Available online at http://cadmusjournal.org/

Cadmus

Promoting Leadership in Thought that Leads to Action

Volume 4, Issue 4 - June 2021

Science as a Social Good*

Garry Jacobs
CEO and President, World Academy of Art and Science;
President, The Mother's Service Society

Donato Kiniger-Passigli
Vice President, World Academy of Art and Science

Knowledge is power and power lends itself for good or for evil. The World Academy was founded by eminent scientists deeply concerned by the realization that the invention of nuclear weapons posed an existential threat to the future of humanity. Despite their efforts, more than 125,000 nuclear weapons were built during the Cold War and the nuclear genie remains at loose.

Concerns regarding the governance of the powers of scientific knowledge remain equally controversial and even more widely prevalent today. The current pandemic has demonstrated the crucial role of science in dealing with a global crisis. The world is understandably obsessed with the urgent quest to extend the powers of science to save millions of lives. Here too, concerns are raised as to whether the right decisions are being taken by the right people for the right reasons to ensure that every human being enjoys the full benefits of the human right to the benefits of scientific progress. The pandemic exemplifies the potential for conflict between science, politics, economy, society and public opinion.

Throughout its history science has delivered astonishingly new capabilities without anticipating or highlighting their limitations. The benefits of steam, electricity, fossil fuels, and advanced weaponry were heralded long before their devastating consequences became apparent. Today new technologies exasperate inequalities and pose unanticipated dangers. The powers of digital technologies and artificial intelligence have vastly expanded both the potential benefits and threats posed by scientific advances to such an extent that they are reframing our concepts of national, political, economic, social and personal security. Trust in science is buoyed by its remarkable achievements. Simultaneously, fear of its impact on freedom, democracy, employment, food safety and pollution increases side by side.

Science and technology are also redefining the social reality we live in. The notion of security is radically undermined by the impact of fake news on public opinion and democratic processes, the intrusion of government into personal privacy, the power of digital attacks to shut down national infrastructure, and the application of algorithms to destabilize financial markets. The increasing reliance on opaque algorithms in decision-making heightens the challenge of building public understanding and trust.

* Based on WAAS Talk #2 on "Science as a Social Good", May 24, 2021 with contributions by Gérard Escher: Advisor to the Board, Geneva Science and Diplomacy Anticipator (GESDA); Anja Kaspersen: Senior fellow at Carnegie Council for Ethics in International Affairs; Georgios Theodoropoulos: Chair Professor, Dept. of Computer Science and Engineering, SUSTech and Ketan Patel: Co-founder and CEO of Greater Pacific Capital

The realignment of technologies demands regulation by governance principles to ensure that innovations contribute to human wellbeing and societal progress. New types of vulnerability require that we reconsider current concepts of resilience.

"The realignment of technologies demands regulation by governance principles to ensure that innovations contribute to human wellbeing and societal progress."

The existing paradigm for the management of scientific knowledge is grossly inadequate to manage the unprecedented power of knowledge. Disciplinary silos still foster the fragmented pursuit of specialized scientific discoveries. Even multidisciplinary consultations do not sufficiently ensure cross-pollination of ideas and integrated perspectives. It is still left to future generations to cope with the unanticipated consequences to our planet's ecosystem and climate.

Education remains concentrated on narrow specialized fields. It fails to equip scientists with the wider knowledge necessary to fully comprehend the interactions between different spheres. Both scientists and non-scientists alike fail to acquire the broader knowledge required to comprehend the social consequences and policy implications of scientific advances on individuals, society and the planet.

Who is responsible for making the decisions and managing the consequences? Who possesses sufficient knowledge? Who can be trusted to think and act on behalf of humanity as a whole? Are those making policy-decisions or allocating financial resources sufficiently informed? The complexity and ambiguity of the challenges we face make it difficult for policy-makers to comprehend the best choices and for politicians to navigate the complex maze of competing interests on which their decisions impact. The present system provides no clear answers.

Only piecemeal solutions are offered to regulate the vast proportion of scientific research conducted by commercial organizations primarily motivated by the profit motive. How can the powers of science and capitalism be reconciled in a multi-stakeholder model that includes people, politicians, financiers, consumers and humanity at large? How and by what process and institutions can we reconcile the demands of the planet with the unbridled aspiration for greater consumption?

