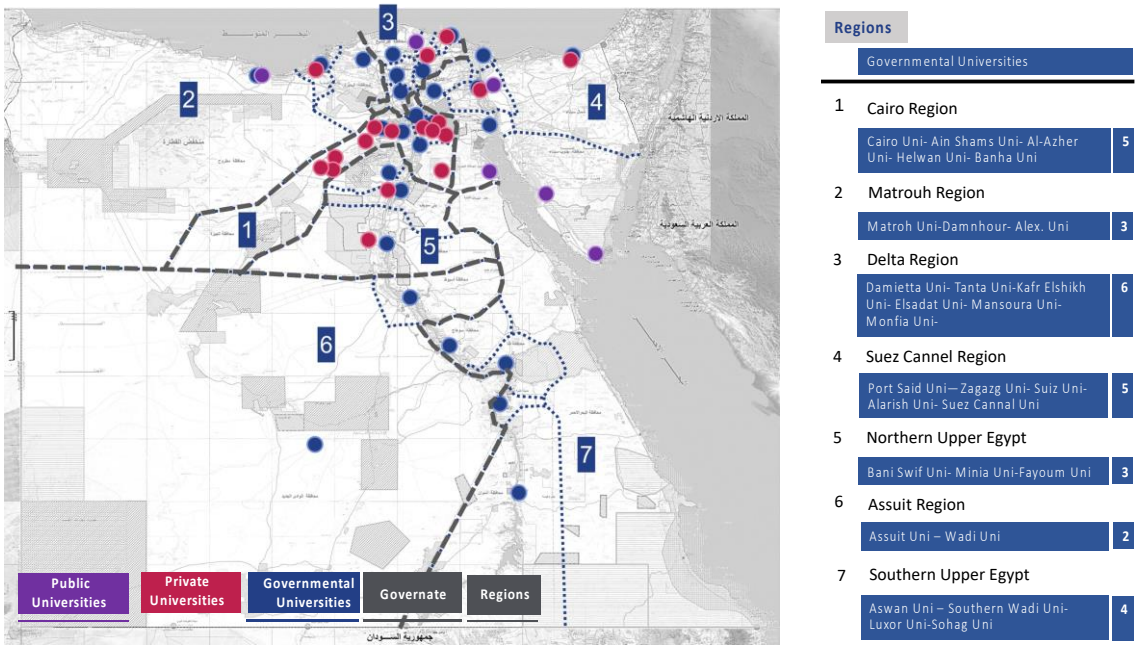


Figure 3. Distribution of universities across Egyptian territories

The legal and institutional framework of higher education

Under the policy of providing education for all, students who could achieve admission to the governmental universities in the region can submit the document of enrolment to various opportunities offered to them, such as private and international branch universities. We also conducted a law (162 of 2018) that controlled the establishment and organization of international branch campuses.

Any development plans that took place in the ministry is to cope with the ministry's vision is based on three main axes:

- First Axes: The Sustainable Development Strategy (Egypt's Vision 2030)1
- Second Axes: Universities' transformation towards Fourth Generation Universities
- Third Axes: The Relation between the Higher Education and Scientific Research and Egypt's overall Development Plan

Current challenges in higher education: post-COVID-19 Pandemic in Higher Education

Recent years have seen the Coronavirus (COVID-19) pandemic affect all aspects of our lives and affect other sectors such as agriculture, manufacturing, construction, tourism, and education (Abusaada & Elshater, 2020). The pandemic has forced many sectors to adjust and adopt new business norms quickly, and the higher education sector has demonstrated flexibility and creativity in navigating this crisis. Students and faculty in higher education live in unprecedented times where many higher education institutions are being confronted by the need to move to online teaching and education immediately due to the pandemic. Figure 4 shows the general response to distance learning and these actions.

