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Beyond the end of work / 48th St. Gallen Symposium
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BEYOND THE END OF WORK
THE LEADERS OF TOMORROW'S PERSPECTIVE

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I. INTRODUCTION

This article summarizes the perspectives of a select group of promising young people from all over the world, known as Leaders of Tomorrow, on the topic of the 48th St. Gallen Symposium: "Beyond the end of work". The participants in this year's St. Gallen Wings of Excellence Award competition were asked to describe the job they aspire to in the future, analyse how it will be influenced by artificial intelligence (AI), and suggest how they would augment themselves technologically to prevail in their chosen career, if necessary. Specifically, they were asked to discuss the following question:

"ROBOTS ARE COMING FOR YOUR JOB. HOW DO YOU AUGMENT YOURSELF TO STAY ECONOMICALLY RELEVANT?"

Based on an analysis of the top contributions to the 2018 St. Gallen Wings of Excellence Award competition, the article organizes the focal topics of the essays and identifies interesting ideas and thoughts contributed by the Leaders of Tomorrow. The objective is twofold. First, to report those ideas that the Leaders of Tomorrow most frequently address in their essays, and second, to highlight the most promising ideas from this cohort. This summary considers the top 62 of the more than 1,200 contributions to this year's St. Gallen Wings of Excellence Award competition. This choice was made in order to focus on the highest-quality contributions. It is important to note, however, that this summary does not assess the quality of the selected essays, but focuses solely on the content of the contributions.

Notably, even though the participants had to address the same question, there is a remarkable diversity in the contributions' foci and contexts. The contributions relate to (a) the differences, namely the opportunities and threats, of the new age promised by the rise of robots and AI; (b) which jobs are affected by this development, considering how it changes existing jobs like in academia, journalism, professional service firms, the financial sector, and entrepreneurship, and how it leads to emerging job categories such as a "meaning consultant"; (c) how one can stay relevant by considering new values, complementarity between humans and machines, and appropriate governance and policies; and (d) the consequences of this development. The remainder of this review is structured accordingly.

II. WHAT'S THE DIFFERENT WITH THE ROBOTS

The Leaders of Tomorrow suggest that the existing norms in the business, social, and employment contexts will undergo substantial disruption in the wake of industrial "robotization" and AI. Some of those disruptions present opportunities to humans, while others raise important challenges.

(a) BENEFITS AND OPPORTUNITIES

Several Leaders of Tomorrow argue that the learning processes of AI and ro-bots represent an opportunity, adding capacity and speed to data processing. The way robots and machines learn is substantially different from the way human do, and takes place through two core mechanisms. On the one hand, machines are programmed by humans, who define the algorithms and decision rules they apply. A machine can then identify patterns and phenomena that would remain unnoticed by humans, at very high speed. On the other hand, as more data is provided, machines continuously adjust and improve their algorithms along the programmed decision rules. Accordingly, since the learning process of robots and machines is automated, continuously improving, and their processing capability can reach up to 24 hours a day of productivity, the amounts of data that can be analysed and processed by a machine in a short time period is far beyond the capacity and aptitude of humans. As such, humans could benefit from a technolog-ical empowerment in their capabilities and productivity.

A direct implication of those productivity changes is that is weakens the stability of professions. Several Leaders of Tomorrow suggest that automation will revamp professional priorities and set new values and success factors for humans. A Leader of Tomorrow conjectures that new jobs will be fluid, flexible, and oriented towards novelty and creativity, leaving routinized tasks to automation and robots. Such a trend will raise a need for "emotional intelligence" – or the ability to read situational contexts. Hence, as robots excel in effectiveness and efficiency, people need to develop their human skills – talents such as empathy, creativity and service-oriented skills that cannot be taken over by machines.

In expecting those shifts, several authors stress the benefits of coexistence

between humans and robots. As robots, computers, and AI surpass humankind in performing repetitive and automatable tasks, people face an unprecedented opportunity to question their moral values, reasons for living, and quality of life. Such fundamental questioning will help humanity ensure an effective, controlled, and positive emulation of their capabilities with AI technologies. In such a view, hybridization of humans and robots, or the development of humanoids, are seen as new phases of the evolution of humanity.

