Designing a Master Program to Cope with the New and Next Normal (VUCA World, Industry 4.0, and Covid 19): a case study

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Abstract—**It is not surprisingly that the combination of VUCA World and fast development of Industry 4.0 will become the era of new normal for any organization including but not limited to industries. This new normal will become either Threats and or Opportunities for any organization. Whatever it is, organizations should prepare themselves to face this era of new normal, especially to cope with (the unpredictable) uncertainties, such as the pandemic of Covid 19 and maybe other to come, that impact to the existing operation and future opportunities. At the end the uncertainties directly or indirectly will impact to the sustainability of the business. Therefore, this paper presents a strategic initiative, in term collaboration, between academic and professional to design a master program that cope with this new normal.**

This paper elaborates the concept of developing skills, upskilling and or reskilling, required to be able to handle uncertainties and complexities in the era of new normal. The concept is simply combining strengths of professional and academic and internalized in a tailored master education program. The concept then operationalized in a multi discipline master program as a case study in a top-notch private industry in Indonesia.

Keywords—**The Era of New Normal, VUCA World, Industry 4.0, Covid 19, Higher Education, Multi Discipline Master Program (MDMP).**

I. INTRODUCTION

A. The Era of New Normal

TERM of New Normal is now become familiar for many people especially due to the Covid 19 (C19) pandemic even though the meaning may not be similar to everyone. Before C19 pandemic, term of new normal was used in financial crisis, recession etc. to imply the new situation that previously abnormal. This paper defines meaning of the era of new normal as a new era after a crisis has passed. Therefore, the new normal implies new approaches and methods to do things with the same actor. It is because the previous approaches and methods may not be relevant anymore in the new era.

B. VUCA World

1) Industry 4.0

The wave of 4th generation of industry, known as Industry 4.0, driven by impact of rapid development of Artificial Intelligence (AI), Internet of Thing (IoT), Big Data, and so on in which due to the rapid development of IT. The similar wave, due to the existence of IT technology, may impact to higher education that never happened before. We have observed that distance learning method with the assistance of IT technology has been in practiced for some years which allowed people to study in distance and even to take the university degree online. However, in the era of Industry 4.0, (higher) education may somewhat different than before not only in terms of a) method of delivering the education but also b) relevance of the courses.

Consequently, to face the challenges and opportunities, Higher Education Institution (HEI) should, proactively, take necessary steps to align with the rapid development of the technology. More over due to the pandemic of C19 the changes are accelerated because everything we do, including but not limited to education, have to be done in distance/online until no one sure when [1,2].

2) Pandemic Covid 19

Suddenly, countries around the world have applied the Covid 19 protocol, everybody must stay at home due to something than no one predict before. Consequently, people get isolated, companies have reduced the operation to the level that they have never done before. Not surprisingly, business that cannot afford the operation lay the people off and face the possibility to shut down operation. Each country tried to do the recovery procedure according to the best effort they can provide. After 4 months some, very small number, countries have declared to be free from C19 but still applied distancing procedure. Those countries tried their best effort to shorten the recovery time by all means. However, many countries still struggle to do their best to ensure that the curve can turn down and enter to the "New Normal" phase.

This pandemic is an uncertain situation that no one can exactly predict before. It is more likely a typical "non-inventive" problem. A problem that no one has experienced before, so that no exact cure can be done to fix it. On the situation like this, the impact is unpredictable such as the way we do business, the way we interact each other, and the way to do education. Now, all of them must be done "online". Almost all education today done in an "online" mode, there is no choice.

II. LITERATURE

A. Strength of Professional World

The meaning of professional world in this paper can be referred to profit oriented "companies" who done their business professionally. Profit oriented companies normally focus on the business for the sake of profit. In doing so they

built their resources for the targeted business and positioning themselves in the competition. Therefore, in building the competitive resources, companies source the resource they need from many channels and not surprisingly they even built the resources they need by themselves. Companies also do their best to transform from explicit knowledge into meaningful implicit (tacit) knowledge by experience. So, we can conclude that the strength of professional world is on the implicit (tacit) knowledge the have built.

B. Strength of Academic World

Unlike in professional that the objective is to make profit, in education the objective is simply to cultivate (explicit) knowledge. This is, the explicit knowledge, perhaps the strength of education. In doing so academic develop a structured curriculum that enable to fulfil the objective in an effective way. The design of curriculum, among others, is the core to the competitiveness of academic. Not surprisingly for example that for the same study program, different higher education institution has different curriculum. It is reasonable because the objective of the study program in term of graduates is different. The curriculum design is also different for bachelor and master program. As indicate earlier that it depends on the design objectives of graduates as the output of the study program. For example, design of curriculum intended for a research- based education will be different with curriculum for applied based education or entrepreneurial education. Simply because the expectation of the graduates also different i.e. becoming researcher, professional, or entrepreneur. Therefore, it is not wise to make a comparison or without knowing exactly the purpose of designing the curriculum. Even the similar curriculum, will result in different graduates' performance if the input, process (teaching method) is different. So, education is absolutely different with a factory that the output can be set with the same quality with a controlled quality of the input.

