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# A Study on Challenges before Higher Education in the Emerging Fourth Industrial Revolution

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**ABSTRACT :** *In this era of fourth industrial révolution there is a necessity for shaping the future génération according to the future technological developments. Traditional education has contributed greatly to the current levels of industrial evolution and technological advancement. In order for higher education to deliver future generations with the right set of skills and knowledge; an imperative question has to be asked regarding how higher education institutes will get affected by the Fourth Industrial Revolution and how the reach of education will be transformed. There are different opportunities available that will shape the role which can be undertaken by higher education in the Fourth Industrial Revolution. The power of regular education with the increasing trend of MOOC courses represents necessary steps to improve quality education. On the other hand, “Global Identity” and “Education for You” embody aspects, if globally embraced that would transform global higher education. Let's explore these in more detail.*

**KEY WORDS:** *Future Technology, Higher Education, Emerging Changes, Industrial Revolution*

## I. Introduction

The Fourth Industrial revolution wants people with extraordinary knowledge and creative ideas. In the same way, the future of education emphasizes in the need to look a head of utilizing the internet sources to prepare the workforce for the challenging environment.

## II. Objective of the study

- ) To understand the challenges faced before higher education in the fourth industrial revolution.
- ) To identify the future technological developments.

## III. Research Methodology

Exploratory type of research methodology is used for analyzing the data. Data will be collected from different sources such as books, journals to understand the Life insurance industry. In this paper, we have referred previous research articles. Apart from this, we have visited different websites and professional magazines.

### 3.1 Traditional Education and MOOC Courses

In today's scenario, all graduates face a massive world transformed by technology, in which the Internet, cloud computing, and social media create different opportunities and challenges for formal education systems. As students consider life after graduation, universities are facing questions about their own destiny especially employment. These kinds of technologies powered by artificial intelligence are so much transforming the world that social concepts such as “post-work” are more and more defining the present period. This period requires certain skills that are not exactly the same as the skills that were required in the third industrial revolution where information technology was the key driver. These skills are critical thinking, people management, emotional intelligence, judgment, negotiation, cognitive flexibility, as well as knowledge

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production and management. Our starting point is to investigate the three current mega trends as well as their consequences.

### **3.2 Changing Trends**

There is always an argument with in ourselves that one insightful lens of today's life is completely lied on intelligent technology that is powered by artificial intelligence. Fast changes in physical (e.g., intelligent robots, autonomous drones, driverless cars, 3D printing and smart sensors), digital (e.g., the internet of things, services, data and even people) and biological (e.g., individual genetic make-up and bio-printing) technologies, and generally in the way we work, we learn, and we live, make it a crucial force for economic competitiveness and social development.

### **3.3 Education for You**

To thrive in the future and to survive very important part is data analysis and automation. Higher Education institutions are embracing data mining in order to gain better understanding of student performance and deliver "Education for you" that is tailored to meet the demand of the job markets while considering the students' needs. "Education related to the Third Industrial Revolution" is necessary for the students to adapt to the information age, for having a great focus on the quality of education that they receive. Education at present scenario is highly becoming "just in time"; it is more about what you must know for a small time period than compiling knowledge that may never be needed. Statistical data related to student performance, behavior, development, and interaction inside classrooms and on the online platforms of MOOCs as well as data from smart campus would create diverse and fast-changing data. The effectiveness of higher education institutions to integrate this information into smart data would result in intelligent decisions in regards to the delivery of customized education and personalized learning experience for students.

### **3.4 Stepping Up to the Fourth Industrial Revolution**

The major ways of managing the risks and challenges presented in the emergence of the Fourth Industrial Revolution (4IR) was the vital theme of the 2016 World Economic Forum (WEF) that took place a year ago in Davos, Switzerland. The theme persisted during this year's forum. And mitigating the risks of 4IR is a higher challenge in the recently published Global Risks Report.

In the past year, Klaus Schwab, WEF founder and executive chair, positions the 4IR within the historical context of three previous industrial revolutions, the first driven by steam and water power, the second by steel, oil, electricity and mass production and the third by the dawn of the digital age.

The 4IR builds on our ongoing digital revolution. Schwab has written in his book that, "Nothing less than a transformation of humankind". "We are at the beginning of a revolution that is fundamentally changing the way we live, work, and relate to one another."