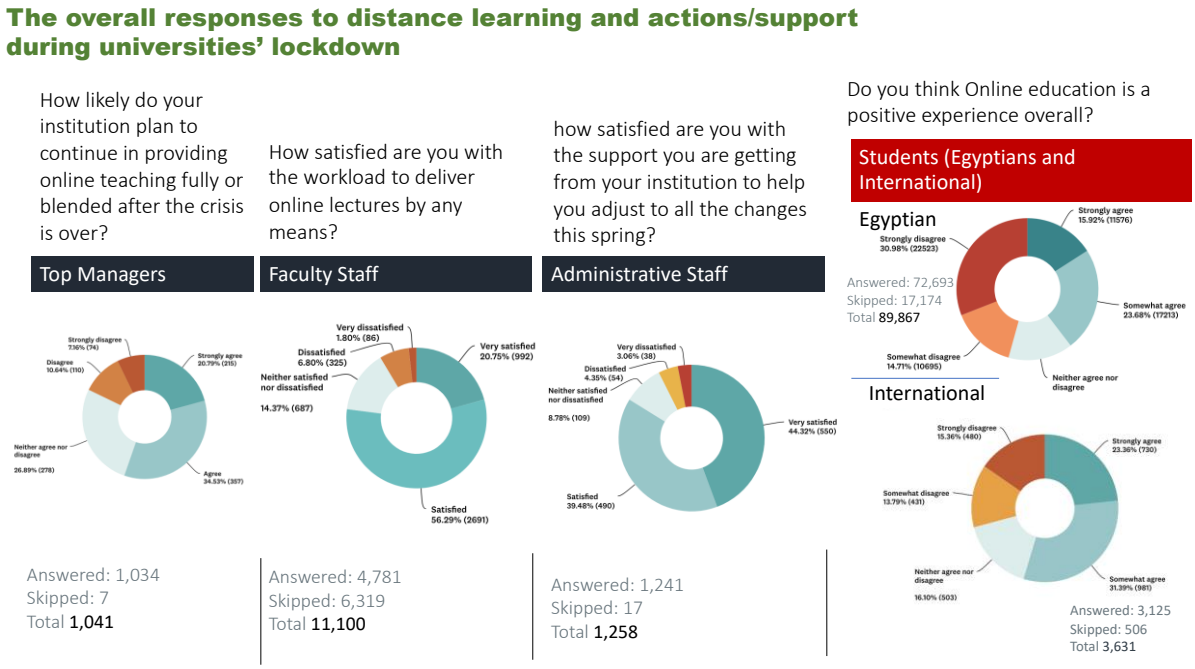


Figure 4. the central aspects of the online survey powered in April 2020.

[1] Egypt Sustainable Development Strategy (SDS): Egypt Vision 2030. Accessed Online: 29.03.2022. Link: https://arabdevelopmentportal.com/sites/default/files/publication/sds_egypt_vision_2030.pdf

Countries worldwide have taken strong measures to respond to the effects of this crisis. UNESCO has been monitoring education responses to COVID-19 globally. The organization has collected and analysed data, facilitated policy dialogue, and shared experiences.

Building on results of a survey powered by the Egyptian Ministry of Higher Education and Scientific Research conducted in March 2020. The results confirmed some challenges that need action for development and positive points for future enforcement. Going across the four stakeholders' surveys, there is a line of commonality between them. This commonality here is the level of satisfaction towards online learning and action during Egyptian university's lockdown.

Challenge 1. Spreading Online Learning Culture and Developing Online Courses

Online education has provided an important venue for students to continue their education in this challenging time. However, the scale and speed of this mass migration and the expected long and persistent shift toward online programmes highlights the need to ensure that online students receive an education of value (Hüther & Krücken, 2018; Legon & Garrett, 2017).

This shift to online education has accelerated the application of new forms of pedagogy and gave birth to a tremendous number of initiatives from individual academics and institutions. However, much of online education remainemains basic form, merely replicating the traditional conditions of learning on-campus. There has been no time to rethink and develop the pedagogy or work with professional instructional designers on enriching teaching material for online delivery and no time to train lecturers on how to deliver online. Some institutions were already working on new online or blended delivery approaches, but many others were caught by surprise. In 2018 the Observatory on Borderless Education reported that online education accounted for only 15% of a sample educational market share (Melnyk & Kontowski, 2020).

