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Remote work and E-commerce in the time of Covid-19: report of online internship at the ITU WSIS Forum 2021

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**Remote work and E-commerce in the time of
Covid-19: report of online internship at the ITU
WSIS Forum 2021.**

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1. Introduction

Background

January 15th 2020, as the fall semester had ended Tsinghua students headed to Beijing Capital International Airport to catch a flight or to Beijing Railway Station to get a train back to hometown for the Lunar New Year Celebration. The yearly month-long vacation was the time for family gathering and rest after a long year. None of us expected that our stay at home would last months or, for some of us, 1.5 year by now.

As the news of the new respiratory disease was spreading in Wuhan, Hubei province China imposed a lockdown of a city of 10 million people. The world had never seen such drastic measures applied to combat an infectious disease, which later would be given the name of Covid-19. Covid-19 had changed the way we lived, studied and worked. In China everything immediately moved online. Chinese citizens and students started adapting to the new working and studying environment. Around the world, other countries also started to implement new regulations to prevent the spread of this new pandemic. As of July 2021, the world has officially recorded more than 4 million death tolls and 182 million infections of Covid-19.¹

Today, China's Covid-19 tolls stand at 92,600 infections and 4,600 deaths as of July 2021, most of which were recorded in Wuhan.² At the end of July, on the other side of the Pacific Ocean, the United States counted more than half a million deaths, while a policy of vaccination of the American population with 350 million injections of vaccines was implemented.³ China's initial strict and swift response with lockdown and restrictions proved to be an effective way to stop and curb the spread of the Covid-19. In the short term, it came at the cost of economic decline for the time of restrictions and lockdown. In the long term, China effectively managed the spread of Covid-19, and by fall 2020 most of the

¹ Last consulted on 15/07/2021 Weforum (2021) Retrieved from <https://www.weforum.org/agenda/2021/07/covid-19-coronavirus-pandemic-2-july-2021/>

² Last consulted on 15/07/2021 Reuters (2021) Retrieved from <https://www.reuters.com/world/china/china-reports-most-covid-19-cases-since-end-jan-nanjing-starts-2nd-mass-testing-2021-07-26/>

³ Last consulted on 15/7/2021 Bloomberg news (2021) Retrieved from <https://www.bloomberg.com/news/articles/2021-07-07/germany-renews-vaccine-plea-as-europe-struggles-to-contain-delta>

country transitioned to the new pandemic-era normal with some regulations and restrictions on everyday life. (Wuhan had a music festival on August 2020 with thousands of attendees). But still, the whole world is faced with huge challenges caused by Covid-19: in 2020, the economies of many countries have been impacted, the employment rate has begun to decline, the medical resources are in shortage, and it is difficult to achieve a reasonable global distribution of vaccines. All these had a great impact on the realization of 17 Sustainable development goals proposed by the UN, and also affected everyone's life, work and study.

Life, work and study in 2020 and 2021

Spring 2020 was a beginning of a new normal for us. The restrictions and regulations by governments in China, Vietnam and other countries in Asia forced our transition to remote study and work which became the only available options. Lincoln Quang Duong was following online classes at Tsinghua from Hanoi, Vietnam. Sitting at home in Anhui Xingyu Zhou had virtual meetings with professors on VooV Tencent Meeting. Yuhua Li interned remotely from home in Beijing. Xinhe Yan attended classes online from her hometown.

All four of us were doing the dual MPA/MIHDS degree at Tsinghua University and University of Geneva. We had hoped that by fall 2021 we could go to Geneva to complete the degree in person. Unfortunately, when the severity of Covid-19 pandemic became apparent in the summer of 2020 in the United States and in Europe, with cases surged and lockdowns imposed, our team was not able to come to Geneva as originally planned.

As the second and then third wave of Covid-19 spread in Europe, we had the opportunity to intern remotely at the International Telecommunication Union to help organizing the WSIS Forum 2021. We wish that our report can provide readers and researchers in the future with a glimpse of the experience of remote studying and working in 2020 and 2021. Our hope is that this experience can directly contribute to the objectives of WSIS Plan of Action “in building an inclusive Information Society; in putting the potential knowledge and ICTs at the service of development; in promoting the use of

information and knowledge and in addressing new challenges of the Information Society.”⁴ The experience of remote working and studying during the time of Covid-19 pandemic promoted very concretely the use of ICTs in development, work and education. In fact, Covid-19 pandemic accelerated the use of ICTs, information and knowledge to address new challenges of the Information Society.

The report is organized as follows. Part 2 is the overview of the internship. We describe in details the process of the whole internship from the start to the end, in particular, the WSIS Forum on May 17-21 2021. We also chronicle our organizing of 2 workshops on E-commerce: E-commerce and sustainable development in China; E-commerce, mobile payment and internet finance. In part 3, we summarize the speeches of two workshops. In part 4, we write about the correlation between SDGs and our internship analyzing and giving examples of specific cases. In part 5, we reflect on our experience of working remotely and the learning outcome. The report concludes with the personal statements from all 4 of our teammates.

⁴ Last consulted on 15/7/2021 World Summit on the Information Society (2003) Retrieved from <https://www.itu.int/net/wsis/docs/geneva/official/poa.html>

2. Overview of internship

The International Telecommunication Union (ITU) is the United Nations specialized agency for information and communication technologies – ICTs. WSIS Forum is the world's largest annual gathering of the Information and Communication Technologies (ICTs) for development community.

As the interns in ITU WSIS team, we helped to invite companies, international organizations, academies and institutions to take part in WSIS Prizes contest and contributed to several reports such as WSIS Stocktaking report and Covid-19 report. Besides, we organized workshops: “E-commerce and sustainable development in China” and “E-commerce, mobile payment and internet finance”.

2.1 Process of internship

Information and communication technologies have been playing an important role in our lives in the last several decades. The rapidly changing technologies alter our habits and values are a fascinating phenomenon. Thus, some organizations are founded in the field of information and communication technologies.

The International Telecommunication Union (ITU) is the United Nations specialized agency for information and communication technologies – ICTs. The International Telecommunication Union (ITU) is the United Nations specialized agency for information and communication technologies – ICTs. It aims at connecting the world and helping people to communicate with each other. ⁵

Every year at the ITU Headquarter in Geneva the World Summit on Information Society (WSIS) takes place. WSIS Forum is the world's largest annual gathering of the Information and Communication Technologies (ICTs) for development community. WSIS Forum has several parts of activities: Open Consultations, High-level track, hackathon and exhibition, etc. As the interns in ITU WSIS team, we helped to invite companies,

⁵ Last consulted on 19/07/2021. ITU (2021). About International Telecommunication Union (ITU). Retrieved from <https://www.itu.int/en/about/Pages/default.aspx>

international organizations, academies and institutions to take part in WSIS Prizes contest and contributed to several reports such as WSIS Stocktaking report and Covid-19 report.

Organizing WSIS Prizes contest was one of our challenging tasks. The aim of WSIS Prizes contest is to present outstanding cases of stakeholders by assessing projects and activities that use the power of information and communication technologies (ICTs).⁶ On the one hand, the WSIS Prizes contest provides stakeholders with precious opportunities to exhibit their achievements in the fields of sustainable development and ICT. The participants can showcase their projects on the WSIS website, which enhances the reputation of companies, organizations or institutions. On the other hand, the more companies and institutions participate in the contest, the more likely WSIS team can showcase excellent work. Thus, it was a win-win situation for both participants and organizer of the contest to invite more companies, organizations or institutions to take part in WSIS Prizes contest. In order to attract more organizations from different stakeholders to submit applications, we not only released notice on social platforms, such as WeChat, Twitter and Facebook, but also searched information on the Internet and contacted relevant organizations one by one.

2.1.1 WSIS Prizes contest and reports

We connected with lots of companies, academies, international organizations and civil societies in different fields, such as education, cybersecurity, e-commerce and e-agriculture. In this process, we learned about the contribution of these stakeholders in the field of sustainable development and ICT. We also organized group meetings and shared experiences of communicating with different stakeholders.

WSIS team published several reports after the forum. We contributed to Stocktaking report and Covid report. These reports are important to introduce WSIS projects to public. People who are interested in ICT can read these reports to learn more knowledge. Governments, companies, international organizations and academies can learn

⁶ Last consulted on 19/07/2021. ITU (2021). About EIGHTH EDITION OF THE CONTEST. Retrieved from <https://www.itu.int/net4/wsis/stocktaking/prizes/2021/>

experience from these reports when implementing relevant projects. For example, a project called “Connecting the unconnected and empowering underprivileged girls and children with disabilities” promotes digital connection for children in Kenya. If some organizations have the plan to help poor children by ICT, they can learn some experiences from this project.

As for stocktaking report, it includes different categories, such as e-business, e-government, etc. The report introduced 1260 projects from the aspects of 1) sustainable development, 2) content, and 3) basic information. We were responsible for collecting information of different categories. We had a meeting together to discuss format of the report and divide the workload according to categories. In details, there were around 10 categories, such as e-business and e-learning. Each of us was responsible for one or two categories. In addition, we shared experiences and tips to improve efficiency when doing the work.

As for Covid report, it showcases successful projects for responding to the impact of the epidemic by using ICTs. Covid-19 has affected people’s life in almost every aspect worldwide since 2020 and ICT has become one of the most important means to respond to the situation because it was difficult for people to meet each other during the epidemic. For example, students studied online, people worked remotely and had online meeting via ICT. Digital platform and big data business were used in the intellectualization and modernization of government governance; Internet medical services were used in the digital health system.⁷ Hundreds of cases were submitted, 35% cases were submitted by government, 24% were from private sector and 19% were submitted by civil society. These cases aimed at solving problems caused by COVID-19. For example, some projects solved the problem of online education. Lots of international students couldn’t study abroad during the pandemic, online education has become more and more popular, so some companies promoted online meeting software which solved the problem. Some cases aimed at mitigating spread of the disease. TraceTogether was a program submitted by

⁷ Last consulted on 23/07/2021. Jiang, H. (2020). The IMPACT and business opportunities coexist in China's ICT market under the epidemic control. Retrieved from <https://www.fx361.com/page/2020/0409/6545115.shtml> (in Chinese: 疫情防控下的中国 ICT 市场, 冲击与商机并存)

Singapore government. It could quickly identify close contacts of patients so that they could be treated quickly and isolated effectively. We collected information of these projects and classified them according to stakeholders, such as government, private sector, academy and civil societies, etc. The report showcases not only basic information of these projects, but also ICT tools, challenges and sustainable development goals. As interns who contributed to these important reports of WSIS, we not only acquired knowledge of ICT, but also learned to collect and classify information.

2.1.2 Workshops

After working on WSIS Prizes contest, we focused on organizing two workshops: “E-commerce and sustainable development in China” and “e-commerce, mobile payment and internet finance”.

① Group discussion

In order to cooperate well, we had at least one group meeting every week to update work progress and share difficulties and experiences. The process of our group discussion reflected how and why we decided to focus on e-commerce when we were asked to hold two workshops related to ICT.

Majoring in public policy and management, we are equipped with relatively limited knowledge about ICTs compared with those who have studied computer science. But as a result of this, our view is from the perspective of non-professionals, which could reflect what ICTs can bring about significant changes to the lives of ordinary people. Besides, our major enabled us to find topical issues related to ICTs in the field of public governance.

After a brief discussion, e-commerce came into our mind. E-commerce has brought the most perceptible change to our life. Everyone in our group had once shopped online and felt the change on shopping mode and consumption concept intuitively. We focused on e-commerce for the following reasons:

- 1) The e-commerce issues are highly related to the information and communications technology (ICTs) and should be paid attention to by the IOs, which makes it a proper topic

of an ITU workshop. The development of e-commerce is supported by various ICTs, and in turn, by enabling ICTs to be applied in the trading scenario, e-commerce promotes the development of ICT industries. The close correlation between e-commerce and ICTs makes this topic perfectly fulfill the requirements for a WSIS workshop. Besides, cross border e-commerce is very popular recently. The well-developed cross border e-commerce usually involves multilateral cooperation, which requires attention from IOs like ITU.

2) These topics are related to our major. Most of our team members had education background of economics or international trade. With the development of economics and technology, e-commerce was the new trend of trade. More and more people preferred to shop online, which had become an economic phenomenon worth studying. Besides, as a newly emerging industry as well as an industry that has impact on many other industries, e-commerce has been a topical issue in the field of public management for a long time, which is related to our master's major. The emergence of a new industry like e-commerce also means that new regulations and governance methods should be created. Therefore, from our point of view, this topic has also aroused our enthusiasm for learning.

3) E-commerce has brought significant changes worldwide, and is a field worth of research from the perspective of promoting sustainable development. In a broader context, e-commerce has been rapidly developing during the last few decades around the whole world. To begin with, e-commerce has changed the way of trade and led to the development of many emerging industries. There is no doubt that e-commerce has brought major changes to people's lives, providing jobs to the sellers and convenience to the buyers. In our team, we used to study in China and most of team members were from China. E-commerce contributed a lot in promoting the economy and employment in China. Thus, it was meaningful to introduce Chinese experiences of promoting e-commerce and sustainable development.

