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## An Un-imagined World as a Catalyst for Sustainable Development R&D

An un-imagined world now exists. Tragically, it is one of: global financial instability; political legitimacy crises and of sustainability crises that extend far beyond the COVID-19 pandemic to threaten the planetary boundaries beyond which civilization is not assured. Our future may be defined not only by the pandemic, but by a cascade of crises triggered by our failure to live within the rhythms of the biosphere. The COVID-19 pandemic may be indicative of proliferating global crises.

Whether our current condition will be disrupted by modes of thought and forms of social and political actions that embrace sustainable development or whether we continue to lurch from disaster to disaster is not yet clear. In our present circumstances the terrifying and the fantastic dangerously propel us towards an uncertain future. Yet, the unfastened circumstances are resulting in an "Oedipus effect" in which a dystopian future exerts an influence on the present; where henceforth we must protect the future from the past, not the past from the future.

As shocking as the COVID-19 crisis is, it also shows us that it is possible to make transformational changes overnight. The greatest of global challenges demands uncommon boldness; and the urgency demands the broadest of global cooperation. For we have common interest in rising above the challenges of our time to find a path forward based on our shared future and in a cooperative endeavour to build new institutions requisite to the challenges before us. Indeed, our future security and prosperity depends not on the strength of national borders or the size of armies, but our ability to build new institutions and partnerships based on a spirit of global solidarity and peaceful coexistence.

Rather than simply reacting to disasters with magical thinking and authoritarian rule, we can and must use science to enable a just and humanitarian transformation. As with the COVID-19 crisis a major issue will be to coordinate scientific analyses across the world's research ecosystem both to deepen our understanding of the issues before us, and to inform the design of a new global operating system.

The fragmented response to COVID-19 sadly illustrates why the world needs open science and open innovation to inspire a new age of scientific cooperation. The response to COVID-19 suggests that the biggest problem in advancing sustainable development research is not a lack of funding, but a lack of coordination, siloed information, and the absence of a systemic perspective on the critical gaps in our knowledge.

The process of developing frontier science into breakthrough innovation often happens by

serendipity where the search for one thing leads to the discovery of another. But one result of this spontaneity is that there is no overarching perspective on the landscape of sustainability science.

The frontier of science should be well defined to give clarity to mission-driven research and where ethically-informed artificial intelligence can help identify the most promising opportunities to accelerate sustainable development research and innovation. In this regard, open science enables a mapping of the research landscape; identifying which problems in which areas need to be tackled. A mapping would permit us to identify and prioritize high impact opportunities. The challenge is not only to utilize but to optimize scientific data's usability and enable better discoverability of information, leveraging its hidden treasures and untapped opportunities. For we need to discover in which directions we should move to mitigate existential risks.

Existential risks require a distinct approach to how we do science. If sustainable development policy-making is to be soundly based, a methodological re-framing of scientific research, development and innovation within an existential risk-management framework is required. For as French Minister Laurent Fabius stated: “We are the first generation to know and probably the last to be able to act.”

At the University for Sustainability we see the pandemic as an opportunity to accelerate the fusion of open science and open innovation within an ecosystem of entrepreneurial talent and financial resources. Indeed, the University is integrating three digital platforms to execute on this vision. Acknowledging that the purpose of science is not to open the door to infinite wisdom, but to set a limit to infinite error, the mission of the University's Sustainable Development Research Network is to responsibly accelerate the mapping, discovery, development and adoption of sustainable development solutions. Its aim is to: bridge the gap between isolated and fragmented information systems that hinder researchers from making breakthrough discoveries; enhance the development of science-based policy; accelerate innovation and responsibly harness exponential technologies for sustainable development.

We believe the University has a moral obligation to innovate a way to better share knowledge, identify, address critical research gaps and draw the attention of global leaders to the hard scientific facts requiring action. For political reality must be grounded in physical reality or it is completely useless. Rather than simply reacting to disasters with magical thinking and Machiavellian political expediency, we can and must use science to help design a new global operating system and enable a just and humanitarian transformation.

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9 April 2020

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