To understand the 4IR risk landscape in a better way, the WEF conducted a Global Risk Perception Survey (GRPS), in which it asked respondents to assess both the positive benefits and negative risks of 12 emerging technologies. Artificial intelligence and robotics stood out, getting the highest risk scores, as well as some of the highest positive benefits scores.

### **3.5 The challenges ahead**

Bringing changes in higher education is very essential than before. Similarly, the challenges ahead must be considered in order to ensure effective, efficient and immediate transformation. With the minimum public financial support for higher education; universities need to decide strategically regarding methods to utilize their experience in credentials, trust and identity to offer new services. Henceforth, higher education leadership needs to be less risk averse especially in this world of disruptive change. There is no longer an option to keep doing things the traditional old way; innovation and accepting change are now prerequisite for survival.

According to a study by McKinsey & Company, inequality would still be a concern for digital higher education since more than 4 billion people are still offline without access to the internet. Most of those people

are at the marginal income families who live in developing countries with no access to an affordable education. Although digital higher education can be more affordable compared to other education options, higher education institutions need to consider the best ways to reaching underserved populations where education can serve as a strong empowerment and change tool.

#### IV. Conclusion

Security and risk are the main challenges for higher education. Integration & aligning security process are key words for scaling higher education efforts and bringing sustainability. It's time to ask whether the global higher education community will only react to how the business world is shaping the Fourth Industrial Revolution or if it will be with the main players of shaping the Fourth Industrial revolution! Further, the annual meeting of the World Economic Forum, 2016 is the place to investigate and explore further the previously mentioned question and challenges.

#### Reference:

1. Bo Xing and Tshilidzi Marwala, "Implications of the Fourth Industrial Age on Higher Education".
2. B. Xing, "Massive online open course assisted mechatronics learning a hybrid approach," in *Furthering Higher Education Possibilities through Massive Open Online Courses*, Chapter 12, pp. 245-268, A. Mesquita and P. Peres, Eds., 701 E. Chocolate Avenue, Hershey PA, USA 17033: IGI Global, ISBN 978-1-4666-8279-5, 2015.
3. T. Marwala, *Economic modeling using artificial intelligence methods*. Springer London Heidelberg New York Dordrecht: Springer-Verlag London, ISBN 978-1-4471-5009-1, 2013
4. T. Marwala, *Artificial intelligence techniques for rational decision making*. Springer Cham Heidelberg New York Dordrecht London: Springer International Publishing Switzerland, ISBN 978-3-319-11423-1, 2014.
5. T. Marwala, *Causality, correlation and artificial intelligence for rational decision making*. 5 Toh Tuck Link, Singapore 596224: World Scientific Publishing Co. Pte. Ltd, ISBN 978-9-81463-086-3, 2015.
6. B. Xing and W.-J. Gao, *Innovative computational intelligence: a rough guide to 134 clever algorithms*. Cham Heidelberg New York Dordrecht London: Springer International Publishing Switzerland, ISBN 978-3-319-03403-4, 2014.
7. B. Xing, "Visible light based throughput downlink connectivity for the cognitive radio networks," in *Spectrum Access and Management for Cognitive Radio Networks*, Chapter 8, pp. 211-232, M. A. Matin, Ed., ed Singapore: Springer Science+Business Media, ISBN 978-981-10-2253-1, 2017.
8. T. Marwala, *Computational intelligence for modelling complex systems*. Research India Publications, Delhi, ISBN 978-81-904362-1-2, 2007.
9. T Marwala, U Mahola, and F.V. Nelwamondo, "Hidden Markov models and Gaussian mixture models for bearing fault detection using fractals, In the Proceedings of the International Joint Conference on Neural Networks, BC, Canada, pp. 5876-5881, 2006.
10. <https://www.weforum.org/agenda/2016/01/what-role-will-education-play-in-the-fourth-industrial-revolution/>
11. <https://arxiv.org/ftp/arxiv/papers/1703/1703.09643.pdf>
12. <http://www.brinknews.com/stepping-up-to-the-challenges-of-the-fourth-industrial-revolution/>
13. <https://www.timeshighereducation.com/blog/jacques-biot-we-must-prepare-our-students-fourth-industrial-revolution#survey-answer>
14. <https://www.univcan.ca/media-room/media-releases/attracting-cultivating-talent-fourth-industrial-revolution/>
15. <https://www.forbes.com/sites/jacobmorgan/2016/04/11/skills-education-succeed-fourth-industrial-revolution/#6d87432d2d0a>