4) The COVID epidemic promoted e-commerce. During the epidemic, lots of supermarkets began selling products online. Besides, more and more people were used to buying online because of quarantine.

After agreeing on centering upon the topic of e-commerce, we needed to decide the two specific topics of our workshop. Based on the research we did respectively, each of us proposed ideas including “cyber-security of e-commerce”, “e-commerce in China”, “mobile payment and e-commerce”, “e-commerce and SDGs”, “the Internet finance and e-commerce”. After careful discussion, we finally agreed on merging some of the ideas into a broader one so that more meaningful points could be shared within one workshop. Eventually, we chose to organize:

1)“E-commerce and sustainable development in China”. China, as the second largest economy in the world, has developed a mature model of e-commerce, and realized many sustainable development goals through the practice of e-commerce. Therefore, we hoped that China’s experiences and lessons on cultivating e-commerce could be shared so that other countries could take it for references.

2)“E-commerce, mobile payment and internet finance”. Mobile payment is a crucial technology that makes the prosperity of e-commerce a reality. Based on mobile payment and e-commerce, Internet finance came into being, and has become an innovative form of finance. This new form of finance has also contributed to SDGs from different perspectives.

Besides, we also had a division of labour. We reached an agreement that Xinhe Yan and Yuhan Li would be responsible for Workshop “E-commerce and sustainable development in China”, which would be held on 31st Mar. Xingyu Zhou and Lincoln Quang Duong would organize Workshop “E-commerce, mobile payment and internet finance”, which would be held on 12th Apr. They had bachelor degrees in economics and they knew some professors who worked in this area.

② Suggestions from supervisors

We not only discussed ingroup regularly, but also asked for suggestions from our supervisors of WSIS Team and Geneva University.

On 21st January, we had a meeting with WSIS Team. They introduced the internships in ITU and encouraged us to innovate in the workshops. We were responsible for organizing two workshops related to ICTs from the beginning to the end. They had some specific suggestions, for example, we should consider gender balance and regional diversity when inviting speakers and moderator. After the meeting with ITU WSIS team, we held the first group meeting to discuss about the topic of two workshops.

We also had discussion with our academic supervisor, Mr. Zimmermann. He gave us several helpful suggestions. Firstly, as for topic, we should focus on e-commerce in China, because e-commerce in China has developed quickly, so the topic aroused audience's interest, especially for foreigners. Besides, most of our team members were from China. Secondly, he gave us some suggestions for inviting speakers. We should tell the potential speakers that this workshop provided them with an opportunity to share their research and discuss with other professors. Thirdly, attracting audience was very important for the success of workshops. We could publicize it on social media. Last but not least, we should have back-up plan because unexpected incidents might occur. For instance, we confirmed with speakers if they had zoom accounts. Some speakers in China were not able to register. We asked them to enter the zoom room earlier. If there was a problem, we asked them to use our personal accounts.

③ Literature Review

In order to get a more solid theoretical foundation, we did further research on these two topics and gained the background knowledge as follows:

The development of e-commerce in China

E-commerce in China has not only contributed a lot in promoting the economy and employment, but also reshaped the traditional business pattern and the way people consume. According to Wang, there are 4 stages of e-commerce development in China: embryonic stage, rising stage, bursting stage, and integrative stage (Wang, 2017).

For the embryonic stage (1998-2002), with the development and popularization of

the Internet, e-commerce firstly emerged in late 1990s. At this stage, the business scope of e-commerce is relatively narrow, and the vigorous development period of online retail e-commerce enterprises is very short (Li, 2015).

When it comes to the second stage (2003-2007), e-commerce in China is extending from enterprise service to personal service. In other words, the focus of e-commerce development was converted from “Business to Business” (B2B) to “Business to Customer” (B2C). E-commerce has become an important trading channel for many enterprises and consumers⁸. Basically, Chinese government started to introduce policies to support the development of e-commerce since 2006. After that, the infrastructure for e-commerce such as logistics network and payment systems were rapidly developed.

By 2013 when the smart phones were widely used in China, the e-commerce was booming. At the bursting stage (2008-2013), e-commerce has greatly changed the business form and consumption behavior, deeply affected the retail industry, logistics industry, manufacturing industry and other industries, and gradually become the "soft" infrastructure for business development. There were 302 million online shopping users, and the volume of e-commerce transactions had reached 9.22 trillion yuan in 2013. Since then, China has become the largest online retail market in the world for seven consecutive years (Nie, 2014).

Finally, e-commerce in China became integrative (2014-present). In 2018, e-commerce transactions has accounted for 36.15% of China's GDP. It has become the main driving force of business innovation in the 21st century and has played an important role in promoting consumption and adjusting the industrial structure of a country (Su, 2019). According to the China Internet Network Information Center⁹ (CNNIC), the number of online shopping users in China has reached 749 million by June 2020, nearly half of the

⁸ Last consulted on 28/6/2021. ALi Research. (2015). History of e-commerce development in China. Retrieved from <http://www.aliresearch.com/ch/information/informationdetails?articleCode=20528&type=%E6%96%B0%E9%97%BB>. (in Chinese:中国电子商务发展史话 (一))

⁹ Last consulted on 28/06/2021 China Internet Network Information Center, (2020). The 46th China Statistical Report on Internet Development. Retrieved from <http://www.cnnic.cn/hlwfzyj/hlwzbg/hlwtjbg/202009/P020200929546215182514.pdf>. (in Chinese:《第46次中国互联网络发展状况统计报告》)

total population. In the first half of the year, online retail sales amounted to 5.15 trillion yuan.

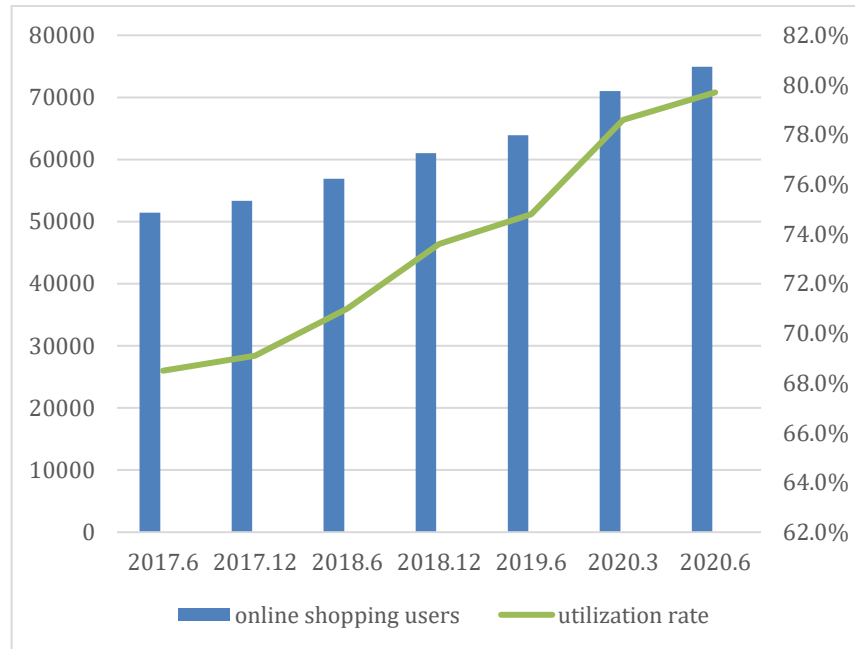


Figure 1: Scale and utilization rate of online shopping users from June 2017 to June 2020 in China (unit: 10000 people) Source: CNNIC

The development of e-commerce and the realization of SDGs are intertwined in many aspects. Obviously, e-commerce boosts economy and provides decent work for more than 51.25 million people (SDG 8). The Chinese government has cooperated with enterprises to promote e-commerce poverty alleviation, especially in rural areas, for many years (SDG 1). Under the impact of the COVID-19 pandemic, e-commerce helped to fight against the epidemic through various ways (SDG 3). This workshop aims to provide detailed and professional introduction of e-commerce and sustainable development in China.

Policies of e-commerce in China

The Chinese government has issued plenty of supportive policies to foster and encourage the development of e-commerce. Since 2015, the State Council of China has issued a series of policy documents, including “Opinions on vigorously developing e-

commerce and accelerating the development of new economic power.¹⁰”, and “Guiding opinions on actively promoting the ‘Internet plus’ action¹¹”, “Guidance on promoting the healthy and rapid development of cross-border e-commerce¹²”, “Opinions on promoting online and offline interaction and accelerating the transformation and upgrading of innovative development of commercial circulation¹³”, “Opinions on strengthening the governance of infringement and counterfeiting in the Internet field¹⁴”, “Guiding opinions on accelerating the development of rural e-commerce¹⁵”, and so on. These policies had effectively promoted the development of the e-commerce industry. In 2015, China's total e-commerce transactions increased by about 27% year-on-year. In this process, CNNIC, as an important constructor, operator and administrator of infrastructure in Chinese information society, played a positive role in supporting the development of e-commerce. On the one hand, it empowered the e-commerce entities by providing stable and reliable fundamental Internet resources and promoting the cooperation and technological exchange of global Internet. On the other hand, it helped the government to better regulate the development of e-commerce through conducting researches and undertaking security work. In other words, CNNIC played an active role in the process of policy implementation.

There are four main concerns of these policies: promoting online and offline integration, accelerating the development of rural e-commerce, encouraging the development of cross-border e-commerce, and further perfecting the public service of the government (Nie, 2016).

¹⁰ Last consulted on 21/7/2021. State Council of China, (2015). Retrieved from http://www.gov.cn/xinwen/2015-05/07/content_2858541.htm. (in Chinese: 《关于大力发展电子商务加快培育经济新动力的意见》)

¹¹ Last consulted on 21/7/2021. State Council of China, (2015). Retrieved from http://www.gov.cn/zhengce/content/2015-07/04/content_10002.htm. (in Chinese: 《国务院关于积极推进 “互联网+” 行动的指导意见》)

¹² Last consulted on 21/7/2021. State Council of China, (2015). Retrieved from http://www.gov.cn/zhengce/content/2015-06/20/content_9955.htm. (in Chinese: 《国务院办公厅关于促进跨境电子商务健康快速发展的指导意见》)

¹³ Last consulted on 21/7/2021. State Council of China, (2015). Retrieved from http://www.gov.cn/zhengce/content/2015-09/29/content_10204.htm. (in Chinese: 《国务院办公厅关于推进线上线下互动加快商贸流通创新发展转型升级的意见》)

¹⁴ Last consulted on 21/7/2021. State Council of China, (2015). Retrieved from <https://baike.so.com/doc/23048402-23599894.html>. (in Chinese: 《国务院办公厅关于加强互联网领域侵权假冒行为治理的意见》)

¹⁵ Last consulted on 21/7/2021. State Council of China, (2015). Retrieved from http://www.gov.cn/zhengce/content/2015-11/09/content_10279.htm. (in Chinese: 《国务院办公厅关于促进农村电子商务加快发展的指导意见》)

As for promoting online and offline integration, Chinese government intended to guide the traditional enterprises to actively apply the technologies like the the Internet of things, big data, cloud computing to reshape the business model and improve the service and management. Also, the government encouraged the offline stores to transform into online and offline integrated stores, making full use of the mature logistics systems and network infrastructure.

Rural e-commerce has been highly valued by the government for a long time for two main reasons: firstly, rural areas in China are huge markets for e-commerce. In 2015, there were 92.39 million rural online shopping users and the volume of rural online transactions reached 353 billion yuan. What's more, the growth rate of rural online shopping market is more than 80%, which is much higher than that of the whole online shopping markets (about 30%) (Li & Li, 2017). Secondly, the development of e-commerce has played a significant role in rural poverty alleviation, which is always a crucial mission of the Chinese government. E-commerce in nature could remove the obstacles brought about by distance and connect remote rural areas into the broader markets, which is of great significance for the “targeted poverty alleviation” proposed by the Chinese government. According to the data by the Ministry of Commerce, at the end of 2017, the number of rural online stores reached 9.856 million, enabling 28 million rural people to be employed and get out of poverty, and the “state poverty counties” (most poverty-stricken counties in China) achieved 120.79 billion yuan of online retail sales (Ye, 2019). Therefore, the State Council of China, together with 19 departments, jointly issued the “Opinions on accelerating the development of rural e-commerce”, and compiled the “Rural e-commerce service specifications” and the “Rural e-commerce work guidelines”.

In addition, cross border e-commerce is also emphasized by the government and is in line with the Chinese “Belt and Road Initiative” (Xing et al., 2020). In 2015, the China (Hangzhou) cross border e-commerce comprehensive pilot zone was established, and the overall construction was processed smoothly. In 2016, the State Council of China approved the construction of a new batch of cross-border e-commerce comprehensive pilot zones in 12 cities. And in 2018, another 22 cities got approved. Cross-border e-commerce comprehensive pilot zone is a pilot urban area aims to take the lead in technical standards,

business modes and regulatory models of cross-border e-commerce, including comprehensive aspects like e-commerce transactions, payment, logistics, customs clearance, tax refund, foreign exchange settlement, etc. In these pilot zones, institutional innovation, management innovation, and information technology innovation will be encouraged. Actually, in China, setting a pilot zone is a very common idea and strategy when it comes to deciding on how to govern or regulate some new industries or technologies. It was like doing an “experiment” to find out the best way of governance. The Ministry of Commerce actively promoted the construction of comprehensive pilot zones so that the replicable experiences could be learned from across the country as soon as possible (Nie, 2016).