Challenge 2: Harnessing Communication Systems and Information Technology

The Egyptian higher education sector before the COVID-19 pandemic can be roughly divided into two phases based on its key business objectives and the magnitude of the ICT role (Jouany, 2020). The first phase (Phase I) was between 2005 and 2015, and the second phase (Phase II) started in 2015 and continues till 2020. Phase I focused on improving the effectiveness and efficiency of the Higher Education system processes and functions by utilizing ICT via an automation process and business development (Papyrus, 2020; Macias, Hilyard, & Freimuth, 2009; Sturges, 1994)... The major challenging work themes for this phase were as follows:

- Management Information Systems (MIS): the development and localization of automation systems for all administrative and educational staff, Including The Human Resources management, Academic and Public Cadres, Finance, Exam Control systems, Monitoring and Announcement of results, and Automation of Academic Regulations and Expenses (Zhang, Huang, Boni Su, & Zhang, 2014).
- E-learning: tackling the production and publication of e-courses to be used in the teaching process by various colleges across all universities.
- Digital libraries: covering the electronic archiving of all the work related to the contributions of students, faculty, and the assisting staff. This included electronic archiving scientific theses, research papers, and technical reports.

Challenge 3: Qualify Egyptian Universities to become smart universities

The Supreme Council of Universities (SCU) and the Information Technology Industry Development Authority (ITIDA) signed a protocol to evaluate the current maturity level of Egyptian university capabilities to transform Egyptian universities to become smart universities digitally. The aim of this protocol is threefold. The first is to evaluate the capabilities of all public universities to digitally transform Egyptian universities into smart universities using Smart University Reference Architecture (SURA), which was issued by the Software Engineering Competence Center (SECC) at the Information Technology Industry Development Agency (ITIDA). The second aim tries to analyze the gap between the current situation of public universities and their requirements, as well as their needs, to digitally transform into smart universities. The third aim is to train work teams from public universities and EKSC at the SCU.
Moreover, the protocol would be activated from July to September to start training work teams from public universities and EKSC at the SCU, to build qualified teams able to transform the public universities to smart universities. Accordingly, universities were asked to nominate two faculty members for training on the TOGAF fundamentals course to structure the institutional infrastructure and its business, applications, data, and technologies and the COBIT Essentials Course for IT Governance.

Towards 2030 and beyond

The Ministry of Higher Education and Scientific Research (MoHESR) in Egypt has taken severe actions to respond to the effects of the pandemic on the continuation of the education process despite the closure of the higher education institutions.

In response to the challenges, MoHESR designed seven principles that are the roadmap for advancing the higher-education system and the educational institutions specifically, namely (Integration, Interdisciplinarity, Connectivity, Effective Participation, Sustainability, International Reference, and Entrepreneurship & innovation). These seven priority pillars hugely support transforming educational institutions into open spaces for innovation, attracting calibres, and building a solid ecosystem that makes educational institutions well-established and well-stable. They also shall help in restructuring educational institutions and their affiliates from an administrative point of view to ensure consistency with the innovations of the education system, sustainable development, and preservation of gains.

First principle: Integration

The first pillar refers to the actual integration of the education and production systems elements rather than their individualistic approach. This is in addition to the geographical distribution of economic activity. All educational institutions in a region should form a consortium to coordinate their work and interests.

The integration can happen on two levels: first, by integrating the consortium of educational institutions with the geographical regions to serve each area and fill the gaps, or second, by combining the consortium with the economic institutions and production institutions to identify the educational needs of each economic activity and to use the outputs of the educational institutions to achieve the purposes of the financial institutions and as a result, to increase productivity.

Integration helps regional consortiums of educational institutions and state agencies achieve their missions more effectively and unify their efforts. Consensus about an institution's priorities moves the whole community in the same direction.

Second principle: Interdisciplinarity

The concept of interdisciplinarity arises to solve the “Intra disciplinary” approach, where the society's complex problems and labour market need Interdisciplinary, Multidisciplinary, and Trans-disciplinary curricula to help eliminate and complement deficiencies, expand students' current knowledge, and stimulate their cognitive activity. These approaches are pedagogical categories for defining the compositional and integrative relationships between objects, phenomena, and processes of reality, which are reflected in the content, forms and methods of the education process and the performance of educational, developmental and upbringing functions.

Third Principle: Connectivity

Communication between the higher education system elements is one of the pillars of Egyptian universities in 2030. It occurs at several levels, internally within the community and externally across boundaries. They both build ground of cooperation, facilitate accessibility, support knowledge transfer, and generate an innovation climate. Internal connectivity means the national connections among universities-industry and government, such as physical contact, regional and virtual contact, while external contact means the activities of the international network. It could be the international cooperation concepts within the university’s communities.

