

Thinking Slow, Thinking Thick: Necessary Human Work in an Age of Innovation

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“Welcome to the ‘posthuman age’ that promises wonders and terrors in equal measure. Take cyborgs. It now seems inevitable that some kind of integration of man and machine will increasingly be the norm; in many ways it’s already happening” (Khuhro, 2017, par. 4). I am quoting this from an article randomly found on the Internet because it articulates the kind of common view people have about a technologically-driven future, that I’d like to start with. The term “posthuman” is not new, however, neither is the view of a dystopic future that it alludes to. As pointed out in Fukuyama’s book *Our Posthuman Future: Consequences of the Biotechnology Revolution*, released in 2002, at least two works of fiction had already alerted the world about such dystopia: Aldous Huxley’s *Brave New World*, published in 1932, and George Orwell’s *1984*, which was first published in 1949. The dystopia in both works has to do with the emergence of technology and how it shapes the world and the way people live. Technology in Orwell’s novel is in the form of a telescreen that is used to collect information on individuals and store them in a kind of “hovering Big Brother.” In Huxley’s world, it is biotechnology that enables various forms of biological modifications resulting in a world where disease and social conflict had been abolished, and people felt happy or had access to instant happiness. These are science fiction stuff, we might say. But living in 2018, we realize how close these fictions were as predictions of the future in terms at least of the technological innovations. Fukuyama’s own book warns of all-too-real advances in biotechnology and the necessity for regulation and control, similar to those enacted and implemented for nuclear technology. There are other writings on “the posthuman future” and “posthumanism” that make for very interesting reading, including Donna Haraway’s essay, “A Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the Late Twentieth Century,” in the anthology *Simians, Cyborgs and Women: The Reinvention of Nature* published in 1991, as well as Robert Pepperell’s *The Posthuman Condition: Consciousness Beyond the Brain* published in 1995. There is also, now, a field of study called “posthuman studies,” with dedicated journals and scholarship, and courses taught in university programs (e.g., see *The Journal of Posthuman Studies* by Duke University Press).

How far off or close is a posthuman future to our world of the present? What does innovation play in the creation of this world; and how does it impact the workforce now; and what will the future be like? The notion of the posthuman came to mind as I was preparing for this talk, prompted specifically by two predictive readings: the monograph *Workforce of the future: The competing forces shaping 2030* published online by pwc.com and the

Global Challenge Insight Report 2016 of the World Economic Forum: *The Future of Jobs: Employment, Skills and Workforce Strategy for the Fourth Industrial Revolution*, talking about 2020 scenarios. The first frames the “biggest questions of our age” as follows: “what influence will the continuing march of technology, automation and artificial intelligence (AI) have on where we work and how we work? Will we need to work at all? What is our place in an automated world?” (PwC, 2017 p. 6). It identifies megatrends “reshaping society and [...] the world of work” (PwC, 2017, p. 6) and, more pertinently, envisions “the four worlds of work in 2030.” These four worlds of work are defined by how they are positioned in the vertical cross between fragmentation and integration on the one hand and the horizontal tension between individualism and collectivism on the other hand. What is striking is that “the red world where innovation rules” (PwC, 2017, p. 12) is placed on the upper right quadrant which means it is the most fragmented and the most individualistic. It is described as “the perfect incubator for innovation,” a world “where innovation outpaces regulation,” there are few rules, small entrepreneurial companies enabled by digital technology outperform big business, and “specialism is highly prized and workers seek to develop the most sought-after skills to command the biggest reward package” (PwC, 2017, p. 13). This red world of innovation is contrasted to the other three worlds of work: the blue world where “corporate is king”; the green world where companies care; and the yellow world where humans come first. Each of these worlds of work predicted for 2030 is described in terms of its basic features, how the workers are affected, and the organizational challenges it poses. There are also hypothetical case studies presented as part of the scenarios. The World Economic Forum report is less dramatic and draws on massive research conducted across the world, but it is no less spectacular in its pronouncements. Here is the first paragraph of the preface.

Today we are at the beginning of a Fourth Industrial Revolution. Developments in genetics, artificial intelligence, robotics, nanotechnology, 3D printing and biotechnology, to name just a few, are all building on and amplifying one another. This will lay the foundation for a revolution more comprehensive and all-encompassing than anything we have ever seen. (WEF Report, 2016, p. v)

I have to say that as a theatre and performance scholar, all these appeal to me in terms of their rhetorical staging of the future, the use of scenarios instead of plain statistics and straightforward descriptions, the sense of drama, and so on. These articles perform as much as the earlier ones I mentioned from science fiction and readers, perhaps especially those who are named in these texts and those whose businesses are directly affected by the cited changes, are appropriately engaged and provoked to act and reflect, to plan, and adopt strategies to survive or flourish. They have to innovate or die as another essay on innovation and performance puts it (Brusoni, & Orsenigo, 2006).