Finally, the Ministry of Commerce would work with relevant departments to improve the level of public services to better train the e-commerce talents, promoting the construction of e-commerce logistics, and establishing a sound e-commerce statistical system so as to provide attractive policy environment and infrastructures for the e-commerce enterprises.

Mobile Payment

With the fast development of e-commerce, mobile payment technology has also developed at an amazing rate, with the percentage of consumers using their mobile phones and tablets to purchase online growing. For example, almost three out of every four of China's e-commerce transactions are carried out on a mobile device, generating \$873.3 billion in sales in 2019. Having been applied in a wide range of scenarios, mobile payment mainly has two advantages: saving cost and stimulating consumption.

Firstly, mobile payment, which relies on Internet and big data technology, effectively reduces transaction cost. Humphrey et al. (2001) believed that the cost of e-money is only 1/2-1/3 of the paper money payment, and promoting the use of e-money can improve social welfare to a certain extent. By lowering the transaction cost, mobile payment expands the scope of financial services (Xie & Liu, 2013). For instance, with the credit points generated by using mobile payment, the users can gain access to microfinance

services. The examination procedure of this kind of small loan is simple, and does not require the collateral. Thus, mobile payment promotes the inclusive finance, which refers to providing convenient, efficient and comprehensive financial services for all social strata and group, especially for those remote and poor areas and low-income social strata that have not been covered by the financial system (Jiao, 2014). Another benefit mobile payment brings to by cutting the transaction cost is promoting innovation. By doing empirical research, Yin et al. (2019) found that mobile payment significantly improves the probability of innovation activities conducted by enterprises as well as family entrepreneurship. Their research showed that mobile payment provides entrepreneurs with new technologies to save costs and ease credit constraints, making it easier for them to get funding for innovative activities. And this positive impact of mobile payment on innovation, entrepreneurial decision-making and business performance is even greater in relatively backward areas.

Secondly, mobile payment stimulates consumption. By conducting a series of experiments, Wang & Hu (2017) pointed out that mobile payment provokes consumers' desire to purchase and influences consumers' product preferences. Researchers had proved that in the case of cash payment, consumers incline to pay more attention to product cost and prefer preventive products; with credit card payment, consumers tend to pay more attention to product revenue and prefer promotion products. Mobile payment is even more convenient and faster than credit card payment, which makes the connection between payment and consumption in consumers' mind looser. Therefore, consumers are less likely to feel the pain of payment, but feel the pleasure of shopping. However, with a variety of payment channels provided by mobile payment and the consumer's "psychological account" effect, consumers may also increase the unplanned purchases and liabilities.

However, there are also risks in the wide application of mobile payment. Compared with commodity and service markets, the most significant feature of mobile payment market is its negative externality (Liu et al, 2017). Negative externality, also known as external cost or external diseconomy, refers to the phenomenon that a person's behavior or enterprise's behavior affects other people or enterprises and makes them pay additional costs, but the latter cannot obtain corresponding compensation. Once the risk of mobile

payment institutions increases and brings crisis, it can not only transmit and spread rapidly in the payment system itself, but also quickly affect the real economy such as production and consumption. In addition, there are still some unlicensed mobile payment institutions. In fact, these unlicensed organizations will bring hidden dangers to the normal development of mobile payment market. Because the unlicensed payment institutions do not need to comply with the regulatory requirements and bear the cost of system compliance, which would not only cause difficulties for regulations, but also resulting in the effect of “bad money driving out good money”.

Internet finance

The rapid rise of e-commerce has given birth to Internet finance. Like the derivative of e-commerce, we have mentioned above, mobile payment, Internet finance is also derived from e-commerce so that financing, financial management and other financial services could be easily available online by those who are in need (Li, 2015). For example, Ali Micro-Loan (a credit loan product provided by the famous Chinese e-commerce enterprise, Alibaba) set up a credit system for customers based on the data accumulated by Alipay (a popular Chinese mobile payment platform), and provides loans to those who meets the requirements of accumulating certain credit points without collateral. Therefore, internet finance, as a new form of finance, lower the transaction costs, reduce the information asymmetry, and expand the scope of financial services (Xie et al, 2015).

Internet finance could promote sustainable development. For example, it could create a great number of new jobs, and provide loans for both individuals and enterprises in a convenient and efficient way. By doing so, it could contribute to many SDGs, such as SDG 1 (no poverty), SDG 3 (good health and well-being), SDG 8 (decent work and economic growth), and SDG 9 (industry, innovation and infrastructure). Speakers are invited to talk about how internet finance could contribute to the achievement of SDGs around the world.

As a new form of finance, internet finance requires new regulations and laws. Under current laws and regulations, it may be difficult to regulate internet finance appropriately

(either too tightly or too loosely). From the perspective of internet finance enterprises, they always advocate deregulation. For example, Jack Ma, the founder of Alibaba Group and Ant Group, criticized old regulation systems of finance and required the reform of regulation systems in China last year.

However, without regulation, the potential risk of internet finance may incur severe crisis. Internet finance in nature is about financing, and the core idea of financing is to deal with risks. As an innovative form of finance, internet finance cannot escape the topic of risk. And due to its comprehensiveness and complexity, the risk of Internet finance may be more complex than that of traditional finance. According to Gong and Zhou, there are 3 main kinds of risk about internet finance: credit risk, security risk and legal risk (Gong & Zhou, 2019).

Credit risk refers to the problems like low cost of internet finance default, investors' malicious loan fraud, online money laundering led by deficient credit reporting system. Security risk includes virus and hacker attacks, data leakage and privacy disclosure. Legal risk made it harder to fight against crimes like internet money laundering, illegal fund raising and illegal virtual currency transaction. To avoid these risks of internet finance, government should not stand idly by. Appropriate regulation and supervision are absolutely necessary. In China, government has issued relative policies like “implementation plan for special rectification of Internet financial risks¹⁶”, “implementation plan for special rectification of risks of non-bank payment institutions¹⁷”.

④ Reaching out to Panelists

The workshops aimed at providing a platform for panelists from different stakeholders to exchange insights on e-commerce, sustainable development, internet finance and mobile payment. Panelists from international organizations, companies,

¹⁶ Last consulted on 22/7/2021. State Council of China, (2016). Retrieved from http://www.gov.cn/zhengce/content/2016-10/13/content_5118471.htm. (in Chinese: 《互联网金融风险专项整治工作实施方案》)

¹⁷ Last consulted on 22/7/2021. People's Bank of China, (2016). Retrieved from http://www.gov.cn/xinwen/2016-10/13/content_5118605.htm. (in Chinese: 《非银行支付机构风险专项整治工作实施方案》)

academies and universities were invited. They presented recent research and opinions on policies released by Chinese government, etc.

Contacting potential speakers

In February, we started to send emails to potential speakers. Most of these potential participants worked in foundations and universities. We also searched for the phone number of at least ten foundations and called them, such as China Internet Development Foundation, China Foundation for Poverty Alleviation and China Women's Development Foundation, etc. They initiated projects related to poverty reduction by e-commerce. We thought they would be interested in presenting their work and research on WSIS workshop. However, only few people replied to the email and none of them showed interest in taking part in workshops. The first attempt was unsuccessful.

We discussed about the reasons why we failed to invite speakers at the weekly meeting. Besides, our supervisors gave us suggestions and colleagues from other groups shared their experiences of inviting speakers. We analyzed the following reasons. Firstly, the email was not clear, it did not introduce WSIS Forum and workshops comprehensively. For example, we did not attach agenda of workshops. Besides, some key information such as the date and time of workshops were not clear. The link of previous workshops was not on email, so potential speakers did not know format of workshops. Secondly, these people were outside our network. In other words, we did not contact our professors and friends who worked in the field of e-commerce. We all had background of economics, and the topics of two workshops were relevant to economics. Thirdly, these potential speakers had little incentives to take part in workshops. Most of them were from China and they preferred to participate in domestic activities.

In order to attract speakers to take part in workshops, we made the following improvements. Firstly, we modified the invitation email and attached document. We added the link of previous workshops and highlighted important information, such as the topic and time of workshops. We also formatted and added WSIS logo to attached document of workshop information. Secondly, we asked our supervisors and friends to recommend

potential speakers. Mr. Zheng Liang, Ms. Shiduo Feng, Mr. Chen Zhang, Mr. Jeonmin Seong were introduced by our supervisors and friends. Thirdly, we contacted professors who already took part in workshops relevant to e-commerce in international organizations because they were familiar with the format and were more likely to take part in our workshops. We sent emails to these professors, and four of them were interested in taking part in the workshops: Ms. Rashmi Banga, Mr. Marcelo Olarreaga, Ms. Hanna C. Norberg and Mr. Robert.B Koopman. We organized individual meetings with all speakers to confirm with them and discuss about the topics they would like to talk about in workshops.

Inviting Pinduoduo representative

Inviting speakers was the most challenging work for organizing workshops because we needed to contact lots of potential speakers who were very busy and persuaded them to take part in the workshops. Take Pinduoduo corporation as an example. We searched email address of e-commerce companies and sent invitation email. We sent emails to famous e-commerce companies in China, such as Meituan, Bytedance, Tencent, Alibaba, Jingdong and Pinduoduo, etc. These companies contributed to sustainable development in China by reducing poverty, promoting economic growth and protecting environment, etc. Our workshops provided e-commerce companies with rare opportunities to present contributions to sustainable development on the world stage. Don Tan, the director of Corporate Affairs in Pinduoduo corporation, replied for the email and we set up a meeting to clarify the information of workshop. We discussed about the following things. Firstly, we introduced some basic information of the workshop, such as format, date and time. Secondly, we introduced WSIS Forum to him because it was his first time he had heard of the forum. Thirdly, we emphasized the copyright of the workshop. It would be recorded and posted on WSIS website. Last but not least, we discussed about Pinduoduo corporation and sustainable development. It contributed to sustainable development by alleviating poverty in agricultural industry.

After the meeting, Don was more interested in the workshop and he would persuade Mr. Andre Zhu, Senior Vice President of Pinduoduo Corporation, to participate in the

workshop “e-commerce and sustainable development in China”. After a week, we had another meeting and confirmed that Mr. Andre Zhu would take part in the workshop.

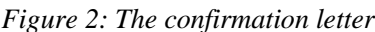
Confirmation email

We sent confirmation email to all speakers before the workshop, which included several points:

- a. Date and time of the workshop: emphasize important information before the workshops
- b. Zoom link for panelists and participants
- c. Presentation: time is limited, each speaker has 8 minutes to present
- d. PPT slides: Speakers are suggested to send PPT slides to us in advance because we can help to share screen during workshops
- e. Promote the workshop: Speakers are encouraged to promote workshops on their social media

Besides, we attached agenda and virtual background for the meeting.

We invited Ms. Gitanjali Sah and Mr. Basile Zimmermann as moderators for our two workshops. They were our internship and academic supervisors and were both skilled moderators. However, they were not familiar with e-commerce field, so we sent confirmation email with attached script which included brief introduction of each speaker.



The success of workshops depended on both speakers and participants. Thus, it was extremely important to attract more participants, especially in the field of e-commerce. We publicized workshops by several ways. WSIS team promoted these workshops on official accounts. They made posters which introduced the topic and all speakers. Besides, we encouraged speakers and moderator to promote workshops on social media. They forwarded the official post on social media, such as twitter, facebook and linkedin. As organizers, we promoted the workshops on Wechat. We also asked our classmates, friends and professors to help publicize the workshops.

After the workshops, we summarized and worked on the outcome report, which included relevance with the WSIS Action Lines, issues related to COVID-19 and main linkages with the Sustainable Development Goals. We also sent thank-you letter to all speakers and moderators. Speakers and their colleagues recognized our workshops. Don

Tan, the director in Pinduoduo corporation, contacted us after the workshop and would like to take part in other workshops and activities of WSIS Forum.

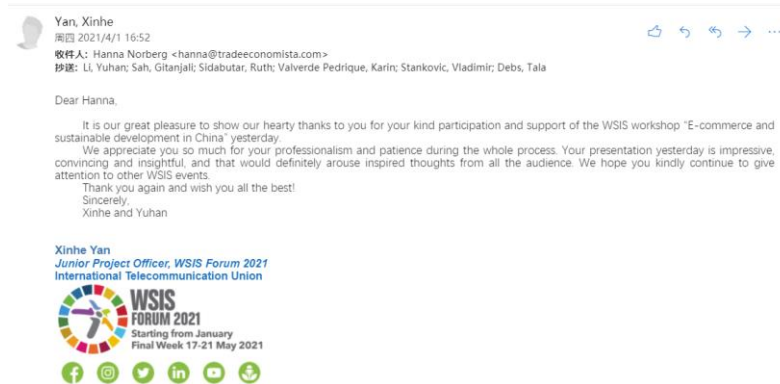


Figure 3: The thank-you letter

2.1.3 Exhibition spaces

After the workshops, we exhibited outcome on WSIS Website. Organizers from different stakeholders showcased their projects and reports. With other three groups of interns from the same program, we established Geneva Tsinghua Initiative exhibition. The purpose of exhibition was to promote sustainable development by showcasing the workshops. Our exhibition not only introduced Geneva Tsinghua Initiative, but also exhibited outcomes of workshops.