Fourth principle: Effective participation

the entire community. Participation can also entail short exchanges between those involved in the higher-education process or those responsible for the education system. Government commitment, civil virtues, businesses, and supportive educational institutions all need to work together to make participation effective. Efficacy refers to how universities are formally organized and administered. How universities are run and their economic impact. Also, it relates to the academic and investment regulations governing universities.

Higher education aims to advance knowledge and communicate this knowledge according to accepted standards of academic ethics and integrity. Universities engage in dialogue with society and communities, participate in public debates, address significant societal challenges, and promote a conducive learning environment. The economic component of higher-education institutions is closely tied to academic purposes. These institutions focus on local and foreign investments in education. Involvement of educational institutions consortiums in the regions throughout the economic sectors could come up with the creation of potential acquisitions and development of the on-ground projects. More investments are needed in research, education, and innovation to meet the challenges of the new decade and contribute to Egypt's ability to access and develop new knowledge and key technologies.

Fifth principle: Sustainability

By maximizing the utility of "Resources" with minimal waste, we can provide education for life through university, workspaces, and daily transactions. The Education for Sustainability (EfS) approach aims to empower students, universities, and communities to act for sustainability - in their personal lives, communities, and global scale. University as a community of lifelong learning, innovation and productivity is the methodology of sustainability in higher education.

By converting higher-education resources and linking them to sustainable production and consumption, education for sustainability can challenge unsustainable practice such as excessive resource use. For instance, systems thinking is often mentioned as one of the skills necessary to

better understand the meaning of sustainability. This is because sustainability integrates three equally dimensions: environmental, social, and economic.

Sixth principle: International referencing

With the growth of institutional partnerships and student mobility across borders, we are seeking the same quality of higher education nationally and internationally. Despite longstanding country-based quality assurance efforts, we strive for international competitiveness by which quality should be measured in the future primarily based on valued cultures and national sovereignty.
Our higher education system needs to meet the "International Quality Standards" in higher education by obtaining advanced international rankings for higher education institutions, receiving international accreditation, and transferring international expertise. To raise the Egyptian universities' global ranking (The World University Ranking, 2020). MoHESR promoted transdisciplinary programs as the main disciplines for Egyptian universities, a new international registration system, and a new national registration system. Collaborative and international research also contributes to the ranking of Egyptian universities worldwide. Involving universities in industry measures how often universities help industry players with innovations, inventions, and consultancy, which is taken into consideration while ranking. In addition, the international partnership is linked with the quality and efficiency of higher education and degree recognition abroad.

Seventh principle: Innovation and entrepreneurship

We planned that the concept of innovation and entrepreneurship can be achieved through the triangular connection between Education, Business and Research (concepts of 4th generation universities) as follows:

- New methods of linking academic, business and research
- New fields for teaching focused on innovation, creativity, and entrepreneurship
- Creating new fields to close the circle for students and ensuring the transfer of knowledge from the business side to the academic side.

This principle can impact students and graduates by providing technology workshops at the university's campus, contracting with guest lecturers. Faculties and researchers can also benefit from conducting conferences and webinars to identify the global trends of innovation and entrepreneurship worldwide, providing technology workshops, supporting competition between researchers in the research field, publications, and patents, and finding methods to apply the outcome of research in innovation and entrepreneurship on the industrial and production institutions.

Recommendations for the future

The following include recommendations as steps for achieving the vision:

Recommendation 1: Deriving policies for online education

There is no doubt that the current policies and regulations were initially designed to support the classical delivery method of education, this applies for both undergraduate and for postgraduate degrees. Face to face education has been the prominent method for delivering education; this was proven by the high rates of mobility of international students. Learning necessitates that student would travel to these countries to get quality education from highly ranked universities.

On the one hand, students travel to these countries for immigration purposes, especially those who travel for their postgraduate studies. On the other hand, we've seen the evolution of universities to provide online education, either through their own platforms or in collaboration with other platforms like Coursera, EdeX, among others. These platforms have been successful in providing a lifelong learning education for students who are keen to excel in specific specialities. Few universities have also provided graduates with online certificates, diplomas, and master's degrees. For undergraduate education though, Face to Face is still the prominent method of delivery.

