

DECLARATION

FOURTH INDUSTRIAL REVOLUTION AND FUTURE SOCIETY

The Fourth Industrial Revolution (4IR) has been induced by a fusion of data-driven technologies and processes steering human productivity to a new phase characterized by a paradigm shift in automation, connectivity, productivity, management and governance, with offering a kind of "data democracy" concept to people and society. With the incorporation of elements from the previous three industrial revolutions (especially the 3IR), the 4IR is blurring the differences between physicochemical, biological and digital spheres. Through these developments, the revolution is impacting human civilization with a profound transformation in personal as well as collective lives encompassing technical, socioeconomic, cultural and ethical dimensions. Irrespective of the willingness, every human being on the planet is now becoming part of this transformation. In parallel to the positive contributions to human development, 4IR is posing an immense challenge to the global community especially related to the climate crisis, environmental and economic sustainability, rising inequality among nations and individuals, and certain ethical and sociocultural issues. It is now a crucial time to discuss the prospects of 4IR and address the consequent challenges from both pragmatic and moral points of view.

Asia is one of the most important regions of the world where the impact of 4IR may be more vividly visible. This continent is constituted by countries of which many are passing through a rapidly developing stage using the advantages of the 4IR-related technologies and some have already reached the levels of developed economies. Realizing this fact, the Science Council of Asia (SCA), chose 'Fourth Industrial Revolution and Future Society' as the Theme of the 23rd SCA Conference (23rd SCAC). Around 300 scientists, academicians, regional scientific organizations, entrepreneurs, and other stakeholders gathered at this Conference on 30 November-02 December, 2024 in Dhaka, Bangladesh. The participants discussed various issues on technologies, implementation processes, and social impacts of the revolution as well as on related important issues like regional collaboration and concerted action, environmental sustainability, and food security.

Through the deliberations and discussions among the participants of the 23rd SCAC, the SCA makes the following Declaration containing the 'strategic' directions, as suggested by the Organization, to guide the implementation of 4IR:

1. Realization of the multifaceted nature

It is usual that the relevant professionals will apprehend 4IR mostly from their own perspectives. However, the Policy Makers and Planners in the fields should appreciate that the term 'industrial revolution' in 4IR is, in the true sense, a misnomer (though it will

continue to be used for historical reasons). With a number of ramifications, the transformation (as visualized in 4IR) is not merely technological and industrial but it is, at the same time a sociopolitical and cultural transformation. In the absence of this realization, the unbalanced promotion of the technological aspects may create a misperception among society leading to polarization in favor and against these transformations. The scientists and practitioners have also some obligations to be aware of the comprehensive nature of the 4IR and also to take part in the educational and motivational initiatives related to the rational and ethical implementation of the relevant projects. SCA will try to promote this multipronged nature of 4IR among relevant professionals, planners and the general community.

2. Prioritization of technologies as relevant to Asian countries:

The countries within Asia are now at highly diverse technological stages. Some communities in few countries have not crossed even the technological boundaries of the earlier industrial revolutions. Under this context, various options of the relevant technologies should be carefully evaluated and prioritized for their appropriateness in specific settings. Also, with the demonstrated developmental roles of the traditional (not 'industrial' as per current terms) agricultural practices, small-scale initiatives and public health approaches, the introduction of technology needs to be tailored for the targeted community. Scientists have the obligation to innovate newer ideas and applications which will be particularly relevant to Asian communities. SCA will play a facilitating role in defining and developing these technological options.

3. Coordinated implementation

The implementation process of the 4IR-related technologies in a particular country should be under coordinated and comprehensive planning with short-, mid-, and long-term goals and objectives. The best option is to design individual country-specific Strategies (and Action plans) following a general guideline developed by SCA. The introduction of a particular group(s) of technologies (frequently biased for specific physical-chemical or biological disciplines) creates a developmental imbalance and underutilization of the investment. The implementation process is frequently dominated by the consideration of short-term dramatic (often politically motivated) benefits rather than considerations on long-term sustainable development and environmental impact. This tendency needs to be reversed and a more balanced approach towards development should be undertaken. The availability of adequately trained human resources should be a matter of prime concern in designing the strategies and action plans. Scientists have a particular advantage in driving awareness and advocacy initiatives among Asian Policy Makers and Opinion Leaders as most of the countries in this region are, presently, in the

implementation phase of this revolution. SCA will be able to facilitate and promote such coordinated awareness-advocacy drives.

4. Consideration of equity and social justice

Apart from climate- and environment-related challenges, the social challenges created by 4IR should be addressed properly in the implementation process of industrial revolutions. This is frequently overlooked though it is a central issue in harnessing the proper benefit of the revolution for human civilization. The 4IR, potentially, may worsen the presently growing inequality among individuals and communities through its negative impact on the employment market, digital divide and exploitative relations. Also, some of the technologies may be used for violation of human dignity, freedom and other basic rights. Accordingly, vigilance is necessary to place equity and social justice at the center of all policies and programs related to human rights. It is highly important to involve social scientists and humanity experts in these plans, and the integration of cultural activities, in specific contexts, should also be promoted. SCA will play a unique pivotal role in creating such sociocultural dimension in 4IR among the Asian population keeping in mind the rich heritage of most of its countries.

5. Collaboration between Asian players

All the strategic objectives, as mentioned above, may only be realized through initiatives undertaken by the constituent Academies and other stakeholders. However, individual countries and institutions may not have the expertise and experience to address all the issues in so many diverse areas. The Academies may play proactive role in creating collaboration between appropriate stakeholders in relevant areas, both within and outside the country. Such cooperation will be vital especially for the development of human resources as this is the central input required to initiate activities in all the areas. SCA will have a coordinating and integrating role in this regard.