What overriding framework can bring together and rectify these competing and contradictory objectives—freedom for scientific exploration, the benefits of commercial exploitation, health, safety, human rights, equal access, equity, job security, privacy and individual freedom? Our concepts of freedom and security are outdated and inadequate. A wider and deeper framework is needed to supplant narrow conceptions of both the threats we face and the rights we affirm.

Our existing institutional structures are incapable of bridging the gaps in the present fragmented system. Research is isolated from the real world and its social implications. Education is parsed into small pieces. Ethics is taught as an elective in disciplines where it should be mandatory. Only tenuous links exist between scientists and policy-makers responsible for regulating scientific applications and protecting society from its consequences. Implementation of decisions is carried out by specialized agencies ill-equipped to handle the complex interdependencies between different fields of social existence.

"Human Security is a comprehensive framework which encompasses all forms of security, social equity and human rights and the interests of all stakeholders. It unites and integrates the 17 Sustainable Development Goals."

None of the stakeholders by themselves possess the comprehensive knowledge required. None are sufficiently equipped or charged with responsibility of asking the tough questions raised by looking forward to anticipating the challenges and consequences of future knowledge development and its impact on society. The general public remains either naively optimistic or doubtful, unaware, indifferent, confused, suspicious and afraid.

A new paradigm is needed to build trust and confidence, enhance coordination and knowledge exchange. New institutional models are needed that bring together all stakeholders at early stages of the process of knowledge discovery and development rather than waiting until scientific development is complete before considering the needs, aspirations and concerns of people and the planet and the challenges of effective regulation and governance both at present and in the future.

The challenge confronting the world today is to evolve a comprehensive, integrated development paradigm encompassing the full spectrum of human security needs. Human Security is a comprehensive framework which encompasses all forms of security, social equity and human rights and the interests of all stakeholders. It unites and integrates the 17 Sustainable Development Goals. This will require evolving an institutional framework capable of reconciling the competing perspectives and interests of free scientific discovery, government regulation, political stability, commercial profit, social harmony, individual rights and ecological sustainability. This is the challenge and the opportunity presented to science, government, society and humanity as a whole.

1. Global Institute for Human Security

In response to this need WAAS has proposed the establishment of national, regional and global institutions that are multistakeholder, multidisciplinary, multisectoral and transnational in composition. These institutions would give centrality to the principles of Human Security as their governing values—encompassing the needs and aspirations of individuals, society

and the planet. They would provide an integrated platform for the implementation of the SDGs founded on the premise that effective achievement of each goal needs to be aligned and coordinated with all the other goals to ensure that the strategies adopted are mutually reinforcing rather than antagonistic.

The institutional structure envisioned would bring together research scientists from both the natural and social sciences, policy-makers and law-makers, governmental implementation agencies, business, civil society and community leaders. Integrated teams of stakeholders would examine social problems and scientific opportunities from a comprehensive perspective which focuses on their impact on human security, social development, human rights, wellbeing, social justice and sustainability. Ideally the composition of all teams would draw on expertise from around the world and take into account not only the best thinking available but also the wider implications for humanity and the planet.

Important elements of this model are exemplified by the Geneva Science and Diplomacy Anticipator (GESDA) established a few years ago by the Canton of Geneva and Government of Switzerland in collaboration with leading scientific institutions and a large network of scientists from around the world. Their focus is on identifying high potential emerging opportunities in science and technology, examining their long-term benefits and implications, and working with policy-makers to consider issues related to regulation and governance. Bringing in potential investors and corporate partners, civil society and community leaders at an early stage can help shape scientific research to anticipate problems and maximize the emphasis on beneficial applications of science as a social good.

Similar perspectives, values, structures, and design principles need also to be incorporated in research institutions, universities, government agencies, international organizations, corporations, CSOs, funding agencies and communities. A shift of this magnitude in thinking and action would constitute a radical change in the paradigm for science as a social good. But it is not unprecedented. Similar shifts have already occurred to integrate concerns from safety, environmental protection and human rights into institutions at all levels. This model would take the process further to fill critical gaps in the existing system.

Authors Contact Information
Garry Jacobs – *Email: garryjacobs@gmail.com*
Donato Kiniger-Passigli – *Email: kiniger@worldacademy.org*