Recommendation 2: Redesigning learning, teaching and assessment techniques

Recently, students' needed for online education options are likely to grow worldwide due to the COVID-19 pandemic situation. Even before the pandemic, many universities were seeing declines in enrolment for campus-based programmes and a parallel increase in the uptake of their online courses. With COVID-19 happening, academia community is seeing how yesterday's disruptors can become today's lifeguards. While traditional institutions thought of online education as a threat, it has now become their lifeline, offering a solution for their challenges during this crisis.
The on-campus, face-to-face experience is particularly important for vulnerable students who have often had fewer opportunities for interaction in areas such as that offered by a university campus. It allows them to strengthen their social skills. If the university lockdown is prolonged, universities will lag other students. It is difficult to foresee what impact the change in students' medium and long-term learning modality.
As a quick response to the COVID-19 pandemic situation, MoHESR has embarked on several initiatives to respond quickly to the pandemic and to reflect on the reform of the Higher Education system & institutions. These initiatives can be summarised in the following:

- Expanding the implementation of the electronic exams system for all branches of the health sector, including Medicine, Dentistry, Nursing, etc.
- Developing a Unified Platform for Educational content and Online access
- Innovative educational content initiative

Recommendation 3: Redefining research agenda and directions

The global awareness of the threat of a new pandemic has become widely acknowledged. Research funding-bodies around the world are now mobilizing their resources in the fight against the new coronavirus. MoHESR continuously fosters research efforts in different areas of specializations. New grant announcements and changed terms for ongoing funding related to the coronavirus have been placed in several institutions worldwide. The focus is on research that can reduce the spread and the effects of the continuing COVID-19 pandemic, and research aimed at preventing future pandemics. The study can be related to medical devices, treatment methods, medicines, vaccines, diagnostics, transmission, or pathogenesis for COVID-19. Other areas of which research is investigating, are the effects of the pandemic on issues like agriculture business affairs and education, which are also available by the Science, Technology, and Innovation Funding Authority (STDF).
MoHESR has set seven actions to be taken within this policy pillar. The policy timeframe covers short-term, intermediate, and long-term achievements.

- Orient scientific research to examine the impact of COVID-19 on education, health, and wellbeing
- Supporting Egyptian researchers during and after COVID-19 pandemic
- Open funding calls focusing on the pandemic and covering related disciplines

- Develop a unified platform from different donors and develop a database of approved calls
- Get the befit from artificial intelligence tools to assist in ranking global research
- Develop connectivity between Egyptian researchers locally and abroad
- Avail online Egyptian masters and doctoral dissertations

Recommendation 4: Empowering universities' human capital

The role of human capital in the development and implementation of all education strategies, be it before, during, or after the pandemic. This pillar looks into the key policies and actions concerned with empowering human capital at both the academic and the professional levels. This includes the following four key objectives:

- The development of the support and IT staff capabilities needed to implement future education strategies.
- The upskilling of the academic staff to be able to adapt new IT technologies and solutions in research and teaching.
- Upgrading the academic staff's skills to able to achieve high-quality, and world-class education through providing them with well-known scientific missions for various degree and non-degree studies abroad.

The main suggested policies and actions to support the above four key objectives are summarised in the following recommended actions.

- Issue legislations for developing and integrating a formal IT division in universities
- Build IT staff capabilities & capacities for digital transformation roadmap
- Uplift faculty's technology capability in adopting/adapting technologies for online teaching/research/management
- Develop students' technical capabilities & skills related to ethics, research, and self-learning

Recommendation 5: Accelerating digital transformation

This recommendation focuses on the various policies and actions needed to accelerate the digital transformation (DX) strategy adoption in universities, as one way to deal with the current and post-COVID-19 situation. In particular, this pillar focuses on issues related to understanding whether our universities are ready for DX, and ways to approach the DX journey, in a systemic and standardized way given the challenges posed by the COVID-19 pandemic. The following items summarises seven key policy and action items needed to realize this pillar. The following explains each of these policy and action items in detail.