1) Bachelor Program

According Constitution of The Republic of Indonesia No. 12 year 2012 regarding Higher Education, the Bachelor program, or undergraduate program, in higher education institution is designed with the objective of:

1. Program sarjana merupakan Pendidikan akademik yang diperuntukkan bagi lulusan pendidikan menengah atau sederajat sehingga mampu mengamalkan Ilmu Pengetahuan dan Teknologi melalui penalaran ilmiah.
2. Program sarjana sebagaimana dimaksud pada ayat (1) menyiapkan Mahasiswa menjadi intelektual dan/atau ilmuwan yang berbudaya, mampu memasuki dan/atau menciptakan lapangan kerja, serta mampu mengembangkan diri menjadi professional

Therefore, the curriculum for bachelor program is designed to meet the above objectives among others are 1) to apply the knowledge through scientific reasoning, 2) become scientist, entrepreneur and or professional.

2) Master Program

According to Constitution of The Republic of Indonesia No. 12 year 2012 regarding Higher Education, the Master program in higher education institution is designed with the objective of:

1. Program magister merupakan pendidikan akademik yang diperuntukkan bagi lulusan program sarjana atau sederajat sehingga mampu mengamalkan dan mengembangkan Ilmu Pengetahuan dan/atau Teknologi melalui penalaran dan penelitian ilmiah.
2. Program magister sebagaimana dimaksud pada ayat (1) mengembangkan Mahasiswa menjadi intelektual, ilmuwan yang berbudaya, mampu memasuki dan/atau menciptakan lapangan kerja serta mengembangkan diri menjadi profesional.

According to regulation of Indonesia Minister of Research Technology and Higher Education (Permenristek Dikti) no. 44 year 2015 regarding National Standard of Higher Education, in article 9 the Master program in higher education institution is designed with the objective of:

"Lulusan program magister, magister terapan, dan spesialis satu paling sedikit menguasai teori dan teori aplikasi bidang pengetahuan tertentu;"

Therefore, the curriculum for master program is designed to meet the above objectives among others are 1) to apply the knowledge through scientific reasoning and scientific research, 2) become scientist, entrepreneur and or professional.

III.   METHODOLOGY

This paper is developed based on writer subjective extensive educational experience as well as using an action research based. The case study has been applied in several the top-notch companies and organization in Indonesia since 2015 up to now.

IV.   DISCUSSION

Uncertainty due to VUCA and or C19 Pandemic as well as disruption in technology e.g. Industry 4.0 in their nature have always become challenges and opportunities for higher education institution. The way to react to the situation depends on how the culture has been built in the higher education institution (HEI). For example, some HEIs culture may be convenient with the environmental change and easy to adapt, while some others HEIs culture may be built for a strict procedure that make them become rigid for change.

This paper tries to elaborate the effort for a HEI that adapt to the uncertainties by mean of developing combining strengths between professional and academic. The effort is established in a joint master program between university and industry.

A. Opportunities and Threats

VUCA, C19 Pandemic as well as disruption in technology by means of Industry 4.0 have given impact directly or indirectly to opportunities and threats for HEI. Among others the opportunities and threats can be mentioned as follows:

Opportunities
1. Online learning
2. Borderless Education
3. Informal Education
4. Circular knowledge both academic and professional
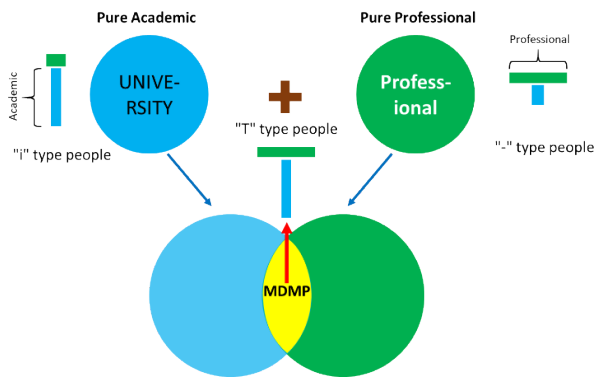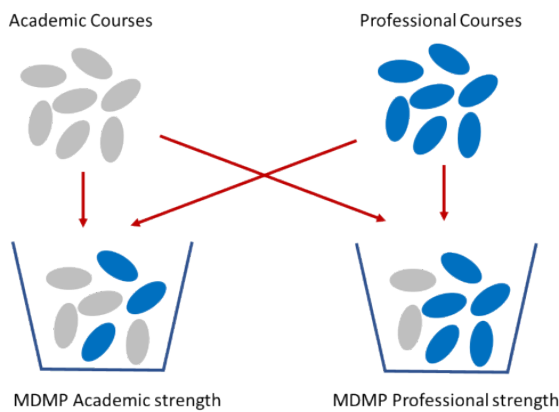5. Multi sources of learning

Figure 1. the "T" shaped people.

