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“The Change of Jobs Caused by the 4th Industrial Revolution: New Paradigms of Career”

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I should like to start by considering the challenges posted by the new industrial revolution, the so-called “new cyber-physical systems world” and as a result the re-industrialization of our socio-economic system. The acceleration of disruptive changes will bring about new opportunities, for we can expect the new kinds of services to everyone in all sectors of society, business and public, as well as to individual citizen. But what are the expected impacts on the future career and what does it require from young people from the education sector?

Allow me to read to you the two main passages from the World Economic Forum 2016, on the longer-term focus for the education sector. First,

Rethinking education systems: By one popular estimate 65% of children entering primary schools today will ultimately work in new job types and functions that currently don’t yet exist. Technological trends such as the Fourth Industrial Revolution will create many new cross-functional roles for which employees will need both technical and social and analytical skills. Most existing education systems at all levels provide highly siloed training and continue a number of 20th century practices that are hindering progress on today’s talent and labour market issues.¹

And second,

Incentivizing lifelong learning: The dwindling future population share of today’s youth cohort in many ageing economies implies that simply reforming current education systems to better equip today’s students to meet future skills requirements – as worthwhile and daunting as that task is – is not going to be enough to remain competitive. Ageing countries won’t just need lifelong learning – they will need wholesale reskilling of existing workforces throughout their lifecycle.²

There are implications from the above longer-term focus for today’s young people as well as to the education sector in general. The definition of “high skill” is

² Ibid.
reconsidered, by not relying on the advanced or specialized education, and not the set of defined capabilities within a profession or domain of expertise. The emphasis is on the ability of the workforce to adapt continuously and learn new skills and approaches within a variety of contexts.\(^3\)

Thus, with the world moving towards “the 4.0 society”, what our graduates need will be the combination of the advanced/specialized knowledge, skills and abilities, together with the cross-functional skills such as creativity, active learning, ICT literacy, social skills, complex problem-solving skills, etc.

For the universities, does it require a paradigm shift? There are some questions to be asked. At the university level, the questions are: how to become the center of global knowledge networks; how to facilitate innovation and entrepreneurship in the university-private sector-government partnerships; and how to develop the capability to manage a huge volume of data so as to react or engage effectively with the strategic and administrative demands. At the curriculum level, there are some issues: how to accommodate the new core work-related skills in the curriculum; how to utilize alternative and innovative learning and teaching approaches; how to apply technology to learning; how to balance the demand of quality as the public good and the discipline’s particular characters; and how to re-professionalize the academic staff.

It would seem that the future of work is related to 3 broad factors: globalization, technologies and new kind of talents. These factors should be considered with some of the effects brought about by the 4th Industrial Revolution. First, it accelerates change and uncertainty by the power of technology, making workplace much more competitive or hyper-competitive. Secondly, it has brought more or closer global linkages in a post-Internet world, especially the global networks created by the convergence of Cloud Computing, Big Data Analytics and the Internet of Things. And thirdly, the 4th Industrial Revolution brings about collaborative relationships as a norm, making each of us engage with people and information, and turning our lives into a public, collaborative and connected one.

Globalization is a process that leads to the end result of a world society, and ultimately a single global community with cosmopolitanism providing the main rules of human conduct and enabling us to live and work across borders. With the expansion of global linkages, several things could be observed: distance is shortened, time is accelerating, events are linked up, certain kinds of actions and values are challenged, etc. Furthermore, cross-border integration becomes idealized by governments and well-wishers. One of the consequences is that global business and emerging markets are organized with more complexity and faster pace. And these circumstances lead to the need for new talents.

Technology is power. Partly it creates things that benefit lives of human beings. And technology should not be understood only in terms of the hardware. It is both

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hardware and software. Hardware is the machinery, equipment, tool and other explicit forms of knowledge. On the contrary, the software side of technology is the tacit knowledge, including the technical expertise, that is possessed by the talents and exists in the organizational or institutional arrangement. It has been suggested that the management of technology and the management of talent must go together. Technology management is concerned with how people and technologies are working together in order to achieve the expected results or products. This requires talents or human resources and their skills in applying the knowledge and expertise into the production process. The need for talent management has become crucial in this respect.

Under these circumstances and changes, with the influence of globalization and technology, the nature of work has also been undergoing changes. Traditional employment whereby emphasis is on function-based job and open-ended contract with clear career path in a certain company or organization will become thing of the past. Several key features could be identified as the new paradigm of employment in relation to the changing nature of work. First, work is now becoming more project-based, diversified and customized to the liking of the customers, and in many cases involving the active participation from the customers. The needs of the customers are more important than what is on offer by the company or organization. Job is becoming a problem-solving job more than a routine function, and involves collaborative work pattern. Secondly, work has become flexible and less formal. Short-term commitment to the project(s) replaces long-term employee’s loyalty to the organization. Work practices are flexible using a wider range of employee’s skills and abilities, including the ability to learn and adapt fast as well as the ability to use various problem-solving approaches. Organizations are using outsourcing. And job changing becomes a norm. We could see alternative employment arrangements emerging with different kinds of non-traditional workforce, reflecting the flexible and informal nature of modern work. Flexible workforce for the project-based jobs includes, but not limited to, independent professional or specialist, independent consultant, freelancer, e-lancer, etc. The crucial thing here is that the focus is on performance and result, not duty-based function, and the requirement of high-skills.