Finally, some Leaders of Tomorrow identify a further benefit of robots and AI in improving communication and internationalization. As machines and programming languages develop, translation barriers drop, information databases become richer, and former practices are documented. As such, information transparency increases and language barriers are better mitigated, which can accelerate international development.

(b) CHALLENGES AND THREATS

However, automation and AI also present some challenges and threats. Regarding the learning systems of robots and machines, some Leaders of Tomorrow argue that they are strongly conditioned by human assumptions about data and their views on the world. As such, their analyses reflect the preferences of their programmers and machines are not able to question a mistaken underlying logic. Those biases are problematic since they may induce errors in the algorithms and thus the overall processing patterns of computers and machines.

Furthermore, since the working base of machines and robots is data, machines may be limited by the assumptions made about its distribution and patterns. Since several distribution patterns may be applied for a single dataset, a machine will need to make an assumption, and if the data is evolving, such an assumption may become obsolete. Such imperfection limits the reliability of the results that may be produced by computers.

Moreover, the specific algorithms that robots and machines are based on can work within the boundaries they have been trained for, but not make novel associations and predictions as the human brain may do. Referring to the works of Kahneman (2011), a Leader of Tomorrow suggests that human brain is "a feed-forward machine" able to complete a sentence or derive associations from an image based on memory associations. Predicting future actions is not possible for robots or machines, which are trained to perform complex tasks such as large dataset management but cannot account for all the contexts and evolutions that may occur in real life. In this regard, some Leaders of Tomorrow argue that AI is a misunderstood concept. AI should refer to the ability of identifying patterns in data, and as such is a technological advancement rather than a type of intelligence.

A further important threat posed by automation and the development of AI is obsolescence. Several Leaders of Tomorrow argue that today's business models and professions are very likely to become obsolete, since several tasks will be disrupted by the computational and automatable capabilities of computers. As such, a Leader of Tomorrow foresees "a renaissance of blue-collar workers" and that several white-collar professions will be replaced by machines. Automation will cause an excess of "labour supply, ignorance of humans' 'irrational' behaviour, and worsened digital divide" (i.e., the gap between people able to adapt to the digital evolution and those who cannot).

Several contributors consider this risk to be one of the most severe, given the speed at which robots and AI develop and the speed at which obsolescence may occur. Never has technological progress been so fast, and thus adaptation may become challenging both in terms of timing and abilities. As a Leader of Tomorrow highlights, "the real danger is not AI, but technological illiteracy. In fact, the overwhelming majority of people are not able to use even a fraction of the com-putational power available at their fingertips." A contributor argues that such technological illiteracy is paralleled by the risk of "black-box problem" or lack of useful program documentation rendering the fundamental logic and methodology used by AI in its computations not understood.

It becomes thus critical to accelerate reconversion and education to programming to get a proper usage and mastery of robots and AI. The latter should strictly obey human instructions, be restricted in order not to harm human beings, and operate within a clear legal framework. Professions would then either reorient themselves towards niche human values, such as empathy, humanistic beliefs, and other personality traits that they seek to preserve within their business contexts, or develop jobs whose main task is being the point of contact to other humans.

III. WHICH JOBS ARE AFFECTED?

The Leaders of Tomorrow analyzed various professions likely to be affected by robots and/or AI. One strand of essays argues that existing jobs will change over time to account for automation and AI. A second strand of essays argues that existing professions will become obsolete and incompatible with the new im-peratives, and thus develop new job concepts and professions based on the imperatives of an "automated" employment environment.

(a) EXISTING JOBS

Most Leaders of Tomorrow suggest re-

shaping existing jobs and professions in order to adapt to increasing automation and salience of AI. They argue that jobs and professions as they are conceived today prioritize performance and productivity – areas in which robots and machines can outperform humans. Accordingly, a solution would be to transition existing professions towards new priorities and objectives, which emphasize non-automatable capabilities and skills.

