



# A Case For Transformation-Based Scenario Development

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## Summary

The Transformation Council aims to facilitate academic development of roadmaps, scenarios, and resources that help capital allocators and policy makers navigate the intersection of disruptive technologies and the transition to a sustainable economy. The forces at this intersection suggest impending global transformation and uncertainty, with little precedent or foundation for long-term policy and investment decisions. To address this, the Transformation Council proposes development of draft roadmaps for the Six Transformations to be refined at an invitational gathering of allocators, academia, and policy makers in May 2020.

We are beginning this work with a synthesis of existing research and narratives.

## Background

### Six Transformations

In August 2019, academics associated with Columbia University-based Sustainable Development Solutions Network, including economists [Jeffrey Sachs](#) and [Mariana Mazzucato](#), published a paper in [Nature Sustainability](#) outlining six global transformations required to achieve the United Nations' 17 Sustainable Development Goals (SDGs). The paper documents the major global shifts required and the interdependency of the following:

1. Education, Gender, and Inequality
2. Health, Wellbeing, and Demography
3. Energy Decarbonization and Sustainable Industry
4. Sustainable Food, Land, Water, and Oceans
5. Sustainable Cities and Communities
6. Digital Revolution for



**Fig. 1 | Six SDG Transformations.** Each Transformation describes a major change in the organization of societal, political and economic activities that transforms resource use, institutions, technologies and social relations to achieve key SDG outcomes (represented by the SDG wheel in the centre). Figure adapted from ref. 1, TWI2050; SDG colour wheel courtesy of UN/SDG.



## Sustainable Development

Transformation of each of the above categories requires unprecedented cooperation, knowledge mobilization and political action to realize the full societal benefits of these shifts.

The United Nations Conference on Trade and Development (UNCTAD) pegs the annual budgetary gap in achieving the SDGs at USD 2.5-3 trillion but also estimates up to USD 12 trillion in new market opportunities across just four key systems (food; cities; energy and materials; and health and well-being), and USD 26 trillion in savings from action on climate change. Adding gender equity and digital opportunities, estimates are closer to USD 20 trillion.

## Five Disruptive Innovations

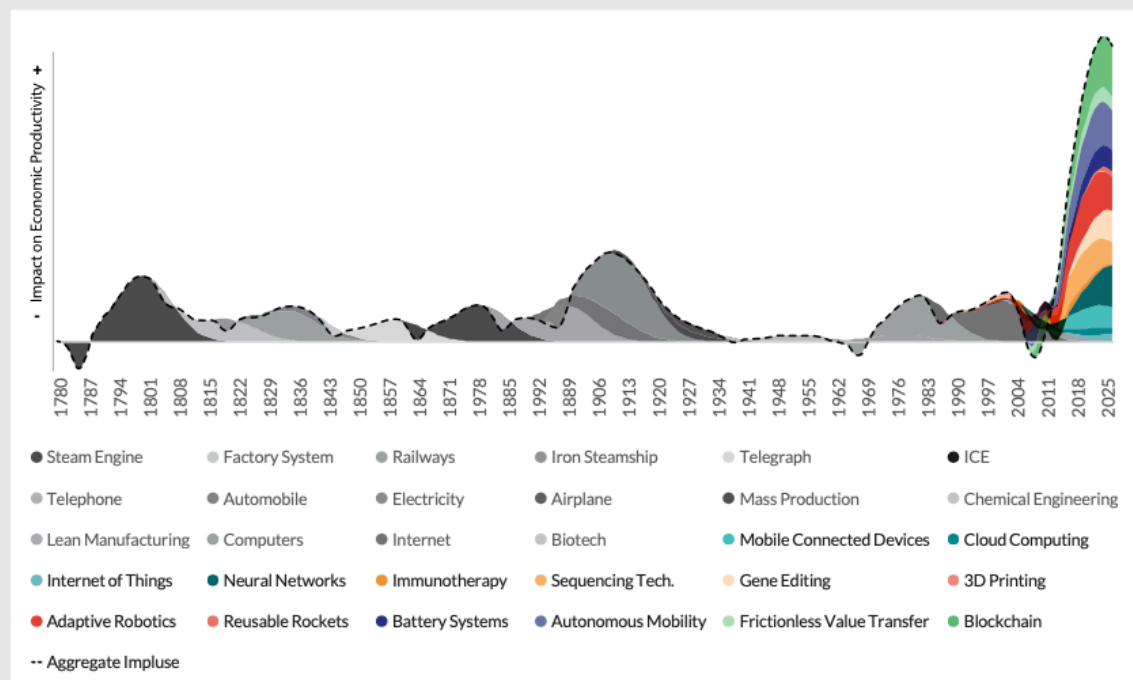
Similarly emergent, New York-based ARK Investment Management LLC outlines unprecedented acceleration and confluence of disruption from five major innovations:

1. Artificial Intelligence
2. Energy Storage
3. DNA sequencing
4. Robotics
5. Blockchain technology

Because these disrupters are “General Purpose Technologies,” they have the potential to fundamentally change productivity, generate new policy reactions and wealth, and initiate adaptive social structures. If they crest during an overlapping period, over the next 10-15 years, their impact could be on a scale we’ve never seen.

FIGURE 4

### Estimated Impact of Technology Platforms on Economic Productivity



Source: ARK Investment Management LLC, 2019 | Forecasts are inherently limited and cannot be relied upon.



## Opportunity

By looking at these frameworks in tandem, complex system modellers and scenario developers have an opportunity to explore radically different futures, their policy and investment landscapes, economic outputs and social ramifications. A set of well articulated futures could help redirect capital toward social and economic benefits for generations to come. The expertise required to build these futures is already embedded within the academic sector, including SDSN's global network of 35 national and regional networks, but requires new scoping to include disruptive innovations. A series of prototype roadmaps for interested sectors will be critical.

## Next Steps

### Phase 1

Organize transformation networks and initial roadmaps to prepare for scenario development.

1. Generate a literature review and analysis of existing research, data, and narratives related to the transformations and innovations in order to identify who's already exploring this topic and what knowledge base exists.
2. Prototype roadmaps for each transformation with expert feedback based on existing knowledge base.
3. Convene a day-long session at Together 2020 (Quebec City, May 2020) to workshop the roadmaps (highlights, gaps, next steps).

Timeline: January to May 2020

### Phase 2

Commission scenario development for each of the transformation roadmaps while deepening networks, data and resources to support integration and application by network members into capital allocation strategies, investment decisions, policy development, and reporting.

1. Scenario development processes will be initiated based on best practices for the type of scenarios required. These will likely be some form of normative-narrative scenarios informed through an expert panel and workshop process, then coupled with a bottom-up trend extrapolation depending on the relevancy of available data.
2. These scenarios will be packaged into a public summary report highlighting the scenarios, high-level roadmaps with measurable sign-posts, and implications for institutional investors and policy makers.
3. A more detailed compendium of research findings as well as data and resources both used and available for follow-on analyses and reporting will be made available exclusively to the research partners and sponsors for each transformation.

Timeline: from June 2020



## About the Transformation Council

The Transformation Council is an initiative of [Possibilian Ventures](#) and the [Waterloo Global Science Initiative](#), in collaboration with [Windfall Ecology Centre](#) and the [Sustainable Development Solutions Network \(Canada\)](#), to address the challenges of capital allocation through periods of systemic transformation.

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