- Develop DX strategies for universities and ongoing efforts
- Assess digital transformation maturity and readiness using best practice frameworks
- Develop DX Enterprise Architecture
- Develop IT service portfolio or catalogue based on the new business requirements emerged due to the current pandemic situation
- Define and develop digital operation models to identify practices, capabilities, processes, and procedures that support the DX operation
- Develop DX governance framework

Recommendation 6: Ensuring social distancing readiness in university campuses

Despite all concerns regarding reopening campuses, and life returning to normal, MoHESR would work on ensuring the safety of all entities affiliated to Egyptian universities. In this context, the policy pillar presented in this section recommends developing a "physical distancing" plan for each course, and the implementation of a hybrid instruction mode to be applicable for each course. Ensuring social and physical distancing within universities campuses requires tackling six main items. The first three items are to be applied in the short term, while the rest are more medium & long term action items that would need more time to achieve. The following recommendations include:

- Allocate signs with instructions ensuring social distancing
- Ensure personal protective equipment
- Make sure on-campus places are clean and hygienic and operate regular sanitization
- Ensure cross-ventilation and operate post-occupancy evaluation for central air conditioning
- Operate small classrooms and lockdown bigger ones
- Redesign facilities and amenities configurations

Recommendation 7: Developing and managing communication tactic strategies during crisis

Communication is important for any institution's success, and it is especially crucial in times of adversity or crisis. Today, when dealing with the Coronavirus adversity, our thought process is being directed towards considering other dimensions of emotions and how to communicate effectively with the universities' Human Capital Every organization is vulnerable to crises, the challenge in this case, is more pressing, because it is engulfed with the fear that the virus could spread among students, faculty, and members of the entities affiliated to universities. One of the HEIs' concerns is their ability to provide a robust platform for communication between all parties involved. MoHESR has strategic tactic action plans that cover objectives related to having contingency scenarios and being responsibly transparent.
Generally speaking, in order to disseminate and information, there are two main media platforms: social, and traditional media platforms. Developing communication tools will be limited to short term actions (tactic policy) Within this policy pillar, it is believed that subsequent seven actions, shown in Figure x below, might help in leading out of this adversity.

Works Cited

Abusaada, H., & Elshater, A. (2020). COVID-19 Challenge, Information Technologies, and Smart Cities: Considerations for Well-Being. *Int. Journal of Com. WB, 3*, 417–424.

Hüther, O., & Krücken, G. (2018). *Higher Education in Germany—Recent Developments in an International Perspective.* Cham: Springer.

Jouany, V. (2020, April 2). *Crisis Communication — How to Communicate Effectively with Your Employees.* Retrieved May, 2020 from Samarp: https://blog.smarp.com/crisis-communication-how-to-communicate-with-employees-during-a-crisis

Legon, R., & Garrett, R. (2017). *The Changing Landscape of Online Education (Chloe).* Quality Matters & Eduventures Survey of Chief Online Officers, 2017.

Macias, W., Hilyard, K., & Freimuth, V. (2009). Blog Functions as Risk and Crisis Communication During Hurricane Katrina. *Journal of Computer-Mediated Communication, 15*(1), 1–31.

McCallum, D. B., & Santos, S. L. (1997). Comparative risk analysis for priority settin. *Human and Ecological Risk Assessment: An International Journal, 3*(6), 1215-1234.

Melnyk, D., & Kontowski, D. (2020). *Experimentation in higher education must become the norm*. From https://www.universityworldnews.com/page.php?page=UW_Main

Papyrus. (2020, April 20). *Lockdown: mental heath advice*. From The Uinguide: https://www.theuniguide.co.uk/advice/student-life/advice-on-coping-with-lockdown

Starbird, K., Dailey, D., Walker, A. H., Leschine, T. M., Pavia, R., & Bostrom, A. (2015). Social Media, Public Participation, and the 2010 BP Deepwater Horizon Oil Spill. *Human and Ecological Risk Assessment: An International Journal, 21*(3), 605-630.

Sturges, D. L. (1994). Communicating through Crisis: A Strategy for Organizational Survival. *Management Communication Quarterly, 7*(3), 297–316.

The World University Ranking. (2020). *How universities are adapting their admissions in response to Covid-19*. From Keystone Academic Solutions: https://www.timeshighereducation.com/hub/keystone-academic-solutions/p/how-universities-are-adapting-their-admissions-response-covid-19

Zhang, N., Huang, H., Boni Su, J. Z., & Zhang, B. (2014). Information Dissemination Analysis of Different Media towards the Application for Disaster Pre-Warning. *PLoS ONE, 9*, 1-12.