To illustrate this line of reasoning, several contributions focus on the example of teaching. A Leader of Tomorrow argues that teaching is amongst the oldest professions in the world and could benefit from complementary AI and robots. A Leader of Tomorrow proposes that teachers "must become robots" while preserving their human sensibilities. Those humanoids would simultaneously harness the advantages of humans and machines. On the one hand, robotic skills would help teachers become more effective and on the other hand, human senses and sensibilities would complement machines by fostering empathy and humanistic values. Similarly, three contributions argue that the essence of the teacher's job will be based on a humanistic orientation, which breaks with current economic priorities. A teacher in an automated society will shift his or her focus from teaching how to reach economic welfare towards promoting social welfare and emphasizing human values such as equality and justice. To attain such a goal, a Leader of Tomorrow suggests that teaching should shift paradigms to redirect current societal focus from the "self" to the "us". Such a shift can be achieved by promoting creativity, the focus on humanity, and privileging "us" over the "self".

Other Leaders of Tomorrow debated automation and AI in scientific research. A contributor argues that "to remain economically competitive is to use technology to augment our capacity for empathy and, as a result, creative col-laboration". A further contributor suggests that AI is highly compatible with science, research and a powerful support to creativity in such a context. Indeed, AI has strong processing capabilities that open up new perspectives of observational power. According to this view, routine and repetitive tasks would be automated, while creative and skilled tasks would be the niche, non-replaceable capabilities that humans will never cede to machines, computers, and robots. A Leader of Tomorrow suggests that a specific application of AI in research could then benefit the peer-review system of academic publishing, which can become more transparent, spot better matches between reviewers and contributors, or screen more reliably for fraud and plagiarism.

Further Leaders of Tomorrow analyze the changes that automation and AI may bring to the writing professions. A contributor argues that as smart assistants such as Alexa, Cortana, Siri, and Bixby develop, it becomes increasingly challenging for a journalist to report news and facts that are at any human's beck and call anytime, anywhere. It becomes increasingly necessary to educate journalists in coding while promoting and safeguarding the quality of reporting skills, indepth investigation efforts, and raising journalists' awareness of their new priorities and foci. Another contribution examines how the job of the author will evolve in the future. The contributor suggests that "the job of the author goes beyond the current mentality of economic viability and relevance and maybe at some point in time, the medium of expression of the author's thoughts will be determined by mankind's dependence on AI but the organic thoughts will have to be borne out of the author." The Leader of Tomorrow explains that in the future it will be the responsibility of authors to promote the empathetic use of knowledge, as those are the "the human entity who carried with themselves traits of creativity, innovation, empathy, love and critical thought coupled with the access to the common human knowledge".

Some contributions analyse the potential changes for professional services, specifically the consulting profession. Two Leaders of Tomorrow argue that AI and automation is likely to affect the nature of the mandates/projects and the required expertise. Consultants will be called on to develop analytic tools, strategy and innovation projects that improve customer experience and orient solutions towards personalization. Such a trend is inevitable as "it will be pointless to compete with AI on processing capabilities" but humans will always outperform robots and AI on analytical and interpretive tasks. Accordingly, they suggest orienting consultants towards continuous innovation and learning in order to permanently develop new offers for customers and help them adapt to their changing environments. Those tasks are based on emotional and interpretive skills that take into consideration contexts and evolving settings, two dimensions that are difficult to model and automate.

In a similar vein but in a different context, another Leader of Tomorrow analyses the changes automation may bring to the legal profession. According to this contributor, the human and social dimension of the lawyer's job cannot be automated, and thus the future of the profession lies in developing those competencies, developing lawyers' coding skills, and broadening the access to their services through public platforms. Better access to legal services is inevitable, according to this contributor, who sees an increasing pressure towards information access via the Internet pushing society to seek alternative societal models based on "collaborative commons". Hence, the

practical solution this Leader of Tomorrow proposes is to develop a "Common Legal Information and Service System", a platform of access to law and legal service powered by big data.