Online Workshops organized by GTI:

- “E-commerce and Sustainable Development in China” session page & recording:

<https://www.itu.int/net4/wsis/forum/2021/Agenda/Session/284>



Figure 4: Exhibition of Workshop “E-commerce and Sustainable Development in China”

Source: <https://wsisforum2021.pathable.co/organizations/BLwQRjKDh82Suh7sx>

- “E-commerce, mobile payment and internet finance” session page & recording:

<https://www.itu.int/net4/wsis/forum/2021/Agenda/Session/285>



Figure 5: Exhibition of Workshop “E-commerce, Mobile payment and Internet finance”

Source: <https://wsisforum2021.pathable.co/organizations/BLwQRjKDh82Suh7sx>

After introducing the process of our internship, we will answer two questions in the next two sections: how did the COVID-19 shape the internship? how can we do online

internships efficiently and effectively given the impact of the COVID-19? Answering these two questions may serve as a useful guidance for the students who want to do online internships in international organizations in the future.

2.2 How did COVID-19 shape the internship?

COVID-19 along with the travel restrictions and social-distancing mandates caused by it shaped the internships significantly, which typically involves hands-on and in-person participation.

Firstly, employers have cancelled or postponed internships online, and the number of internships is declining significantly. Edwin Koc, director of research, public policy and legislative affairs for the National Association of Colleges and Employers (NACE) in the United States did a survey towards employers about their changes of internship offers, and he finds that only 2% of employers have reported revoking full-time offers made to candidates, but about 16% of employers have reported revoking internship offers. He also finds that of the employers that are continuing with their internships, 75% have made at least one change to their internship program, 40% are shortening the internship by delaying the start date of the internship and about 20% are reducing the number of interns they're going to bring on board in the summer¹⁸. In addition, Glassdoor, one of the biggest job sites in the United States, estimated that half of the internships in the U.S. have been closed since the coronavirus crisis began in the U.S, and internship hiring on Glassdoor for April 2020 fell 39% compared to April 2019. While all industries saw declines in internship openings in the spring, the travel and tourism sector were hit the hardest, with internships falling by 92% since March 9¹⁹.

Secondly, employers are moving their internships to a virtual or remote format. In the same survey conducted by Edwin Koc, director of research, public policy and legislative affairs for NACE in the U.S, he finds that of the employers that are continuing

¹⁸ Last consulted on 03/8/2021. CNBC, (2020). Retrieved from <https://www.cnbc.com/2020/04/24/how-internships-have-been-impacted-by-coronavirus.html>.

¹⁹ Last consulted on 03/8/2021. Forbes, (2020). Retrieved from <https://www.forbes.com/sites/michaelnietzel/2020/07/06/covid-19-and-the-lost-college-internship/?sh=165451561a4d>.

with their internships, 42% were moving their internship programs to a virtual format²⁰. Some major employers in the U.S such as Google, Twitter, IBM, Microsoft, SAP, Morgan Stanley, Goldman Sachs and JPMorgan Chase, and AIG, are offering virtual internships on summer vacation²¹. In addition, many employers have worked with university faculty and career-office staff to come up with virtual or remote internships for university students. An outstanding example of university-employer collaboration is Intern from Home, a program developed earlier this year by undergraduates at Brown University that matches students with companies providing virtual internships. Another is the Remote Entrepreneurship Project Program at Case Western Reserve University. Within two weeks of the project's launch, there are more than 100 companies across many industries and 200 students with various academic backgrounds, including engineering, computer science, business students engaged in this project²².

In short, the COVID-19 along with the travel restrictions and social-distancing mandates have significantly decreased internship opportunities and change in-person internships to online internships.

2.3 Our experience of online internship in the time of COVID-19

Although the COVID-19 negatively influenced the internship, we utilized the university-employer collaboration to find the ITU-WSIS internship. As we have mentioned at the beginning, we are enrolled in Master of Science in Innovation, Human Development and Sustainability. Every year at the beginning of the first semester, the executive coordinator of Geneva-Tsinghua Initiative (GTI) begins to put the internship information on the Moodle, and there are a number of interesting internships from a wide range of international organizations and NGOs. It is worth mentioning that ITU has close relationship with GTI, so it provides some special internships for GTI students, and we

²⁰ Last consulted on 03/8/2021. CNBC, (2020). Retrieved from <https://www.cnbc.com/2020/04/24/how-internships-have-been-impacted-by-coronavirus.html>.

²¹ Last consulted on 24/7/2021. US Today, (2020). Retrieved from <https://www.usatoday.com/story/money/2020/05/03/coronavirus-companies-offering-virtual-internships-humana-goldman/3045256001/>.

²² Last consulted on 24/7/2021. Forbes, (2020). Retrieved from <https://www.forbes.com/sites/michaelnietzel/2020/07/06/covid-19-and-the-lost-college-internship/?sh=165451561a4d>.

only need to submit our CVs and pass a simple interview to get the internship. We got our internship, ITU-WSIS Forum, through this channel, and there are other 6 GTI students getting the internship opportunity in the same way.

Next, we summarize our experience of our online internship in the time of COVID-19, which may serve as a useful guidance for doing online internships in international organizations. We mainly focus on how to make the online teamwork efficient and effective, because we do the group internship.

Split the work based on comparative advantages

Teams perform best when there is division of labour and each person specialises in the tasks which they are most efficient at, which means the team splits the work with respect to each member's comparative advantage. Popularized by David Ricardo (1817), comparative advantage is an economy's ability to produce a particular good or service at a lower opportunity cost than its trading partners. Although it is an economic term, it can still be applied to the division of work among team members and help to improve the efficiency.

For instance, our team was required to organize two virtual workshops, and we split our team into two small teams and each small team is responsible for organizing one virtual workshop. For each small team, we have one member who is expert at searching and communicating with potential guest speakers, while the other member is relatively good at paperwork, such as writing workshop information and script for the moderator, and editing the website of the workshop etc. We also do some work together, such as holding meetings with guest speakers to inform them some information and tips for our workshop, and inviting audiences for our workshop.

In our team, Xinhe and Yuhan form a small group, while Lincoln and Xingyu form another small group. Since Lincoln completed his education in international schools in Europe, he is more proficient at English and knows more information, such as tradition, social milieu and so on about the western Europe than Xingyu. Although Lincoln is

absolutely more proficient in inviting and communicating with the potential guest speakers and the paperwork than Xingyu, Xingyu is comparatively better at the paperwork. Thus, we allocate the work of inviting and communicating with the potential guest speakers to Lincoln, while let Xingyu do the paperwork. The work division between Xinhe and Yuhan is similar. The result is that both virtual workshops are very successful, and we did it very efficiently.

Overall, evaluating the abilities of each team member first and then splitting the work based on comparative advantages significantly improve our work efficiency.

Communication within the team and between teams

Furthermore, our experience shows that a well-performing team includes effective communication channels within the group, as well as with other teams within the business. Firstly, each of us should share information between team members in a helpful and timely manner, not just according to deadlines and requests. This is because even in a small group, each member has some “local information” within his or her field (Hayek, 1945). In other words, a member may be totally unaware of what another member is doing or has done. As a result, strong team performance requires effective information sharing in every aspect of the work process. Secondly, another important aspect of communication is that team members make time to listen to one another and are able to offer constructive guidance and assistance when it is necessary. In our group, we share our ideas, problems, and questions towards anything related to our work in the WeChat group in time, and hold a group discussion about them if necessary. For instance, Lincoln and Xingyu had difficulties inviting guest speakers, and they shared this problem in the WeChat group. When Yuhan and Xinhe noticed this message, they held an online discussion with Lincoln and Xingyu about how to find guest speakers and some tips for contacting them. In addition, Yuhan and Xinhe also recommended some experts to attend the workshop, which was organized by Lincoln and Xingyu. As we have mentioned before, Robert B. Koopman, Chief Economist and Director of Economic Research and Statistics Division at the World Trade Organization, was first invited by Yuhan and Xinhe to attend their workshop. However, Mr. Koopman did not have time on that day, so Yuhan asked him whether he was willing

to attend the workshop organized by Lincoln and Xingyu. To our surprise, he agreed; from that on, many more speakers began to accept our invitations to attend the workshop held by Lincoln and Xingyu.

Meanwhile, the communication between teams in the same internship is also important for the team performance. Teams should be willing to share information with other teams and assist in other teams where necessary, which can cultivate the reciprocal process and benefit the team at last. In the ITU-WSIS internship, there are three teams, and each of them is responsible for organizing two virtual workshops in different fields. Normally, we share the information through Teams and WeChat, and the virtual coffee meeting held every week is also a good but informal chance for teams to share the information. One day, a member from another team sent us a message to us, and wanted us to share some experiences about how to find guest speakers. Yuhan accepted their request and held an online discussion with that team. About one month later, a member of that group told us with surprise that Jeonmin Seong, Partner at the McKinsey Global Institute, was willing to attend our workshop rather than theirs. When a member of that team contacted Mr. Seong before, Mr. Seong said that he was not interested in her workshop but our workshop about e-commerce, mobile payment and internet finance. The reason why Mr. Seong knew about the topic of our workshop was that that team told him. With the help of that team, we invited another important guest speaker of our workshop.

Overall, the efficient and timely communication within the team makes us solve the problem immediately, while communication between teams forms the reciprocal culture and contributes to the cooperation among teams; both of them are important reasons for the success of our workshops.

Leadership and productivity

Last but not least, good leadership can motivate and improve the productivity of a team. In our team, Yuhan is the leader. We elected her as our team leader for two reasons. The first reason is that she was the person who found the rest of the team members. In other words, without her, our team would not have existed. Another reason is she was highly-

skilled and had work experience in well-known companies before. As a team leader, Yuhua is responsible for coordinating the team members, giving support if needed, and setting the direction of the team. Meanwhile, she also gives each member the discretion to do the work on his or her own way. For example, Yuhua first proposed to split the whole team into two small teams and each team is responsible for organizing a virtual workshop. After splitting the work, Yuhua, as a team leader, did not interfere with Lincoln and Xingyu's work; instead, she encouraged them to fulfill their potential and provided support if they asked for. Under the effective leadership of Yuhua, each member in our team is taking accountability and responsibility for their contribution to the team, while the whole team is warranted not to go to the wrong direction.

Overall, good leadership requires the team leader to offer the appropriate mix of support and direction while providing the necessary degree of flexibility in leadership style to the team members.

In summary, our experiences of online internship in ITU demonstrate that the work division based on each member's comparative advantage, timely communication within the team and between teams, and effective leadership are three main factors of successful group online internships. Although the shift to virtual internships came with limitations and disappointments, the lessons learned during the first iteration of these innovations ultimately will prove valuable for us in the future, because it's not just classes and internships that are being done remotely; jobs are going that direction too. A virtual internship today might be pretty good preparation for the remote work of tomorrow.

3. The contents of the workshops

3.1 The workshops

We organized 2 workshops: E-commerce and Sustainable Development; E-commerce, mobile payment and Internet Finance.

Workshop 1 discussed the topics of “E-commerce and sustainable development in China.” E-commerce promotes sustainable development in the fields of economic growth, poverty reduction and international cooperation, etc. With the development of e-commerce, new jobs are created and hundreds of millions of people are employed in this industry. China's online retail transactions reach 7.18 trillion yuan.²³ In addition, e-commerce reduces poverty. It provides opportunities for poor families to sell products by connecting potential customers with sellers. Besides, cross border e-commerce promotes international cooperation.

Our workshop 2 covered the topic "E-commerce in the time of COVID-19". The COVID-19 crisis had led people in many countries to significantly limit physical interactions, which has put a large share of traditional brick-and-mortar retail virtually on hold, at least temporarily. However, the lockdown policies actually boosted the development of e-commerce. In the United States for example, the share of e-commerce in total retail spiked to 16.1% between the first and second quarter of 2020.²⁴ We invited the speakers to talk about the impact of COVID-19 on the e-commerce and related policy support required for this new trend.

As a team we learnt a lot about E-commerce from the leading experts and scholars in the field. The purpose of the internship was to get the first-hand experience about E-commerce, to meet the leading experts and to see the main trends of e-commerce. We had analyzed how e-commerce contributes to SDGs in the next section. We related each SDG and provide an example from a case study either by one of our speakers and from the

²³ Last consulted on 15/07/2021 Xinhuanet (2018) Retrieved from http://www.xinhuanet.com/english/2018-01/18/c_136905576.htm

²⁴ Last consulted on 15/07/2021 OECD (2020) Retrieved from <https://www.oecd.org/coronavirus/policy-responses/e-commerce-in-the-time-of-covid-19-3a2b78e8/>

research. Discussing each SDG and its relation to E-commerce proves the important of E-commerce in sustainable development.