And so in this conference, the prompt question is: What effects does innovation have on the 21st-century workforce? There are varied positive and negative answers to the question, with the positive highlighting the capacity of humans to adapt to the rapidly changing environment of work and jobs; and the negative being focused on the possible displacement of human workers because of what is enabled by mobile communication technology, automation and machine learning, and AI. The *Future of Jobs* report of the World Economic Forum is useful because it presents industry and area-specific data, following its aim “to bring specificity to the upcoming disruptions to the employment and skills landscape in industries and regions—and to stimulate deeper thinking about how business and governments can manage this change” (WEF Report, 2016, p. 3). It is a call to action that warns of the magnitude of foreseen changes ushered in by the Fourth Industrial Revolution but also speaks of their “transformative impact on employment, skills and education” (WEF Report, 2016, p. 3). Such transformative impact may come in the form of greater creativity and high-level thinking and decision-making enabled by AI—the amplification of human abilities—since machines [already] help the process, analyze, and evaluate the abundance of data (PwC, 2017, p. 8).

What is clear from both readings, however, as well as in much of the literature on future employment, is that there are other global megatrends or drivers of change other than technological innovations, also referred to as

technological disruptions. The PwC (2017) monograph on the four worlds of work names four others: “demographic shifts—the changing size, distribution and age profile of the world’s population: (p. 7) “rapid urbanisation—[or] the significant increase in the world’s population moving to live in cities” (p.7); “shifts in global economic power—[or] power shifting between developed and developing countries” (p. 7) and “resource scarcity and climate change—[referring to] depleted fossil fuels, extreme weather, rising sea levels and water shortages (p. 7). The WEF report identifies demographic and socio-economic drivers of change including rising geopolitical volatility and consumer ethics and privacy issues. Increasing geopolitical volatility is elaborated as both internal and external political strife arising from greater socio-economic inequalities and it is named as potentially “the biggest threat—by far—to employment and job creation at the global level” (WEF, 2016, p. 11).

It is instructive to note here that innovation is present not only in technology or in science and technology but also in the way people work and relate to each other and, therefore, how institutions organize and structure the workforce and their workspaces, work times, and so on. Innovation is driving innovation—as when we speak of the changing nature of work and flexible work, flattened organizations, distributed work and collocated spaces, or the practice of co-working. My niece who works in the HR division of a multinational company is a perfect example of a worker whose job description and work hours exhibit new ways of working. Her workspace is in Manila but she works with a global team located in multiple time zones all across the world and she can also, at times, work from home, with a strong internet connection her main means to accomplish her work tasks. I also learned from her firsthand experience of how businesses are adapting—for instance, in their self-identifications and public profiles—what used to be oil companies are now energy corporations.

What is required of workers in this innovation-driven environment are skills, attitudes, and knowledge of different kinds altogether—so-called 21st-century skills of “future-proof” graduates that basic and higher education must address with redesigns of curricula and teaching and learning strategies. The education sector is under great pressure to innovate in order to match graduates to jobs, to meet the demands of relevance, of utility. Future-proofing is a new articulation of life-long learning that is not necessarily education for life in the classical sense. In the “2030 red world of innovation,” for instance, “the commercial value of learning takes precedence; a university degree is seen as less valuable than specific and relevant skills or experience” (PwC, 2017, p. 13), and this perhaps explains why, in the U.S., there is a noted increased preference for so-called nano-degrees which are increasingly offered by online education—fast qualifications for a fast world. In other contexts, such as those of emerging economies in the developing world—contexts like the Philippines and most of Southeast Asia, we are in a rush to keep in step, to keep up with the rapid changes, with major national reforms in education being established and shaking up everything and everyone.

Moving on now to what’s flagged in the title of this talk. The last five years have seen dramatically rapid arrivals of technological innovations, but innovation does not drop from the heavens or come around in a flash. It takes a long time. It is a product of long hard work, a result of what Bruno Latour (2002) called strategic calculation and it is, in the final analysis, always a result of collective work. In two essays released in 2002, Latour and co-authors Madeleine Akrich and Michael Callon distinguish between invention and innovation—invention referring to ideas, projects, plans, prototypes, and pilot factories; innovation to be understood, in the strict sense of the word, as the first successful commercial transaction or more generally, the first positive sanction of the user (Latour, Akrich, & Callon, 2002, p. 188). There are three major takeaways from these essays that underpin my own thinking of innovation and its effect on the workforce. The first is about time and the complexity of the innovation process; the second is on the role of actors and their experiences; the third is on the relationship between the innovation and its target users. Innovation takes time and it is “created by instability, by unpredictability which no method, however refined, will manage to master entirely” (Latour, Akrich, & Callon, 2002, p. 195). Edison’s light bulb did not suddenly come into being. It came out of a tedious process that was set up with deliberation, a process of negotiation and renegotiation, with Edison making strategic scientific and technological choices, recruiting trusted collaborators with whom he worked, and accomplishing in the public domain the promotion