Several Leaders of Tomorrow consider how robots and AI will revolutionize the financial services sector. A Leader of Tomorrow explains that machines will never master some aspects, which include understanding phenomena that humans can neither explain nor code, such as senses, emotions, artistic factors, learning factors as well as empathy factors. Future finance jobs should ensure a symbiosis between machines and humans. The former would provide guidance based on quantitative analyses while the latter would make the actual decisions that require "beyond computer logic", such as moral arbitration or decision-making based on social considerations. Similarly, a Leader of Tomorrow proposes to train current and future generations of employees in the financial sector to improve their communication skills with both computers and humans. Using the ac-tuarial profession as an example, the contributor shows that communication with computers can be achieved by teaching people to code, while developing effective communication towards stakeholders who are not fully familiar with computer science. A further Leader of Tomorrow analyses the central banker profession and how it is likely to evolve in the wake of automation and AI. The contributor argues that in spite of the large data processing skills that AI may provide to any profession, the judgment capabilities of central bankers are hardly programmable. As such, the profession will be preserved but will be directed towards stronger focus on data-driven regulation, higher scrutiny on the timeliness of decisions, focus on real-time considerations to economic data processing algorithms, and a "deft understanding of human and machine psychology". A central banker in an automated society will thus take responsibility for translating and interpreting the results of statistical analyses. Finally, another contribution focuses on how AI and automation will affect financial traders who don't diversify their skills and learning. The job of the trader is likely to transition towards that of a coder as computers with incomparable productivity rates and instant analytical capacities, all available 24/7, dominate trading floors. Their mission would be oriented towards maintaining the system and power charge management if they don't develop skills that would complement the computational capacity of computers.

Two notable contributions suggest how the professions of diplomat and political scientist will change. One Leader of Tomorrow argues, "while diplomats traditionally create profiles of key individuals to describe the internal politics of a host country, the diplomats of the future must monitor applications of AI technology or AI-enhanced software that will impact foreign relations". Thereby, diplomats would pursue an "augmented human diplomacy" whose priorities are on simulation and surveillance. Simulation seeks to better monitor hotspots and predict conflict while surveillance will seek to limit fraud, crimes, and law infringements. Another Leader of Tomorrow suggests that political scientists will be augmented by AI technologies in their analyses of situations, but in their approach to society they need to develop their soft skills such as their abilities to frame a vision, be creative, or surface implicit knowledge. Those skills are the ones that AI cannot take over and will keep political scientists relevant.

Few contributions focused on the evolution of entrepreneurs in the face of automation and AI. Two Leaders of Tomorrow argue that a proficient entrepreneur would be a leader who creates some novel concept to build a company, ensure financing, build partnerships, raise trust, and be able to leave the task of surviving to computers. Performance would be measured as the ability to work out and launch a viable project, as well as to withdraw from the business once properly set up for existence as led by computers. Such an approach should benefit entrepreneurs and exploit the potential of AI. Notably different, another Leader of Tomorrow analyses how self-sufficient agriculture will completely place the farming profession at the centre of human priorities to sustain itself. The author contends that as many white-collar jobs can be automated, it becomes imperative to seek societal models that are self-sufficient. Accordingly, the contributor suggests developing the farming knowledge and skills of people to pursue self-sustaining activity as a way to circumvent the revolution caused by AI. As digital technologies develop, people should seek to own and operate farms as a strategy to avoid economic irrelevance, raise additional income and plan against human obsolescence.

(b) NEW JOBS

A smaller yet substantial strand of essays argues that automation, robots, and AI will lead to the emergence of a variety of new professions, or at least sub-stantial variations on existing jobs. A Leader of Tomorrow generally notes that "a new segment of jobs will emerge which aims to provide high-touch in a high-tech world".

Sharing this view, a Leader of Tomorrow coins the profession of "meaning consultant" who leverages technical knowledge and expertise to promote social values that help people achieve meaning in their lives. The contributor contends that in the future unemployment will be diffused throughout society and the need for re-centering humans'

priorities on values other than professional accomplishment and revenues will be necessary for mankind's survival. Another Leader of Tomorrow argues that the physicians of tomorrow should necessarily be human but radically different in their approach. The contributor explains that diagnoses, clinical recommendations, and treatments will be easily automated with robots that have realistic facial traits and high information-processing power. However, what robots cannot replace is the doctor-patient social relationship, which centres around "feelings of strong commitment, advocacy, and a sense of responsibility toward patients". Accordingly, a physician in an automated society will be trained to develop "robust longitudinal patient relationships" and master the analysis of AI-enabled predictive models in medicine.