3.2 Summary of the speakers' presentations

3.2.1 E-commerce and sustainable development in China

Ms. Shiduo Feng

Ms. Shiduo Feng, who was deputy director of industrial cybersecurity business department in Chinese Academy of Information and Communication Technology, gave the speech “E-commerce and cybersecurity.” She pointed out that e-commerce was facing growing security risks as attacks under the cover of COVID-19 have increased dramatically. For example, ransomware infections have exploded. Besides, new technologies triggered more unidentifiable threats, such as security risks of hardware and software.

In order to deal with the problem of cybersecurity brought by e-commerce, at the national level, China has made efforts to support the development of e-commerce by enacting new laws and guides, improving data security and supporting technological innovation through pilot and demonstration programs.

At the corporate level, to further improve e-commerce enterprises' cybersecurity capabilities, companies could actively fulfill cybersecurity responsibilities in line with relevant policies and standards, develop contingency plans for cybersecurity incidents, strengthen data security management, and increase the application of e-commerce security technologies. There are mainly two ways to respond to cybersecurity. Firstly, e-commerce companies should prepare for cybersecurity emergency plan and build cybersecurity team. Key technologies are used. Firewall technology is a kind of security isolation technology, is also a data access control mechanism. It implements security system between the enterprise Intranet and extranet, so the enterprise Intranet and extranet separate, which restricts users to enter a strictly controlled protection point. Intrusion Detection Systems (IDS), as a supplement to the firewall, can detect and respond to the Intrusion behavior of

computer system or network according to the specific security policy, so as to guarantee the confidentiality and integrity of network resources.²⁵ Secondly, companies can buy cybersecurity products and hire professional cybersecurity teams, who know security regulations or standards well to solve problems. These specialized cybersecurity companies offer a wide variety of hardware, software products and services, including security equipment, firewalls and other products and consulting services, education and training, etc.²⁶ These cybersecurity companies have leading edge technology and rich experience, which can help their customers to solve problems related to cybersecurity. Ms. Shiduo Feng not only pointed out the problem of cybersecurity in the field of e-commerce, but also gave some suggestions at national and enterprise level.

Mr. Andre Zhu

Mr. Andre Zhu is senior vice president of Pinduoduo corporation, one of the largest online retail platforms in China. He gave a speech of “Pinduoduo and Sustainable Development in Agricultural and Rural Communities”.

Firstly, he introduced Pinduoduo. The company was founded in 2015 and grew fast. Pinduoduo connected over 12 million farmers with digital economy. In other words, these farmers gained benefits from digital economy. He emphasized that Pinduoduo’s vision was to become the biggest agriculture and grocery platform in the world, and connect the customers and farmers.

In addition, he explained how Pinduoduo contributed to sustainable development in agricultural industry. Farmers lives quality improved because a systemic approach was used in digitizing agricultural supply chain. As a result, Pinduoduo made the agriculture supply chain shorter. The company provided support of resource and merchant services. Thus, impoverished farmers were able to become agricultural merchants, which reduced poverty revitalizes rural area. Pinduoduo developed human capital by establishing Duoduo

²⁵ Last consulted on 03/08/2021. Wang, W. (2010). Research on the application of cybersecurity technology in an enterprise network. Mater degree thesis, University of Electronic Science and Technology of China.

²⁶ Last consulted on 03/08/2021. Jin, Y. (2012). Neusoft Group Co., Ltd. Network Security Product Marketing Strategy Research. Master degree thesis, Beijing University of Posts and Telecommunications.

University to empower farmers. The company also cooperated with local government and agronomic research institutes to support farmers living below poverty line.

In detail, Pinduoduo corporation tried it best to help farmers involve in digital economy and empower them with high technology. Pinduoduo corporation organized online and offline training sessions to teach farmers, how to market and sell their products on mobile Internet.

Ms. Rashmi Banga

As Senior Economic Affairs Officer in UNCTAD, Ms. Rashmi Banga gave the speech named “China’s Digital Transformation: Boost to E-Commerce”.

Firstly, she asserted that China’s digital economy has grown fast. In 2016, compared with United States, China's digital economy was only 32%, while its annual growth rate was faster than United States. In 2016, the digital economy contributed to around 60% of China's GDP growth, and now it has become a significant driver of economic growth in China.

Secondly, she pointed out that China implemented policies at national level which make improvement of demand and supply of the digital economy. China not only had successful policies of domestic e-commerce, but also for the cross border e-commerce. Besides, China paid attention to the problems of e-commerce, such as data protection.

In conclusion, China’s digital economy has developed fast, and the government released policies to promote development and prevent problems of it.

Mr. Zheng Liang

Prof. Liang mainly introduced e-commerce in China based on his long-term observation and gave his opinion on how e-commerce would be further developed in the future. He mentioned that at the very beginning, people engaged in e-commerce in the form of using APPs in China. Various APPs were raised as useful platforms for people to work on their startups, especially for the young people and farmers who don't have possess much money or skills.

Besides, Prof. Liang pointed out that e-commerce platforms could accurately connect suppliers and consumers, thus lowering the cost of logistics, and reducing the cost of wasted goods, which successfully serves for the SDGs and green development goals. Now people in remote areas could be connected to the market through e-commerce platform. And with the help of AI-based technologies, e-commerce has become more human-oriented.

In terms of e-commerce and SDGs, Prof. Liang put forward that the idea of “co-governor” would make e-commerce contribute more to the sustainable development. He proposed that we need to develop the “co-governor” models among stakeholders of e-commerce, which means that all the stakeholders like enterprises, customers and regulators should co-govern the e-commerce. For the enterprises, they have the capability and should be involved in improving social welfare just as some of the enterprises has already done. They issued “Corporate Social Responsibility” report every year to show what they had done in these kind of areas. For social regulators, they need to issue proper regulations for the platforms to guarantee security, equality, environmental protection and privacy protection. Finally, for consumers like us, we need to be more rational when it comes to online shopping.

Finally, Prof. Liang also told us that in the future, e-commerce still has the great potential to provide services in addition to goods to people, and developing service-based e-commerce platforms. Also, the industrial Internet will open a new window for the e-commerce.

Mr. Marcelo Olarreaga

The main topic of Prof. Marcelo Olarreaga’s presentation is about e-commerce and inequalities. He pointed out that e-commerce can reduce inequalities but is not a silver bullet on this issue.

At first, Prof. Marcelo Olarreaga analyzed the reason why e-commerce can help to reduce inequalities. While decreasing “between country income inequality”, international trade is increasing “within country inequality”. E-commerce, however, can solve the

problems of trade cost and trade barriers that international trade faces, thus reducing income inequality. E-commerce allows smaller firms, less productive firms that tend to hire more unskilled workers to enter global markets and be able to reach all these global consumers around the world. And this has been proven to be able to lead to reductions in income inequality.

But Prof. Marcelo also told us the impact of e-commerce in income inequality reduction is relatively modest. In addition, we also need to introduce competition among e-commerce platforms so that the rent from e-commerce cannot be totally captured by the large e-commerce platforms through their monopolistic power.

In terms of digital divide, Prof. Marcelo Olarreaga said it was a constraint to poor countries' participation in e-commerce. He mentioned that like many other differences in infrastructure or education systems, the digital divide is going to be a constraint for the participation of low-income countries in e-commerce in the same way as the digital divide within a country is going to be a constraint to the participation of low-income farmers. As a result, some kinds of instruments are used to try to break the digital divide and technological divide. This is also the way in which we need e-commerce to evolve so that it can contribute to the sustainable development goals.

Ms. Hanna Norberg

Ms Hanna Norberg mainly told us that while e-commerce could reduce the information asymmetry, blockchain will further narrow the information gap of e-commerce. The contribution of e-commerce platforms is that they not only kill distance, but also offer services that traditionally only could be handled with big multinational firms. E-commerce platforms make it easier for firms to find new suppliers and for firms to reach consumer but there's still a huge gap.

Then she further elaborated on this topic. Trade and e-commerce is based on the same fundamental principles that all changes based on, namely on information and trust. This gap of information was made painfully visible during the COVID. But, the problem of information gap that the e-commerce is facing will be eased by the blockchain,

which can enable transaction between two actors that didn't know or trust each other without the use of a middleman.

When it comes to the influence of COVID-19 pandemic, Ms. Hanna C. Norberg told us that it was a huge challenge to the SDGs, because we've seen a lot of developing countries and poor people in developing countries slipping back into poverty. Billions of people that braced out of poverty in the past 30 years are actually risking to slip back in there due to the pandemic, so the challenge is definitely on the SDGs. And that is why we need a possible solution. The urgency for e-commerce is really something that we need to put a light on and really get going on.

3.2.2 E-commerce, mobile payment and internet finance

Mr. Robert B. Koopman

Mr. Koopman gives the speech titled as "how digital technologies are transforming global commerce and the future of services trade".

Trade has always been shaped by technology, but the rapid development of digital technologies, such as the Internet of Things (IOT), Artificial Intelligence (AI), 3D printing and Blockchain, that are leveraging the internet to generate, store, process, and analyze data promises to transform the world economy even more deeply in the years to come. In this context, Mr. Koopman tries to explore the consequences of this "new digital revolution" on the world economy, especially on cross border finance. His lecture is mainly based on the findings of World Trade Report (2019) conducted by World Trade Organization (WTO).

He thinks that digital technologies have significant impacts on the services trade. Firstly, digital technologies can reduce the trade costs of services through improving ICT connection and governance quality while reducing transactions/search costs and communication costs. WTO projects that from 2015 to 2030, trade costs will decrease 10.5% due to the development of digital technologies (WTO, 2019).

Secondly, the sectoral composition of trade will be affected. Services trade (especially of digitally-enabled services) and trade in time-sensitive, certification-intensive and contract-intensive goods will increase, but trade in digitizable goods, such as CDs and DVDs, is likely to continue falling. Among the services trade, financial services are the second largest service sector traded globally. Global trade in financial services was worth US\$ 2,463 billion in 2017, which is 18.6 per cent of total services trade (WTO, 2019). In the future, financial services will keep increasing and leading developing economies, China, South Korea, Singapore and India, will play a more and more important role.

Thirdly, increased digitalization, e-banking and mobile banking are reshaping business models for the finance sector. Although banks and other financial services institutions maintain affiliates abroad for operations, they are offering an increasing number of services online, from credit card transactions to finance management. Insurance companies are making it possible to underwrite and submit claims online. For example, the share of financial services exports through foreign presence is declining in the EU and the US. In 2017, the share of financial services exported by EU-controlled affiliates was 6 percentage points lower than in 2005 (WTO, 2019). These are only a fraction of the online cross-border services that digitalization is expected to bring to the industry in the near future. Moreover, the COVID-19 along with the travel restrictions, social-distancing mandates and lock-down caused by it will facilitate the trend.

Lastly, digital technologies not only bring opportunities but also challenges, such as market concentration, loss of privacy and security threats, productivity and the digital divide. Furthermore, it is still uncertain whether digital technologies have impacts on the Global Value Chain (GVC) and whether they change patterns of comparative advantages.

Mr. Ivo Jeník

Mr. Jeník mainly talks about digital/internet financial services, financial inclusion and how they could help achieve the SDGs.

To begin with, he talks about the definition of financial inclusion and how digital finance could advance financial inclusion. Financial inclusion means that poor people,

especially women, can use financial solutions relevant to their needs, including pay, borrow, insure and save, to capture opportunities and build resilience. For example, with microcredit, digital credit, alternative credit scoring and digitalization of microfinance, the unprivileged or the people with limited previous credit history, who are difficult to get credit in the traditional mode of finance, can get credit.

Furthermore, he points out key benefits of financial inclusion to the poor. It can improve livelihoods and income of the poor, increase their access to essential services, and improve their resilience against shocks. He also discusses about how digital technology can help to score the credit of the poor and small enterprises in the absence of previous credit history. The general logic is to use different methods to extract information about customer ability and willingness to repay in the absence of previous credit history or access to credit bureaus. In more developed market, the alternative information includes the type of the mobile device a person uses, social media and so on. By contrast, in underdeveloped countries, more traditional ways are used. For example, there are providers who offer people smartphones on installments or on credit. They allow people through a small installment to first acquire the phone and then use the phone as a collateral for extended credit, so they effectively help people with a limited credit history to be gradually into more prime segment in credit at last.

In addition, he asserts that financial inclusion supports SDGs. Firstly, financial inclusion supports SDG 1 (no poverty). For example, in Kenya, 194,000 people lifted out of poverty because proximity to agents enables more income generation choices and efficient safety net (Jack and Suri, 2016). Secondly, it helps achieve SDG 2 (zero hunger). A typical example of this is that in Malawi, farmers with commitment savings increased investment by 13% and boosted crop output by 21%. Thirdly, it supports SDG 3 (good health and well-being). In Nepal, when hit with health shocks, households with savings accounts suffered smaller income drops than households without accounts (Prina, 2015). Fourthly, financial inclusion helps the achievement of SDG 4 (quality education). Prina (2013) finds that households with free bank accounts spent 20% more on education in Nepal. Lastly, it also supports SDG 8 (decent work and economic growth). Previous studies show that access to credit linked to higher probability of job creation and improved risk

coping (Attanasio, 2014; Karlan and Zinman, 2010; Angolucci et al, 2015). He also provides two detailed case studies about how giving smallholders better access to markets can improve their income in Africa and how digital finance can improve healthcare in Sierra Leone.