What it means for the employers is that there is the need of talents and (strategic) talent management, replacing human resources and strategic human resource planning. It is the need to use talent management as the key tool in driving business strategy to the achievement of business results. Modern workplace becomes the place that must attract talents, build the internal talent pool, and provide the workplace culture where talents could perform highly in the committed project serving the customized needs of the customers. In other words, organization or company must be the place or must provide the space for the team of talents to co-work or co-produce the projects, producing the results that excel. Talents become a must of the organization or business. Success depends on the quality of talents and how well could talents perform at all levels of the organization. Talents must also be the right pool or group that fit organization’s missions, strategies and situations in the right time.
What it means for today’s young people, especially those from the universities, is that each of you should be a person who possesses learned abilities and skills that could contribute with distinction to the organizations or to the projects that you are to involve. The question remains: what are those abilities and skills, and where are they from? I have already suggested the answer to the first part of the question earlier, when I stated that “what our graduates need will be the combination of the advanced/specialized knowledge, skills and abilities, together with the cross-functional skills such as creativity, active learning, ICT literacy, social skills, complex problem-solving skills, etc.”

New talents in the era of digital society require several abilities and skills, apart from the technical knowledge and expertise. I should like to highlight 3 qualities as follows:

- Life-long Learning;
- Global Citizenship; and
- Critical and Creative Thinking

New talents are life-long learners, those who could perform effective learning. It is to learn with the clear objectives and to empower oneself with the knowledge learned to create or practise some tasks with desirable results. To become a life-long learner, especially for talents, is partly to update your knowledge and skills, hence re-skilling and maintaining your expertise. Talents utilize the access to knowledge and advantages provided by information society through the use of new learning technologies.

New talents are global citizens. They have the ability to interact with and within all level of society as well as other cultures. To become a global citizen, it requires a transformation involving your own activities and experiences. It is to shift your own worldview and social identification from inward-looking attachment with your own culture, to an outward-perspective and cosmopolitan global society. Supposedly with an inter-cultural competence and a global mindset, you are to be successfully engage in any collaborative project that needs cooperative relationship with other people. Technologies may play partial role in building up the global citizen mindset, but “direct exposure and experience” remains the key tool. Travelling or international mobility is the tool to nurture the components of global citizenship within oneself, by constant engagement or interaction with other cultures. Internationalization at home, i.e. bringing other cultures together to one place, could also help.

One interesting suggestion has been made as regards how to groom young people for the skills related to global citizenship with critical thinking and ability to act responsibly. The approaches and skills used and taught in the humanities and the arts could be the tool to reach that goal. Both contents and methods in the humanities and the arts contain the engagement with indepth cultural understanding. Learning other languages also facilitate inter-cultural communication and the understanding of other cultures.
Lastly, already embedded with being life-long learners and global citizens, new talents are also critical and creative thinkers. To be critical and creative, it requires the breaking of some barriers. There are two main reasons why we cannot think. First, we are made not to think. And secondly, we don’t want to think.

Some of the factors that have made us not to think are
that we adhere to what is right and what is wrong;
that we must believe what the expert tells us;
that we must not question person with authority; and
that we are raised to believe in the limitations of ourselves.

And we don’t want to think because of several factors:
(1) We have been raised in over-protective environment.
(2) We have grown up in an authoritarian family environment.
(3) We fear: of failure, of abandoning, of rejection and of being different.
(4) We have low self-esteem, as we are telling ourselve, for example:
    I can’t think.
    I am not good enough.
    I am an idiot.
(5) We are too lazy to think.

These barriers which constitute the cause of being uncritical and uncreative must be broken if one wants to think for oneself or by oneself critically and creatively. However, critical and creative thinking also involves some risks that we must be mindful. Being critical and creative constitute threats to other people who are still trapped in those barriers themselves. Critical and creative thinking also requires a lot of discussion that may not be the norm in some traditional organizations. Moreover, new thinking is sometimes being ridiculed. Thus, to think something new, it requires a lot of courage in some social settings.

To me, thinking skill is the most important skill, especially in the Asian culture. In 1998 a book was published titled “Can Asian Think?”, by Kishore Mahbubani. The article on the same title ended, as a conclusion, with the following passage:

Clearly, the 21st century and the next millennium will prove to be very challenging for Asian societies. For most of the past 500 years, they have fallen behind European societies in many different ways. There is a strong desire to catch up. The real answer to the question “Can Asians think?” will be provided if they do so. Until then, Asians will do themselves a big favour by constantly reminding themselves why this question remains a valid one for them to pose to themselves. And only they can answer it. No one else can.4