A further Leader of Tomorrow suggests that the marketer's profession will endure a similarly radical change to become a multitask profession oriented towards making humans and machines compatible for collaboration. A first task would be to align the context of marketing as understood by machines, platforms and algorithms to the priorities of consumers. Second, marketers will need to improve cross-machine learning as the number of platforms that exist increases and human-robot experiences multiply. Third, marketers will need to stimulate innovation to guarantee their relevance and position themselves in a way that cannot be substituted by robots. Finally, marketers will need to encourage brands to become purpose-driven and thus attract empathy, a concept that cannot be replicated by robots.

Another Leader of Tomorrow foresees a new role for teachers. As the pace and speed at which the employment market evolves and digital technologies develop accelerates, teachers should orient themselves towards becoming students' lifelong coaches. As young pupils, teachers would develop the interest and curiosity of students towards digital technologies and abilities, while as young apprentices and adults, teachers would coach students as they enter the job market and seek to find their meaning in life. These missions would require teachers to become more flexible and available, as they need to adapt to the preferences of their students, keep themselves up-to-date with technological and AI developments, and remain in touch with their students throughout their lifetime.

Finally, a Leader of Tomorrow suggests a new shape for the policymaker's profession. The author argues that given the exponential rise of technology and AI, policymakers should become social entrepreneurs who harness global chal-lenges for the common good, have a great sense of adaptability and can forecast fast-changing environments. Thereby, they would seek to regulate technological evolution and design viable paths for society, including redistribution of the benefits gained from automation, reforming education to answer the needs of the digitalized era with a social orientation, and decentralizing governance systems to local communities to ensure the best fit between policies and social needs.

IV. HOW TO STAY RELEVANT?

The Leaders of Tomorrow developed a variety of recommendations on how to stay relevant in the wake of automation and the rise of AI. In short, they suggest (a) fostering a change in values; (b) building on the complementarity between humans and machines; and (c) developing governance to regulate robots and AI.

(a) FOSTER A CHANGE IN VALUES

Several Leaders of Tomorrow argue that current economic systems and firms tend to be locked in their economic orientation, which limits the development of their social contribution to society. Accordingly, some Leaders of Tomorrow propose that it is important for humans to stay socially relevant and not necessarily economically relevant. Therefore, they formulate a variety of solutions in order to unleash the social potential of businesses and economies ranging from new classes of assets and economic policies to novel governance structures.

For example, a Leader of Tomorrow suggests that a starting point would be "Instead of asking what type of job one will have in the future, one ought to rethink the notion of work itself and all the assumptions that come with it – beginning with its apparent necessity." A contributor asserts that in the future the most important values for humanity will shift from economic criteria towards wellbeing, meaning, and social welfare – and it is thus important to accustom people to the development of human values and meditation towards their evolution.

Another Leader of Tomorrow suggests accommodating humankind to the notion of unemployment to move away from the objective of wealth and economic prosperity. The contributor argues that AI and machines will inevitably take over all professions since their productivity is way superior to that of humans. A direct consequence will then be unemployment, which should prompt humankind to ask what is the purpose of life. Such a fundamental questioning should lead to the development of social and emotional welfare values.

Some Leaders of Tomorrow argue that such an evolution should be supported by adapted education systems that rely on extensive integration of AI and tech-nology while focusing on the promotion of personal wellbeing, connection with nature, other people, and self-actualization. This shift of focus towards "human experience" will require changes in the institu-

tions of teaching and education: learning programs should be tailored in order to focus on inclusion of the workforce; individualized learning programs accessible to both youth and transitioning careers; teachers should act as coaches who guide and orient students throughout their programs.