Figure 2. Combining professional and academic courses.

6. Multi sources of lecturer
7. Cheaper education
8. Less space
9. Etc.
    Threats
1. Shrinking of Traditional Education
2. Less physical meeting with lecturer
3. Under-utilization of building
4. Etc.

These are the direct opportunities and threats that we can predict will impact to education. The indirect impact may be more than what we can imagine especially because education is also educate people not only for mind but also heart. Especially education heart of people will be more effective by means of direct example, so it is a big question whether educating heart can be done on-line?.

B. Borderless Education

Borderless education can simply be defined as an education where there is no physical, organization, or political border. The term of 'borderless education' encompasses a wide range of activities, from online training, off-shore campuses, technology- assisted teaching, and franchising of curricula [6]. This indicated that borderless education has been initiated around a decade ago. What this term become interesting now because due to the pandemic C19, the on-line education suddenly must be adopted by any education organization around the world without considering the preparedness from the organization. Simply, for today, if education unable to shift to on-line education system then for sure it cannot be done. In today pandemic C19 the top priority is to ensure that education can be done by on-line system,

whether it is effective or not effective. Of course, after the recovery the effectiveness of the on-line education system will be assessed thoroughly and improved to its best. At least, the borderless education is a choice for future education whether will be adopted partly or as a whole.

C. Designing Multi Discipline Master Program (MDMP)

The idea of the Multi Discipline Master Program (MDMP) is to combine the strength of the professional and academic. In doing so, the strategy is to maximize and or optimize the following 1) the thinking, 2) the higher order thinking, 3) the combine strengths of academic and professional, 4) the balance of left and right brain, 5) the combining professional and academic courses, and 6) The real life case study.

1) The thinking

Business mean delivering (profitable) results from idea. It is not easy because in order to do so someone must have strength in developing idea and executing idea into (profitable) results. In developing idea, the imagination will give more impact while in execution the logic plays important roles. In developing idea, the thinking method using imagination such as divergent, creative, and horizontal will be very dominant. In execution, the thinking method that using logic such as convergent, critical, analytical, and linear will be dominant. Perhaps, as we have experienced about our education systems that mostly developed more on the logical rather than imagination may be irrelevant for today uncertain environment that require ideas to do new things or new ways. Therefore, MDMP will be designed to combine the two strengths of thinking i.e. imagination and logical so that the graduates will be competitive in the VUCA world of business and adaptive to changes as well as agile in uncertainty.

2) The higher order thinking

Lipman (2003) indicated that higher order thinking involved both Critical and Creative thinking [3]. Critical thinking is about critical assessment about the truth of something, and creative thinking is about creative assessment about meaning of something. Critical thinking is a left brain while creative thinking is right brain. Therefore, MDMP is designed to develop higher order thinking by means of developing both left and right brain.

3) The combine strengths of academic and professional

The combine strengths of academic and professional mean to develop the "T" shaped people. As in pure academic, the deep explicit knowledge is the strength that lead to "micro" thinking i.e. an "i" type of people. While in pure professional the breadth of knowledge as day-by-day implicit (tacit) knowledge applied in real world lead to "macro" thinking i.e. a "-" type of people. Therefore, the combination of "i" and "-" will form the "T" shaped people who are able to balance between explicit and tacit knowledge and micro and macro thinking (see Figure 1).

4) The balance of left and right brain

Each person tends to think based on the nature of "left" or "right" brain. Those who strong in Left brain tends to develop habit of using logic, analytic, reasoning, numbers, math, micro view etc. Those who are strong in execution is a typical left brain. The right brain people comfortable in using creativity, imagination, intuition, insight, holistic view etc. It

is typical people who has a lot of idea. Therefore, the MDMP intends to balance the ability to use the left and right brain or sometime it is called lateral thinking.

5) *The combining professional and academic courses*

MDMP is designed to combine courses that usually needed by professional and academic. Typical professional courses are the applicable course that can be directly use in real life problem. While academic courses normally typical courses that develop logic and analytical thinking. Therefore, the MDMP will combine courses that develop logic and analytical ability as well as applicable courses (see Figure 2).

6) *The real life case study*

The real life case study is one of the important factor to improve quality of MDMP. It is because when group of students assigning to solve their real life business/professional problem, they will become more confidence and tactful in doing so in their professional life.

V. CONCLUSION

The Multi Discipline Master Program (MDMP) that combine strength of academic and professional is a promising master program that enable graduates to cope with the uncertainties due to VUCA, Industry 4.0, Pandemic and other uncertainties that may come in the future. Of course, curricula is not the only key success factor of MDMP its also the quality of lectures, the teaching method, and the way delivering lectures and so on. Our experience in developing and executing MDMP shows that blended learning can also be utilized to improve the quality. Interaction during class when solving real life problem is one of the best experience to improve the quality of MDMP.

ACKNOWLEDGMENT

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