

# Youth engagement in promoting digital innovation to accelerate the UN SDG 4

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## Abstract

Digital transformation is well recognized as a key element for sustainable development, and digital innovation is the engine to drive this transformation to the future. Young people have a critical role to define the future, with the unique advantages of growing up under the ubiquitous influence of digital technologies, young people, seen as “digital natives”, are at the forefront of digital innovations, and have the spirit to make things happen. This brief is to encourage youth engagement in digital innovation to improve the science-policy-society interfaces, and further support the UN sustainable development goals.

## Introduction

From the experience of three industrial revolutions in human history, digital transformation, seen as the fourth one, is well recognized as a key element for sustainable development. It is essential to identify the priority actions, future drivers and structural changes as well as longer-term assumptions and risks to ensure the achievement of the United Nations’ 17 sustainable development goals. Among them, youth is a significantly important topic regarding the future, more exactly, they could be the driving factor in exploring new areas of potential economic growth. As there is no universally agreed international definition of the youth age group, in this brief we adopted the definition of the United Nations habitat (youth fund) as a population from 15-32 years<sup>1</sup> old to discuss youth engagement, this brief is to identify the motivation, lesson learned from existing efforts, future opportunities, as well as call to action on youth engagement and accelerate the SDG 4: quality education in the coming digital world.

## Motivation

Young people are considered “digital natives”, as they grow up under the ubiquitous influence of the internet and other modern information technologies. While “digital immigrants” who were raised prior to the digital age have to adapt to the new language and practice of digital technologies. In the dynamic landscape of emerging technologies including cloud computing, Internet of Things (IoT), big data, Artificial Intelligence (AI), augmented reality (AR) and Virtual Reality (VR), etc., the digital native mindset may lead to the unexplored space and imagination when thinking about digital transformation without the restriction of long-term living habits. Here is a quote from Albert Einstein-“Imagination is more important than knowledge. For knowledge is limited, whereas imagination embraces the entire world, stimulating progress, giving birth to

evolution. It is, strictly speaking, a real factor in scientific research.” [2] Therefore, young people have a critical role to define the future, they need, and also should take active participation in shaping their lives and directing their futures during this digital transformation.

## Existing efforts

Many explorations and efforts have been made to enable youth connectivity and access to educational resources. The International Telecommunication Union (ITU) has launched RESOLUTION 198 at the Plenipotentiary Conference (Dubai, 2018) on the topic of “Empowerment of youth through telecommunication/ information and communication technology.” [3] Giga is a joined forces launched in 2019 by the ITU and the United Nations International Children’s Emergency Fund (UNICEF) in a bid to connect every school to the Internet and every young person to information, opportunity and choice [4]. However, digital infrastructure is a first step, to advocate youth engagement as a social determinant of the digital economy, we still have some way to go. One example is the first-ever global report on ageism launched in March 2021 [5] by World Health Organization (WHO) and co-signed by the United Nations Department of Economic and Social Affairs (UN DESA), the United Nations High Commissioner for Human Rights (UN HCHR) and the United Nations Population Fund (UNFPA). Ageism is a common issue when youth people seek opportunities, this report delivered an important message from the UN Secretary-General and brought together the best available evidence to reduce ageism.

The above top-level message from United Nations set out the guiding light on the road of youth empowerment, the scaling up for impact rely on countries’ implementation and localization. Take China as an example, the State Council formulated the first national

plan in the youth field in April 2017, named "Middle and Long-term Youth Development Plan (2016-2025)"<sup>6</sup>. As a follow-up, in 2022 April the State Council reviewed the progress and released a white paper entitled "Chinese Youth in the New Era"<sup>7</sup>, with an in-depth analysis of available resources between generations, and pointed out the unique opportunities for young people to be engaged in the digital transformation as digital natives. As localization, the Zhejiang Provincial Government<sup>8</sup>, Shanghai Municipal Government<sup>9</sup> had youth development taken into priority in their 14th Five-Year Plan, and the Suzhou Municipal Government even conducted youth education in Artificial Intelligence among schoolchildren at the city level<sup>10</sup>, with co-construction of e-course resources library and youth challenge on AI. Industry participation is also very important, the Young Computer Scientists & Engineers Forum(YOCSEF)<sup>11</sup> established in 1998, is a typical academic force to empower youth in the digital industry, with headquarter in Beijing, and sub-forum in over 27 cities in China including Suzhou, Shanghai, Hangzhou, etc. China Academy of Information and Communication Technology (CAICT) and its WHO Collaborating Centre for Digital Health also organize and facilitate a series of youth innovation challenges with Tsinghua University on SDG3(health and well-being) and SDG13(Climate Action)<sup>12</sup>, under its strong resource in ICT industry alliance to bridge the gap between academia and industry and offer entrepreneurship opportunities to youth group. Collaboration with private sectors cannot be ignored, over 23 entities including the HKUST Xunfei and the China Press co-constructed a Youth Cultural Big Data Headquarter<sup>13</sup> and established 23 visualization collaborative innovation integration laboratories with copyright value assessment and trading services related to young digital products, to promote high-quality digital content ecosystem for young people.