(b) BUILD ON THE COMPLEMENTARITY OF HUMANS AND MACHINES

Several Leaders of Tomorrow propose focusing on the complementarity between humans and AI, rather than positioning them as competitors. As a Leader of Tomorrow states, "many problems require novel solutions [...], which cannot be pre-defined. Interdisciplinary thinking is identified as major skill to achieve this kind of solution and hence as prior advantage of the human mind." Accordingly, humankind should seek to develop its managerial skills and interpersonal abilities, such as curiosity, empathy, creativity and inclusiveness, while harnessing the pro-cessing capabilities that AI and automation offer. This complementarity can take two main forms: (1) the development of hybrid human-machine interfaces such as humanoids, cyborgs, and chatbots; (2) the focus of mankind on its non-replaceable humanistic values.

First, complementarity should be enabled by augmenting human capabilities that are limited by the natural needs (e.g., sleep, hunger, sickness) and biological constitution of humans. As such, robots can enhance human analytical power and improve decision accuracy, while humans consider contextual, socio-emotional factors that cannot be perceived by machines. As a Leader of Tomorrow states, "instead of replacement, we will have augmentation to increase productivity. The question morphs away from "how do we fight back" to "how do we work together and what traits will increase human success in this environment."" Several Leaders of Tomorrow suggest developing augmented brains to surpass physical and cognitive limitations of humans. A Leader of Tomorrow proposes to develop "brain-computer interfaces (BCIs)", as "a connection between the mind and an electronic device could assist in various different tasks, ranging from law and justice to astronautics and entertainment." Another contribution suggests decentralizing the programming of robots and leaving the possibility to each human to automate the tasks that (s)he performs on a daily basis. A further contributor suggests incorporating humans into robot structures and frameworks to augment their capabilities.

Second, mankind should acknowledge the superior performance of robots and machines, and focus itself on values and practices that are not programmable, such as being visionary, creative, and empathic, and discovering implicit knowledge. A Leader of Tomorrow suggests providing each person with a minimal income to distribute fairly the productivity gains of technology and enable each individual to dedicate themselves to a "meaning" activity. Other contributors suggest redirecting employment foci towards managerial tasks that require emotional intelligence. And further Leaders of Tomorrow propose focusing the entire teaching and education system on the continuous coaching of individuals to help them achieve their objectives and develop their relationships.

According to a Leader of Tomorrow, three factors will determine the pace at which each of these solutions may be achieved. First, the awareness of people to admit and expect change that will be induced by automation will be crucial in human acceptance of AI. Second, the ability of people to be introspective about their strengths and weaknesses, identify the sources of change, and spot solutions for reconversion. Third, people will need to develop the capacity to embrace change by adapting their skills to the evolution of AI and technology.

(c) DEVELOP GOVERNANCE TO REGULATE ROBOTS AND AI

Other Leaders of Tomorrow believe that the diffusion of robots and AI takes place at the expense of humanity. They therefore suggest that this development should be controlled and channelled by appropriate governance and policies.

For example, a Leader of Tomorrow proposes creating a global-level organiza-tion, responsible for keeping the human-machine cost gap favourable for humans through three governance mechanisms: (1) global robot taxation, (2) promotion of low-skilled working visas in developed countries, and (3) develoment of education for computer and coding skills. The combination of all three factors should incentivize humans to tap into the human potential for productivity and employment rather than focusing solely on the cost advantages that are offered by machines. In a similar vein, two Leaders of Tomorrow claim that it is the duty of governments and policy makers to ensure that AI is regulated to avoid technological unemployment and be a catalyst for achieving a happy, healthy, and fulfilled society outside work and technology. As such, governments should ensure that AI will act primarily as cognitive improvement tool to ensure better decision-making, strongly support clusters of reflection, and regulate technology. As a Leader of Tomorrow suggests, "A.I. can go wrong, we must foresee what the potential harmful applications that can happen are."