of the idea of electrification a long time before any result was actually produced. This is not to say there is no eureka moment, that flash of understanding that leads to the invention. The philosopher Alain Badiou (2006) referred to this moment as the appearance of a truth that bores holes in knowledge, such that the state of things is changed forever afterwards—this is science as a producer of truths via something that happens, an event, and something is known that would not otherwise have come into consciousness. But the appearance of this truth, this idea that later becomes innovation, and innovation itself as process are two different things. Innovation should be understood not only in the technical sense. Latour et al. (2002) proposed a theory of innovation that uses a socio-technical analysis whereby human factors and technical factors, passions and reason, are not taken separately but interwoven. In the same manner, the progress of an innovative project depends critically on people, those involved in crafting the innovation and the intended users. The culture aspect is important. There are many anecdotes of products failing because the people factor is ignored. A market has to be built for the product and part of the work of innovation is understanding this market and its needs, even involving the market in the work of innovation. Also, part of the complexity of the process is choosing the representative spokespersons for it to have successful buy-in by users even prior to its arrival. In the end, innovation is, therefore, the work not of an individual genius but of a collective whose members are equally passionately invested in the project. This is why Latour et al. (2002) also say “no innovation [...] develops without [an] ‘initial bet’, without this act of elementary trust which defines our relation with others” (p. 219).

In light of these ideas, the point to emphasize really, without suggesting that the fear of being overtaken by technological advances is unfounded, is that innovation is human work. The four worlds essay emphasizes that “the skills needed for the future are not just about science and technology [but] human skills like creativity, leadership, and empathy [which will] be in demand” (PwC, 2017 p. 34). The World Economic Forum report declared that “the current technological revolution need not become a race between humans and machines but rather an opportunity for work to truly become a channel through which people recognize their full potential” (WEF, 2016, p. vi). There is also wide recognition, noted in another article and mentioned in others, of the hardest part of workplace change—not the technology but the people and their “culturally conditioned attitudes about how they should be managed, how and when they should work, and their attachments to the traditional, centralized workplace (or rather the values they associate with it)” (Ouye, 2011, p. 10).

And if innovation is what is driving the fast changes in the way we live and work in the 21st century, it is also what’s needed, together with creativity, to manage or regulate change by a process of slow and thick thinking. When we embark on an innovation or creative work, we deliberate, we think things through, we slow down. The Nobel Laureate Daniel Kahneman published a book titled *Thinking, Fast and Slow* in 2012, in which he elaborated on the dual process model of the brain involving two modes of thought: System 1 which does not entail any pause or need to pause and think. As described by an author of a PR professional’s handbook, System 1 is “fast, intuitive, associative, metaphorical, automatic, impressionistic, and it can’t be switched off”, while System 2 is “slow, deliberate, effortful [and] its operations require attention” (Black, 2014, p. 33). This is the farthest I can explain Kahneman’s thought, and there is really no time here to elaborate. But I first came across the notion of slower thinking—thinking that purposely “retards thought” in order “to make [that] thinking thick”—in the 2008 work of Alan Read, *Theatre, Intimacy and Engagement: The Last Human Venue* (p. 22). The book talks about practices of the political that impede real politics in the practice of theatre.

All humans are capable of slower thinking, as we are naturally programmed for Kahneman’s dual process of fast and slow. Slower thinking is an ability and a skill that 21st-century workers can deploy to exercise agency and to co-exist and co-work with fellow humans in meaningful ways while navigating a world where non-human elements have increasing importance. However, other than for individual survival or advancement, the urgency is for us to pay attention to things that we would otherwise ignore because we are in a hurry—to get that plum job or research award, to be promoted, to enjoy what the Filipino scholar Roland Tolentino calls *panggitnang uring pantasya*—middle class fantasy. I am talking about sticky situations that definitely call for thick, slow thinking:

the poverty around us that has not been eradicated by all the innovations right up to 2018, the plight of the 99% or of the vast majority of people who have no access to food and employment, decent shelter, and basic services, never mind computers and the Internet. There is an increasing middle class but an overwhelming majority of the world's populations are still poor. Etcetera. Very sticky indeed. Thick thinking would also require answers to difficult questions, like where is the money trail in innovations? Who will benefit? What real obstacles are there that prevent the provision of full employee benefits or equal treatment in the workplace? Thick thinking would enable an x-ray vision to see through the innovation, for instance, of distributed work and realize what is behind it—the global web of labor relocated to where the pay is cheap. Slow thinking, thick thinking. This is necessarily human work we must do in this age of innovation.

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