Last but not least, he also mentions that technology enables new business models that create customer value. When finance is digitized, all types of service providers can better serve lower income and more remote customers. Firstly, digital payments facilitate more numerous micropayments and prepayments. These fit better with irregular incomes and are cheaper to collect. Secondly, transaction data and low-cost communication/payment channels make it easier for providers to design follow-on offerings with higher value propositions. Lastly, integration with other services (imbedded finance) creates opportunities for new revenue streams and cross-subsidization. Overall, if they are separated, each of these attributes can improve existing service models, but when they are combined, they can be used to create entirely new classes of business models or services (e.g., index insurance) that sustainably meet development objectives.

Mr. Jeongmin Seong

Jeongmin Seong is a Partner at the McKinsey Global Institute, McKinsey & Company's business and economics research arm. He leads MGI research teams in China, working on global as well as emerging market-focused themes. Mr. Seong's recent research has focused on globalization, technology, innovation and economic development. He has co-authored several MGI reports and discussion papers, including Reskilling China: Turning the world's largest workforce into lifelong learners; China and the world: Inside a changing economic relationship, etc.

Prior to joining MGI, Mr. Seong worked with companies around the world focusing on consumer facing industries including consumer electronics, retail, and automotive. Jeongmin also led McKinsey's emerging market growth service line. Before joining McKinsey Shanghai office, Jeongmin worked as a product marketing manager at Dell. Jeongmin is a graduate of Harvard Business School where he received his MBA degree.

During the workshop Mr. Seong discussed the change WechatPay and Alipay brought to the markets in China. Jeongmin Seong sums up his arguments in five points: acceleration, social commerce, O to O, b to b digitization and super Apps. Covid has served as the acceleration for e-commerce in China and the change to already widespread mobile payment. E-commerce has been transformed by the covid pandemic because it's the only way for people to buy and sell during lockdowns. China was already a digital leader in consumer-facing areas even before Covid-19 with 45 percent of global e-commerce transactions. The mobile payment penetration in China is three times larger than in the United States. Covid-19 has accelerated the use of digital technologies. McKinsey's survey found that 55 percent of consumers will continue buying groceries online after the peak of crisis. In healthcare there was a growth in digital consultation and virtual interactions between pharmaceutical sales agents and physicians. (Leong, 2020)

Just like everywhere around the world Chinese citizens are spending more and more time on social media where commerce is also taking place. Because of social distancing people spend even more time on social media these days contributing to the acceleration of e-commerce. In China apps like Pinduoduo and Shihuitan have been growing really rapidly with livestreaming or community buying. Another trend in e-commerce Jeongmin discusses is O to O (online to offline) online business using offline stores. Physical stores are disappearing, and online and offline are merging together. In addition, business-to-business digitization has also been accelerating rapidly during the pandemic. Small shops and store leaders are expanding digitization to entire supply chain to be able to accommodate the demands. In China Jeongmin observes the trend of Super Apps. There is a horizontal expansion across the industry. Wechat and Alipay expanded to such a point that people can use the app for almost everything in their life: socializing, ordering food, buying movie tickets, etc. On the other hand, super Apps create concerns to data privacy or digital monopolization. This is a significant concern for consumers using the convenience of super Apps.

Jeongmin Seong has outlined the main trends of e-commerce in China, in particular during the time of Covid-19. Live streaming, community buy and emergence of super apps are interesting trends coming from China, a country that has been leading in domestic e-

commerce. Mr. Seong's topic of research is related to SDG 1, 8, 9, 10. The acceleration of e-commerce, social commerce, online to offline trend, business-to-business digitization and emergence of super apps play crucial roles in reducing poverty and inequality, creating work and economic growth, and developing industry, innovation and infrastructure. At the end of his lecture Jeongmin Seong sums up his findings in response to the question from the audience:

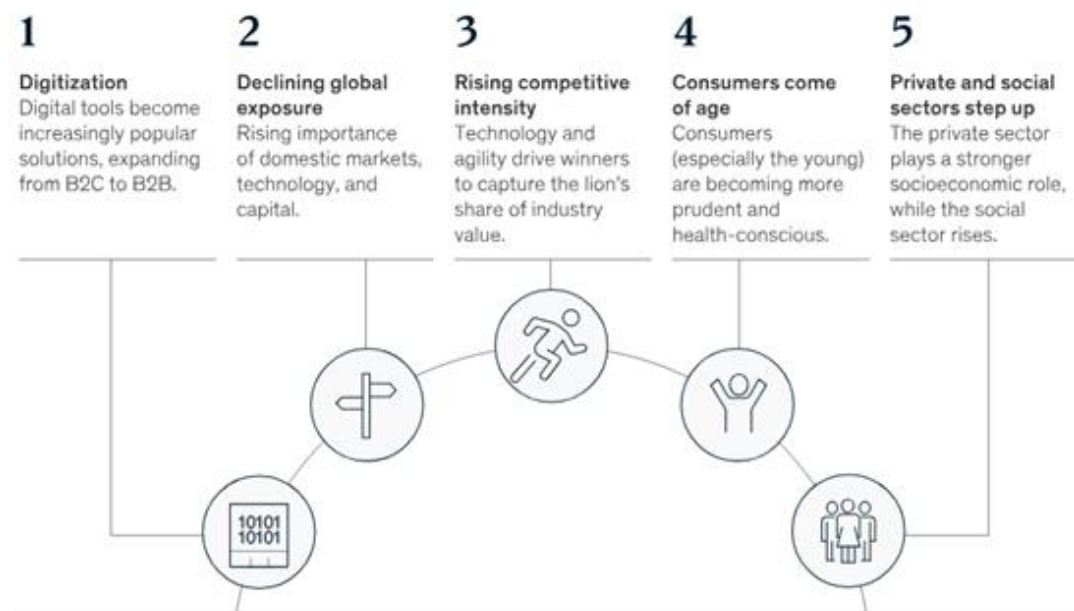


Figure 6. Five accelerating trends in China since Covid-19

Source: McKinsey Analysis

Mr. Chen Zhang

Chen Zhang is the associate professor of School of Economics at Renmin University of China, as well as the associate dean of the Confucius Institute at the University of Geneva. The main areas of his research focus on political economy theory and China's economic policy, and his academic papers have been published on peer review journals such as Social Sciences in China and Review of Political Economy. His research and policy recommendations on the reform of China's state-owned enterprises have had a great impact on the policy formulation.

Prof. Zhang talked about fintech in China. In the past years China's fintech has experienced tremendous growth. Financial technology such as mobile payment, blockchain technology and big data, has changed the financial system in China. However, fintech also brings risks and uncertainties. Thus, this requires regulation to adapt to fintech area. Prof. Zhang then discussed the history and emergence of Alipay. As of today, Alipay alongside WechatPay occupies the most important place in China's mobile payment system. P2P lending to solve small size and personal loans and regulatory technology were the other main points of prof. Zhang's lecture.

Through his research prof. Zhang concluded that there should be regulation balance which is innovation should be encourage, consumers should protected and risks should be prevented. Financial regulation in fin-tech era should be strengthened. Reforms of cross-border nature of fin-tech regulations should be implemented to meet the development of fintech. Prof. Zhang's research is closely related to SDG 8, 9 and 10. Proper regulations of fintech would provide decent work and economic growth, develop industry, innovation and infrastructure and reduce inequalities. The regulations such as the need for improving data privacy rights, national data security safeguard, better control of loan funds, etc. Ant Financial was the most recent large firm to be forced to comply with government regulations. The company's IPO was halted in November 2020 as the regulators demanded additional regulations to raise standards for online lending and company structure.

Mr. Nicholas Frank

Nicholas Frank is a lecturer in the School of Politics and International Relations and a PhD candidate in the School of Regulation and Global Governance at the Australian National University (ANU). Nicholas specializes in international political economy and international economic governance. His research interests include the political economy of international trade, international development, and geo-economics.

Prior to undertaking his position at the ANU, Nicholas worked at the World Trade Organization (WTO) and the International Centre for Trade and Sustainable Development (ICTSD) on topics including WTO accessions, service sector regulation and development, global value chain integration and upgrading, and e-commerce and disruptive technologies.

He currently provides consulting advice and research services to the International Trade Centre (ITC) on a variety of trade and development issues.

Nicholas holds a Master of Science (International Political Economy) from the London School of Economics, and an Honours degree (International Political Economy) and Bachelor of Commerce (Economics and Politics) from the University of Cape Town.

In his lecture Mr. Frank talked about the topological structure of the e-commerce, how the structure evolved and what the impact of structural change is on system function. Global governance of e-commerce is categorized in three dominant views: fragmented, polycentric and complex/complicated. Mr. Frank observes that there is a trend of defragmentation and polycentrism. In the long term the trade system will incline towards complex system. Complex system tends to be characterized by the power law, in which a limited number of nodes in the networks play a crucial role in the system. “If you took any country in the system, it would not fall apart. But if you took out a specific country, for example, one of the core/hub countries it would have a huge impact on the system.” This type of system is also characterized by self-organization. E-commerce and digital economy innovation will continue in Preferential Trade Agreements (PTAs). Mr. Frank’s research is closely related to SDG 9 and 16, which are industry, innovation and infrastructure and peace, justice and strong institutions.

The speakers of the two workshops provided us with deep insights about digital economy before and after Covid-19. In the next section we write about digital economy and how it relates to specific SDGs: SDG 1, SDG 2, SDG 3, SDG 8, SDG 9, SDG 10 and SDG 16. We analyze each SDG and provide examples of how digital economy relates to the corresponding SDG.

4. Digital economy and the SDGs in the time of COVID-19

4.1 Digital economy and the SDGs

4.1.1 No poverty (SDG 1)

“No poverty” is the first sustainable development goal. As of 2015, about 736 million people still made a living on less than US\$1.90 a day; many people could not get access to food and clean drinking water (Trutrade, 2020). One of the targets of SDG 1 is to ensure all human beings, in particular the poor and the vulnerable have equal rights to economic resources, appropriate new technology and financial services by 2030. In order to achieve this goal, e-commerce companies provided poor farmers with opportunities to get access to high technology and education. Local government released policy to develop agricultural industry and subsidize farmers.

Current situation

In the world, poverty headcount ratio decreased from 29.9% to 9.3% for the last two decades. The latest survey data highlighted the fact that most poor people were from rural area. More than 80% people who were below poverty line were from rural areas. In fact, more and more poor people were from countryside. Between 2015 and 2018, the share of rural poor in the total population of poor people increased by more than 2 percentage points. (UNDP, Goal 17) Thus, it was very important to reduce poverty in rural area.



Figure 7: Poverty headcount ratio at \$ 1.90 a day (2011 PPP) (% of population)

Source: World Bank estimates based on Global Monitoring Database data



Figure 8: Share of Rural Poor and Rural population, by region

Source: World Bank estimates based on Global Monitoring Database data

Problems

In China, the income gap between city and countryside is large. In 2012, city residents earned 26,959 RMB, but farmers only lived on 10,990 rmb per person. (UNCTAD, 2021) Thus, the focus of poverty reduction is on rural area. Yu and Liu (2014) found that at the national level, urbanization rate and social security expenditure were positively correlated with the urban-rural income gap. In terms of regions, the increase of

urbanization rate in most areas widened the urban-rural income gap. Chen and Lin (2013) found that rural residents could not effectively transfer to the cities, and the income gap between urban and rural areas expanded. Kuang (2018) found that lots of people from rural area worked in city, which caused the unequal distribution of human capital. Thus, most people living below poverty line were in rural area.

Thus, China contributed to reducing poverty in rural area. Based on the current rural poverty standard of 2,300 yuan per person per year (constant 2010 prices), 5.51 million rural poor people have all been lifted out of poverty. Since the 18th Party Congress, 98.99 million rural poor people have all been lifted out of poverty, all poverty-stricken counties have been removed, and absolute poverty has been eliminated historically. The annual per capita disposable income of rural residents in poor areas was 12,588 yuan, after deducting price factors, the real growth was 5.6%. (UNCTAD, 2021)

Solution: E-commerce and poverty alleviation

E-commerce can alleviate poverty in China, especially in rural area. Yan *et al* (2018) analyzed the method of targeted poverty alleviation by e-commerce, which constructed a system of government-led, e-commerce companies supported and active participation of poor households. Wang (2018) found that with the development of e-commerce in rural area, e-commerce has become an important mean for targeted poverty alleviation. In order to reduce poverty, it was important to develop infrastructure and train farmers. Tang and Luo (2019) found that Poverty-stricken areas should comprehensively consider the characteristics, advantages and constraint conditions of different modes of poverty reduction and explore the suitable mode for local needs. The poverty alleviation model of e-commerce platform had the advantages of fast start, strong ability to respond to the market and strong driving ability, but was constrained by poor stability and high coordination cost. Wang (2020) found that the e-commerce platform promoted the development of agricultural economy by influencing the supply and demand of agricultural products. The empirical findings showed that the policy effect, scale effect and agglomeration effect of agro-related e-commerce platforms on agricultural economic development were all significant. Yang (2019) found that e-commerce poverty alleviation

could overcome the regional bottleneck constraints in poor areas and improve the industrial development level in poor areas. In recent years, various regions explored the implementation path of rural e-commerce poverty alleviation, effectively realizing the injection of external resources, industrial remodeling and upgrading, decentralized assistance and promotion of social equity in poor areas. Empirical research showed that rural e-commerce had a significant effect on poverty reduction.