In this regard, the authors argue that it is the primary responsibility of global leaders and governments to control the evolution of AI and technology. A Leader of Tomorrow states that "it has become imperative to prioritize the need for a

plan that engages individuals, businesses, and governments to handle an impending robotic future." Two Leaders of Tomorrow propose limiting potential inequality and uncontrolled development by regulating AI on a "global scale", for example, through an initiative under the aegis of the United Nations or the International Labour Organization. Such an initiative would seek to increase the cost of fully-automated labour, reduce the cost of a human workforce, ensure "inclusive automation", and promote human-machine complementarity in the labour market. Several contributions that share this vision highlight the potential that taxation may represent in keeping humans economically relevant. A contributor suggests, "if automation continues on its current trajectory, it will disproportionally benefit individuals with enough capital to purchase automation resources." Therefore, it is necessary to increase the cost of AI and automated processes by imposing economic barriers to their access through taxes. A further Leader of Tomorrow suggests extending this regulation to the daily appliances and devices using AI to dissociate them clearly from human identity. The author contends that the increasing infiltration of AI into everyday tasks has blurred the line between human identity and that of robots. This is problematic since AI should be limited to boundaries that remind of its "non-living" properties and as such AI should be defined within the boundaries of the "Internet of Things" as clearly distinct from human identity.

V. CONSEQUENCES AND CONCLUSIONS

The relatively few essays that focus on the broader consequences of automation and AI concern a variety of social issues, such as unemployment, quality of life, income, and leisure. The Leaders of Tomorrow highlight a need for progressive resilience and social adjustments to the inevitable employment and economic challenges.

In this vein, several contributions suggest that future economies will converge towards monopolistic settings where businesses with strong AI capabilities consolidate and grow, coming to dominate economy and society. As such, humanity needs to ensure that the broad mass of people can access capital and education to acquire AI and robot-related technologies. Such an objective can be achieved by redistributing income and revenues through proper policy making, taxation, and social systems. Other Leaders of Tomorrow believe that this trend will be paralleled by an increasing need for digital and AI skills in the labour market, which will render the current workforce obsolete and lead to a rise in unemployment. Some authors propose to orient education and labour toward the quest for meaning and vocation. The focus on the latter should direct humanity towards a model of "social productive human labour" – or a workforce whose focus is paving the way towards social advancement. It will also shift the needs of labour skills towards new priorities, as "people will remain for novel tasks that require creativity, inter-human relationships, strategic thinking and negotiations."

Some essays indeed suggest that the speed at which the development of robots and AI is taking place will force mankind to concentrate on "developing human-like traits" to cope with the sudden radical disruptions that will result in the near future. As a consequence, a contributor foresees a renaissance of professions that are characterized by interaction and communication between humans. Other Leaders of Tomorrow propose that in a world where AI and robots may be set up to function on "the right course" towards creating a beneficial system for all people, mankind will be able to dedicate itself to its passions and leisure. As such, the question in the future will not be about "staying economically relevant" but rather about staying "socially relevant". People will then be social actors who seek happiness, connections with like-minded people and work to improve the world. In such a society, "the new economy might be about human wellbeing and measure growth in terms of the health, happiness and satisfaction of citizens as well as the availability of clean resources, with a help of human-friendly (over consumer-friendly) machines with AI."

To conclude, this review summarized the top contributions to the 2018 St. Gallen Wings of Excellence Award competition. While some Leaders of Tomorrow have a negative view regarding the impact of robots and AI on the future of various jobs, the majority share an optimistic view that considers humans and machines as complementary rather than competing with one another for future relevance. Because of the vast number of highly interesting ideas of the Leaders of Tomorrow, many aspects had to be neglected, and this summary may sometimes appear reductionist. Despite this limitation, however, it may stimulate discussions during the 48th St. Gallen Symposium, both among the Leaders of Tomorrow and with the Leaders of Today. In addition, it may encourage participants to reflect on and critically discuss the Symposium's topic, "Beyond the end of work".

This student essay review was written by Prof. Dr. Markus Menz and Aïda Darouichi from the Geneva School of Economics and Management at the University of Geneva, in cooperation with Swiss Re and the St. Gallen Symposium. Markus Menz is Scientific Advisor to the St. Gallen Wings of Excellence Award.

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