As there is no one-size-fits-all solution, this hierarchical implementation has its advantage in efficiency, profiling and scaling up. As a result of these series of efforts, there are more than 5 million college students as entrepreneurs among the newly registered market entities, especially in the ICT industry, young people are the driving factors which account for more than 50% leading the Antelope Enterprise. It laid a fundamental basis for youth engagement and empowerment in the digital economy to fast offer young people access to entrepreneurship and digital innovation. However, financial sustainability, innovation institutionalization, and scaling up for impact at the industrial level are the challenges that we need to overcome. Charity is not a sustainable business model, if a resilient ecosystem is to be built for youth engagement, by deepening public-

private partnerships, efforts can go further from paper to practice, from education courses to industry implementation.

**Table 1.** Practices of youth engagement in digital innovation

Entity		Efforts	Focus areas
United Nations	ITU	RESOLUTION 198	Empowerment of youth through ICT
	ITU & UNICEF	Giga	Connecting every school to the Internet
	WHO	Global report on ageism	Reducing ageism on youth and older people
National policy	State Council of China	First national plan in youth field	Middle and Long-term Youth Development Plan (2016-2025)
		White paper	Opportunities of Chinese Youth in the New Era
Local government	Shanghai Municipal Government	Shanghai Youth Development "14th Five - Year Plan"	Guide young people to participate and facilitate urban digital transformation
	Zhejiang Provincial Government	"14th Five - Year Plan" of the Digital Economy Development	Actions to cultivate multi-level digital talents to build the digital economy
	Suzhou Municipal Government	Suzhou Youth Digital Citizen Cultivation Plan	Youth education in Artificial Intelligence among schoolchildren in city level
Non-government	CCF YOCSEF	Series dialogue	Academia, computer science
	CAICT	Youth workshop	ICT industry and digital health
	Private sectors(HKU ST Xunfei and 23 entities)	Youth Cultural Big Data Headquarter	Copyright value assessment and trading service related to young digital products

## Challenges and future opportunities

Based on the case studies, below are some lessons learned and hopefully can point out where future opportunities may lie in.

*How to identify Innovation direction?* The identification of future economic growth is a pass to stimulate market participation. Having innovation be future-oriented and human-centred will always be the basis of society and economic development. Recognize that innovation has a purpose and cause, and human is at the centre of all innovation stories. Focus on people who will use it, putting them first and engaging them at the very beginning, not at the end just as end users during the innovation process, is the key to success.

*How to ensure a sustainable model?* It is not a surprise that many youth programmes only last for two or three years which hardly becomes a long-term run. Finance sustainability is one reason; however, the lack of internal motivation is also fatal. To have youth projects as peer-driven and innovation institutionalization are the keys to ensure success. Community-wide peer groups in youth take an important role to drive social and tech change. Innovation can happen by supporting peer groups as they lead their own change and work collectively to advance their lives, and this also requires inclusivity. Digital innovation should be rooted in social equity. It also should include gender equity. Young women, often under-represented in innovation, contribute to a distinctive medley of views and ideas influenced by differences in biology, cultural impact, and life experience.

*How to scale up for impact?* An ecosystem of innovation is richer by the diversity of backgrounds and experiences of its actors. It is always not an easy job to build up an industrial impact. Frankly starting with strategic communication to build up a shared vision of youth engagement with multi-stakeholder could be the first step. The target recipients of this brief include ministries related to the ICT industry and human resources, academia including universities and youth education faculties, private sectors in the ICT industry and non-government organizations. Governments, academia, private sectors and civil society need to form a consensus and work together for a shared vision of youth engagement.

## Call to action

As key components of the public-private partnerships, recommendations to policymakers and private sectors are given below.