According to Mr. Andre Zhu, our speaker of workshop “E-commerce and sustainable development in China”, e-commerce companies and local government cooperate to alleviate poverty in China. Take Pinduoduo corporate as an example. It established Duoduo University and trained farmers to sell products in a high-tech way by using social media to publicize, online platform to do business and so on. Government released policy to develop agricultural industries.

Case study: Poverty reduction in Qianjiang

Take poverty alleviation in Qianjiang as an example. Qianjiang, located in the Jianghan plain hinterland, with the territorial area of 2004 square kilometers and cultivated land area 1.8 million mu, has the population of 1.03 million. In 2014, 51 poverty villages were registered with 19,370 households and 64,052 people and the poverty rate was 12.3%. From 2014 to 2018, 43 poverty-stricken villages were listed, 51,233 people from 16,080 households got rid of poverty and the poverty rate dropped to 3.13%. Since the implementation of poverty alleviation, Qianjiang has made great efforts to develop crawfish and rice industries, effectively improved the quality and efficiency of poverty alleviation. There were several advantages for Qianjiang to develop crawfish and rice industries, flat terrain, crisscrossed rivers, nutrient-rich soil and moderate climatic conditions.²⁷

In order to alleviate poverty by developing crawfish and rice industries, local government and e-commerce companies cooperated to reduce poverty. E-commerce

²⁷ Last consulted on 11/08/2021. Xinhua. (2016). Hubei Qianjiang "shrimp rice", a field of two brands. Retrieved from http://www.xinhuanet.com/mrdx/2016-06/11/c_135427808.htm. (in Chinese: 湖北潜江“虾稻共作”，一块田里俩品牌)

companies trained farmers and provided opportunities to sale products on the internet. Local government issued policies to subsidize enterprises which developed competitive industries with advanced technology and helped to solve the employment problems and lift people out of poverty.²⁸

For example, Qianjiang Huashan Aquatic Products Company rent the land from farmers, regulated it and employed farmers to grow crawfish and rice. Therefore, the problem of scale production was solved as well as both enterprises and local farmers benefited from the development of industries. In other towns, government gave assistance to local enterprises and these enterprises were supposed to pay dividends to poor households. Qianjiang encouraged farmers to involve in the poverty reduction, which not only promoted the development of industries but also reduced poverty in a sustainable way. E-commerce company trains the farmers to cultivate crawfish and rice scientifically by means of centralized training, door-to-door guidance, telephone consultation and WeChat public account, so as to comprehensively improve the cultivation and breeding skills of poor households.²⁹

One of the most important reasons of poverty is lack of education, farmers in do not have opportunities to learn so that they cannot make a profit by using internet. The new agricultural business entities purchased the agricultural products of the poor households at protective prices to minimize the impact of market price fluctuations on the income of the poor households as well as e-commerce enterprises established agricultural products sales cooperation with poor households in poor villages to improve the sales of products. One of the most serious obstacles for farmers to get rid of poverty is pricing risk because their all efforts are in vain and they may lose everything if the price of product is lower than the cost. Therefore, farmers are less likely to return poverty with protective prices.

²⁸ Last consulted on 11/08/ 2021. China daily. (2021). The rich Region Project, an e-commerce company, has teamed up with the Qianjiang government to help local crayfish be sold nationwide. Retrieved from <https://kd.youth.cn/a/voX0mJxLW9oDZQg>. (in Chinese: 电商“富域计划”携手潜江政府，助当地小龙虾卖向全国)

²⁹ Last consulted on 11/08/2021. Qianjiang News. (2020). Qianjiang "revitalizing the land and benefiting the people" effectively improved over one million mu of land. Retrieved from http://www.hbj.gov.cn/xwzx/jrqj/smsb/202005/t20200525_2295602.html. (in Chinese: 潜江“兴地惠民” 高效整治土地超百万亩)

There are several ways to gain benefits and alleviate poverty from competitive industry in Qianjiang Huashan Model. Government, enterprises and local farmers cooperated to develop crawfish and rice industries. Every participant gained from the profits of production. Government made policies to subsidize enterprises which helped alleviate poverty, enterprises were in charge of developing business and farmers were responsible for production. Government achieved accomplishment by improving local economics condition and reducing poverty. Enterprises gained profits by organizing production and making sales while the farmers got rid of poverty and became better off by being employed and trained to cultivate in a scientific way. The enterprise rent land from farmers and employed them as workers. Land was used more efficiently because large-scale production was achieved and the quality of product was improved. Consequently, both enterprises and farmers gained from the benefits of production.³⁰

4.1.2 Good Health and Well-Being (SDG 3)

Current situation

SDG 3 aims to “ensure healthy lives and promote well-being for all at all ages.” The world has been facing a global health crisis since the end of 2019 unlike any other with 3.8 million deaths and 177 million infected with Covid-19 (WHO, June 19th). Significant progress on improving health of millions of people has been made before the pandemic. Increase in life expectancy and reduction in infant and maternal mortality were achieved. Nevertheless, more efforts are needed to tackle emerging health issues. “By focusing on providing more efficient funding of health systems, improved sanitation and hygiene, and increased access to physicians” millions of lives can be saved.

Problems

Covid-19 poses a global risk and shows the critical need for preparedness. The pandemic has affected many progresses that has been made in SDG 3. Covid-19 infections, death tolls and direct impact on people’s economic, social and health well-being are

³⁰ Last consulted on 11/08/2021. Nongjing. (2020). Big business for crayfish. Retrieved from https://www.sohu.com/a/402472134_100015888. (in Chinese: 小龙虾, 大事业)

immeasurable. UNDP report on April 2020 explored the preparedness of countries to cope and recover from Covid-19 crisis. For example, the most developed countries with “on average 55 hospital beds, over 30 physicians, and 81 nurses per 10,000 people compared to 7 hospital beds, 2.5 physicians, and 6 nurses in a least developed country.” As a result, when covid-19 hit the level of preparedness of countries are different. Thus, the least developed countries will suffer the most if they are not able to prevent covid-19 outbreaks. In fact, when covid-19 hits those living on poverty will be particularly at risk. Despite many progresses in poverty reduction more than 40 percent of the global population still does not have any social protection. (UNDP, 2020) Covid-19 pandemic also shows us that disruptions are contagious, triggering problems in other areas. For example, significant part of Tajikistan’s GDP come from remittances. While Maldives rely heavily on tourism (almost 60% of GDP). Thus, Covid-19 pandemic, travel bans and lockdowns have affected tremendously on the healthy lives and well-being of many people.

Case Study: Digital finance saved lives and money during the 2014–2016 Ebola crisis in Sierra Leone³¹.

Ebola was one of the deadliest viruses of the modern era, and Sierra Leone was among the countries which was most severely hit by Ebola. From 2014 to 2016, there are over 14,000 people infected with Ebola in Sierra Leone, accounting for 50% of total infected cases in West Africa, and nearly 4,000 people lost their lives.

Ebola response workers were at the front line of fighting with Ebola in Sierra Leone, and they spread across 14 districts, including many health units in rural areas. However, the delays, frauds and errors in the payments of Ebola response workers’ wages, which are mainly due to the cash payments, significantly disappointed them, and led to frequent strikes which significantly slowed down life-saving response efforts. Before digital payments, Ebola response workers received their pay in cash only, but cash payments were subject to errors, delays and fraud, and they had to travel long distances to get it and spend more money for the trip. As a result, given Ebola’s high speed of spreading, the Sierra

³¹ Last consulted on 10/8/2021. Premium Times, (2016). Retrieved from <https://www.premiumtimesng.com/features-and-interviews/203633-features-digital-payments-ebola-workers-saved-lives-10-million.html>.

Leone's government has to find a more efficient, reliable and secure tool than cash to manage payments to response workers in a country where there were fewer than 50 ATMs when the outbreak struck.

This tool is digital finance. When Sierra Leone began paying workers through their mobile phones, strikes were slowed down and incorrect payments stopped. The country has been Ebola free since January, 2016. Implementing digital payments to these workers had a dramatic impact. Firstly, it was estimated that 2,095 people were saved by reducing worker strikes. Secondly, it prevented the loss of around 800 working days per month from the Ebola response workforce, helping save lives during this critical time. Thirdly, it reduced the time of payments from over one month on average for cash to only one week, saving response workers around 80,000 U.S dollars per month in travel costs by avoiding their time-consuming journeys to cash payment centers. Lastly, the government of Sierra Leone saved 11 million U.S dollars by reducing fraud and costs of handling cash while increasing accuracy, which is enough to provide basic healthcare to 1.4 million children and 0.25 million pregnant women each year in Sierra Leone.

The use of digital payments during the Ebola outbreak offers some important lessons. Firstly, it is vital that governments invest in ensuring digital payments are available before a crisis. Digital payments can advance financial inclusion and create new economic opportunities, particularly for women and people who are poor, so this also has a lasting impact on communities after the crisis. Secondly, government must lead the way and cooperate with the private sector and international organizations. H.E. Momodu L. Kargbo, Sierra Leone's Minister of Finance and Economic Development, said *"Sierra Leone's firsthand experience with digital payments and its impact on Ebola response and control taught us that, Governments like ours must take this growing payment system seriously as it can significantly contribute to inclusive growth and transparency. In developing the partnership with private sector, development organizations, the Central Bank, financial institutions, network providers; and building the foundation for an inclusive digital payment system. Government must take the lead."* These partnerships are vital for developing the policy frameworks, infrastructure, and public education initiatives which are essential for digital payments to thrive.

In summary, by using digital payments to pay Ebola response workers, Sierra Leone was able to massively cut payment times, which avoided large-scale strikes and ensured a stable workforce to defeat Ebola. That's why Sierra Leone controlled and eliminated Ebola quickly. With economic instability, natural disasters and political conflicts now taking place at unprecedented rates, the case of Sierra Leone offers valuable lessons on how to harness the power of technology to help emergency workers reach more people by paying them digitally during crises. Most importantly, Sierra Leone's experience shows the critical importance of cooperation between governments, the private sector and international organizations to develop policy frameworks, infrastructure and operating guidelines for digital payments before crises strike. All of these experiences above are valuable for dealing with the current COVID-19 crisis and are important for the achievement of SDG 3.

4.1.3 Decent work and economic growth (SDG 8)

SDG 8 aims to promote inclusive and sustainable economic growth, employment and decent work for all. By decent work, it refers to opportunities for everyone to get work that is productive and delivers a fair income, security in the workplace and social protection for families, better prospects for personal development and social integration.

Current situation

We have to face the fact that, in 2019, 22 percent of the world's youth were not engaged in either education, employment or training, and the COVID-19 pandemic even worsened the situation³². By promoting SDG 8, we are expecting productive activities, decent job creation, entrepreneurship, creativity and innovation so that people can get decent jobs, and countries can achieve higher levels of economic productivity and sustain per capita economic growth in accordance with national circumstances.

³² Last consulted on 30/5/2021. United Nations, (2021). Why it matters: Decent work and economic growth. Retrieved from https://www.un.org/sustainabledevelopment/wp-content/uploads/2016/08/8_Why-It-Matters-2020.pdf.

Problems

There is no doubt that we are still facing with severe and complicated unemployment problems in the world. The report “World Employment and Social Outlook-2020 trend³³” issued by the International Labour Organizations (ILO) pointed out three major problems regarding unemployment: labour under-utilization, shortage of jobs, and bad working conditions or inadequate income.

In the first place, now the total labour under-utilization is more than twice as high as unemployment, affecting over 470 million people worldwide. According to the ILO, the mismatch between labour supply and demand extends far beyond the 188 million unemployed across the world in 2019. An additional 165 million people are in employment but wish to work more paid hours. Furthermore, around 120 million people are not classified as unemployed but are marginally attached to the labour market, which means that 470 million people worldwide lack adequate access to paid work as such or are being denied the opportunity to work the desired number of hours.

What makes it even worse is the continuous trend of the shortage of jobs. According to the data provided by the ILOSTAT³⁴, the central portal of the ILO to labour statistics, in 2019, 5.4% of the world’s population over the age of 15 is unemployed, and that number of the age between 15 to 24 and over 25 is respectively 13.5% and 4%. Also, the unemployment rates in 2019 are roughly the same as they are in 2018, which means the condition in the world remains unchanged. The gradual decline of the unemployment rate observed between 2009 and 2018 appears to have come to a halt. And a slowdown in global economic activity may further reduce the employment growth in the near future.