*Transforming policies across sectors to ensure that policies are age-friendly.* Encouraging youth engagement in digital innovations needs awareness, recognition and high-level political commitments from governments. Governments need to translate system-level demand 'signals' into innovation development opportunities; and transform policies across sectors to reduce ageism. The gap can be narrowed by implementing youth-friendly policies, several directions are worth the effort including youth entrepreneurship programs, innovation challenges, youth research funding support and regular capacity building, etc.

*Involving private sectors in adaptation to youth empowerment.* Youth engagement is not a story about charity, adapting systems and technology to be future-oriented has benefits for the consumer market industry itself and all of society. A sustainable mode of capacity building and business maintenance needs to be identified to fully stimulate the market to build up a positive loop from ideation, prototype, development, and deployment to scale up for impact. In the short and mid-term, the appraisal and recognition from the top-level policymakers will increase the motivation, but it requires profit-making for sustainable development. Opportunities for surfacing and scaling innovation lie in finding synergies and win-win situations. An analysis of the best practice worldwide can be the first step in research agenda-setting on industrial collaboration.

*Enabling young people's voices as part of the co-creation.* Existing digital technology, facilities and services are often not including young people's ideas at the very beginning. With the unique advantages of growing up under the ubiquitous influence of the internet and other modern information technologies, these young people, are at the forefront of digital innovations, and have the spirit to make things happen. Imported by the co-creation process, young people intend to use design thinking and other innovation methodologies to reframe problems before defaulting to convenient solutions, their voice can be included in the design of digital technology and applications, so that they will

take should take a meaningful and proactive participation in shaping their lives and directing the futures. Peer-driven community as mentioned above is also a tangible facilitation to enhance young people's voices during the digital transformation.

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<sup>1</sup> United Nations Department of Economic and Social Affairs (UNDESA). DEFINITION OF YOUTH.

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<sup>2</sup> Einstein, Albert. "Cosmic Religion and Other Opinions and Aphorisms Englanti." (1931): 2015-2017.

<sup>3</sup> ITU. RESOLUTION 198 (REV. DUBAI, 2018), Empowerment of youth through telecommunication/information and communication technology.

(<https://www.itu.int/en/council/Documents/basic-texts/RES-198-E.pdf>, accessed on Mar 10, 2023)

<sup>4</sup> ITU. Giga – Connecting Every School to the Internet.

(<https://www.itu.int/en/ITU-D/Initiatives/GIGA/Pages/default.aspx>, accessed on Mar 10, 2023)

<sup>5</sup> WHO. Global report on ageism.

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<sup>6</sup> State Council of China. Middle and Long -term Youth Development Plan (2016-2025).

([http://www.gov.cn/zhengce/2017-04/13/content\\_5185555.htm](http://www.gov.cn/zhengce/2017-04/13/content_5185555.htm), accessed on Mar 10, 2023)

<sup>7</sup> State Council of China. White paper on "Chinese Youth in the New Era". [http://www.gov.cn/zhengce/2022-04/21/content\\_5686435.htm](http://www.gov.cn/zhengce/2022-04/21/content_5686435.htm), accessed on Mar 10, 2023)

<sup>8</sup> Zhejiang Provincial Government. "14th Five -Year Plan" of the Digital Economy Development,

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<sup>9</sup> Shanghai Municipal Government. Shanghai Youth Development "14th Five -Year

Plan".(<https://www.shanghai.gov.cn/nw12344/20210709/0309ea3652544d3795c332c264df4280.html>, accessed on Mar 10, 2023)

<sup>10</sup> Suzhou Municipal Government. Suzhou Youth Digital Citizen Cultivation Plan

(<https://www.suzhou.gov.cn/szsrnzf/bmwj/202108/b63f96475ae348508eff082bd96208b0.shtml>, accessed on Mar 10, 2023)

<sup>11</sup> Young Computer Scientists & Engineers Forum.

([https://www.ccf.org.cn/yocsef\\_new/](https://www.ccf.org.cn/yocsef_new/), accessed on Mar 10, 2023)

<sup>12</sup> Tsinghua University X-lab. SDG innovation challenge

<https://mp.weixin.qq.com/s/L3KpmK8sPttgSV7d3Rc0lw>, accessed on Mar 10, 2023)

<sup>13</sup> The Paper, Youth Cultural Big Data Headquarter.

[https://www.thepaper.cn/newsDetail\\_forward\\_17853951](https://www.thepaper.cn/newsDetail_forward_17853951), accessed on Mar 10, 2023)