Last but not least, a paid job does not equate to decent work. In 2019, there are 3.3 billion employed people being not able to get decent working conditions or an adequate income. These employees engage in jobs that are informal, offer low pay and provide little

³³ Last consulted on 30/5/2021. ILO, (2021). World Employment and Social Outlook-2020 trend. Retrieved from https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_734479.pdf.

³⁴ Last consulted on 30/5/2021. ILOSTAT, (2021). Dataset, SDG indicator 8.5.2 - Unemployment rate (%) | Annual. Retrieved from https://www.ilo.org/shinyapps/bulkexplorer17/?lang=en&segment=indicator&id=SDG_0852_SEX_AGE_RT_A.

or no access to social protection and rights at work. Therefore, on the issue of employment, we should never ignore those who are own-account and contributing family workers, or the workers who are subject to insecure contracts, low earnings and informality.

Solution: Decent work through e-commerce

E-commerce, as a rising industry, could create numerous decent jobs to the society. The job creation of e-commerce is not only limited to the business field--as e-commerce prospers, there would definitely be more online retail sellers--but also in other industries boosted by the e-commerce, such as logistics, network technology, advertising, customer service, online bloggers and so on. What's more, e-commerce has lowered the threshold of entrepreneurship so that people could easily start their own businesses, and the small firms can also easily get access to the substantial market, thus having a better chance of surviving in the marketplace and providing more employment opportunities.

In our first workshop “e-commerce and sustainable development in China”, we invited Mr. Andre Zhu, the vice president of a popular Chinese e-commerce enterprise, Pinduoduo, to deliver a speech. According to Mr. Zhu, now over 12 million farmers are connected to the digital economy through Pinduoduo, and they did it in just over five years. In addition, according to the authoritative report “E-commerce in China 2019³⁵” issued by the Ministry of Commerce, in 2014, the number of e-commerce practitioners in China is 26.90 million, while in 2019, this number has reached 51.2565 million, with a year-on-year growth of 8.29%. Among them, e-commerce directly promoted the employment and entrepreneurship of 31.1508 million people, and indirectly promoted 20.1057 million people to be employed in information technology, related services and supporting industries. E-commerce, needless to say, plays an important role in promoting employment, and helps to solve the problem of job shortage mentioned above by the ILO.

In addition to directly or indirectly creating jobs, e-commerce, in some way, helps people to engage in more decent work that is of higher income and better working

³⁵ Last consulted on 1/6/2021. Department of e-commerce and information technology, Ministry of Commerce, (2020). E-commerce in China 2019. Retrieved from <http://images.mofcom.gov.cn/wzs2/202007/20200703162035768.pdf>.
(in Chinese: 《中国电子商务报告 2019》)

conditions, which is also a concern raised by the ILO. Mr. Zhu told us that Pinduoduo has established “Duoduo University” as part of its digital inclusion initiative that aims at developing human capital in the field of e-commerce. “Duoduo University” is actually an online teaching platform that provides courses to teach people how to start and succeed in their own online businesses. The various courses have covered almost every problem a novice e-commerce seller may encounter, including how to set up online stores, selling products via online platform, fixing a price, doing marketing and so on. Armed with this knowledge, more people could easily start their businesses and get higher incomes.

In agricultural sector, Pinduoduo also partnered with China Agricultural University to provide thousands of hours of online and offline courses, and have trained over 100,000 new farmers so that they can sell agricultural products from their hometown communities directly to consumers. And by doing this, the income of these farmers increases. Mr. Zhu gave us a real example to explain why the sellers can earn more by selling products online. Under the traditional distribution model, a garlic grower in Henan province sells her garlic offline to county level distributors at 2 RMB per kilo. The same garlic then goes through layers of distributors, then sold to consumers in the supermarkets at 16 RMB per kilo, which is eight times price increase. But after she set up an online store on Pinduoduo, she can sell her garlic directly to consumers at 4 RMB per kilo. Consumers enjoy fresher garlic at a quarter of the offline retail price. Meanwhile, after deducting all the additional costs, the garlic grower can still pocket about 2.6 RMB per kilo, which is 30% increase in her income. This model showed us that e-commerce can remove the intermediate distribution steps of selling a product, thus saving the costs and increasing welfare for both of the sellers and buyers. Therefore, e-commerce promotes not only the quantity of employment, but also the quality of employment.

In this process, however, we need to be alert to two potential problems: the first is the negative impact of e-commerce development on offline economy and employment, and the second is the monopoly of e-commerce platform.

Firstly, in the example of the garlic grower, we have noticed the welfare of both sellers and buyers have increased. And e-commerce achieved this by removing the

intermediate steps and directly connecting suppliers and customers. So whose interests have been harmed? The answer is the middleman “removed” by the e-commerce, for instance, the distributors and supermarkets in this story. Therefore, the rise of e-commerce has a certain impact on offline economy and employment.

But this doesn’t mean that e-commerce will lead to higher unemployment rate. It is actually a process of employment structure adjustment. Whether e-commerce will result in higher employment rate depends on how many jobs it can create and how many it can remove. So far, while e-commerce is causing impact on offline economy, it is creating more job positions and offering higher salaries for people in China. Qi calculated the average score of employment quality in China's provinces in 2008-2018 based on the provincial level panel data from 2008 to 2018. According to Qi’s research, the development of digital economy is conducive to the optimization and upgrading of employment structure and promotes the further improvement of labor remuneration and labor protection as well as the continuous improvement of employment environment and employment ability, which provides a new opportunity for achieving higher quality employment (Qi et al., 2020).

Secondly, the monopolistic power of e-commerce platforms will do harm to quality employment. In China, a common strategy used by e-commerce platforms is to invest huge amount of money to attract consumers by offering low price or subsidies at first. After seizing most of the market with the advantage of low price, these platforms will form a monopoly and begin to raise prices and obtain huge profits. Once the monopoly power is formed, the welfare of consumers and sellers will be infringed. E-commerce platforms will earn huge profits from them. Therefore, it is necessary to introduce competition and regulation to fight monopoly and protect people’s well-being and high quality employment. In 2021, the State Council of China has issued “Antitrust guidelines in the field of platform economy³⁶”. Since this year, according to the anti-monopoly law, Internet giants such as Tencent and Alibaba have received a number of anti-monopoly administrative penalties.

³⁶ Last consulted on 26/7/2021. State Council of China, (2021) Retrieved from http://www.gov.cn/xinwen/2021-02/07/content_5585758.htm. (in Chinese: 《国务院反垄断委员会关于平台经济领域的反垄断指南》)

In brief, e-commerce helps to promote SDG8 and provides a new opportunity for achieving higher quality employment. But the development of e-commerce should be under cautious regulation to ensure labour protection and good employment environment instead of the formation of monopolistic power.

Solution: E-commerce and economic growth

With more jobs created and more products and services sold, e-commerce is becoming a new economic growth engine. According to the China National Bureau of Statistics, the total amount of e-commerce transactions in China was 34.81 trillion yuan in 2019, with an increase of 6.7% over the previous year³⁷. Compared with 8 years ago, the total volume of e-commerce transactions was only 6.09 trillion yuan in 2011. It is very impressive that this number has increased nearly fivefold in eight years. When we look at the whole world, we could still observe this growth trend. According to eMarketer's estimation, the global online retail transaction volume in 2019 is \$3.535 trillion, accounting for 14.1% of the total retail sales, and this proportion is estimated to reach 22% by 2023. The year-on-year growth of online retail transaction volume is 20.7%. while that of total retail sales is only 4.5%. In other word, the growth rate of global online retail transaction volume is 16.2% higher than that of total retail sales.

From the perspective of different regions in the world, the online retail sales all goes up in 2019. Specifically, the development of e-commerce in the Asia-Pacific region ranks in the forefront of the world in terms of both scale and growth rate. Among the top 10 countries in online retail sales, four are in the Asia-Pacific region, namely China, Japan, South Korea and India, accounting for nearly 70% of the total of the top 10 countries. Besides, ever since the Asia-Pacific region became the world's largest online retail market in 2013, its average annual growth rate has been maintained at more than 20%.

³⁷ Last consulted on 24/5/2021. ZGXXB, (2020). In 2019, China's e-commerce transaction volume has reached 34.81 trillion yuan. Retrieved from <http://www.zgxxb.com.cn/xwzx/202002200008.shtml>.

Table 1. Top 10 countries in online retail sales in 2019

Rank	Country	Online retail sales in 2019 (Unit: US \$100 million)	Growth rate in 2019
1	China	19347.8	27.3%
2	United States	5869.2	14.0%
3	United Kingdom	1419.3	10.9%
4	Japan	1154.0	4.0%
5	South Korea	1034.8	18.1%
6	Germany	818.5	7.8%
7	France	694.3	11.5%
8	Canada	498.0	21.1%
9	India	460.5	31.9%
10	Russia	269.2	18.7%

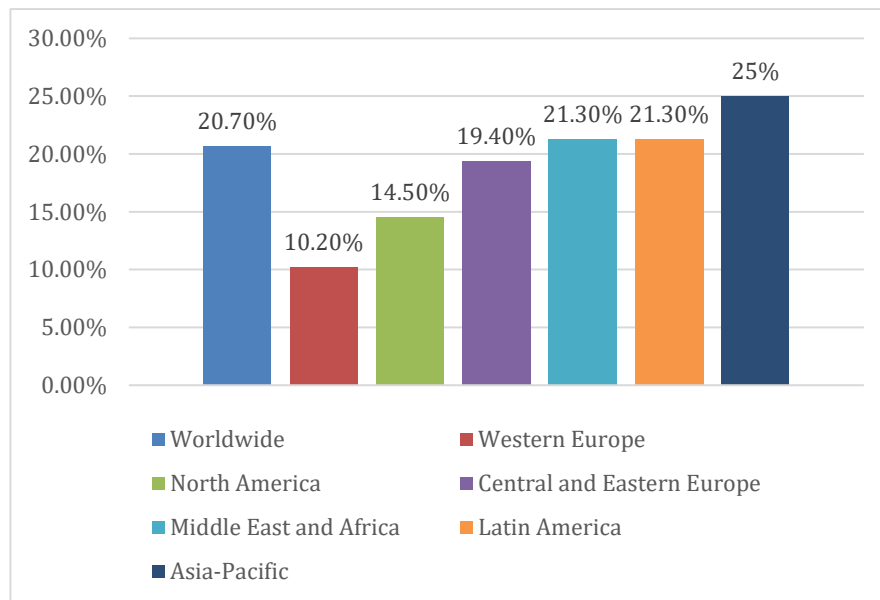


Figure 9. Growth rate of online retail sales in different regions of the world in 2019

Source: eMarketer

4.1.4 Industry, innovation and infrastructure (SDG 9)

SDG 9 aims to promote inclusive and sustainable industrialization, as well as innovation and infrastructure that can unleash dynamic and competitive economic forces that generate employment and income. These industries and infrastructure play a key role in introducing and promoting new technologies, facilitating international trade and enabling the efficient use of resources. In other words, economic growth, social

development and climate action are heavily dependent on investments in infrastructure, sustainable industrial development and technological progress, what are exactly SDG 9 concludes.

Current situation and problems

The world has a long way to go to fully tap the potential of innovation. Global manufacturing growth has been steadily declining due to tariffs and trade tensions, even before the outbreak of the COVID-19 pandemic³⁸. Least developed countries especially need to accelerate the development of their manufacturing sector and scale up investment in scientific research and innovation.

SDG 9 aims to “significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet in least developed countries by 2020”.

According to UN, more than half of the world’s population is now online and almost the entire world population lives in an area covered by a mobile network. It is estimated that in 2019, 96.5 per cent were covered by at least a 2G network with 81.8% covered by at least a Long Term Evolution network³⁹. Also, the coverage of network in the least developed countries has increased significantly, from 51% in 2015 to 79% in 2019. However, covered by the network doesn’t mean using the Internet. In 2019, only 54% of the world's population actually uses the Internet. Among them, most of the people who do not have access to the internet live in the least developed countries, where only 19% use the Internet, compared with 87% in developed countries. The key reasons for this huge gap are the cost of using the Internet and the lack of necessary skills⁴⁰.

³⁸ Last consulted on 26/5/2021. UN, (2020). Industry, innovation and infrastructure: why it matters. Retrieved from https://www.un.org/sustainabledevelopment/wp-content/uploads/2019/07/9_Why-It-Matters-2020.pdf.

³⁹ Last consulted on 26/5/2021. UN, (2020). Progress towards the Sustainable Development Goals. Retrieved from https://sustainabledevelopment.un.org/content/documents/26158Final_SG_SDG_Progress_Report_14052020.pdf.

⁴⁰ Last consulted on 26/5/2021. UN, (2020). The sustainable development goals report-2020-Chinese. Retrieved from https://unstats.un.org/sdgs/report/2020/The-Sustainable-Development-Goals-Report-2020_Chinese.pdf.

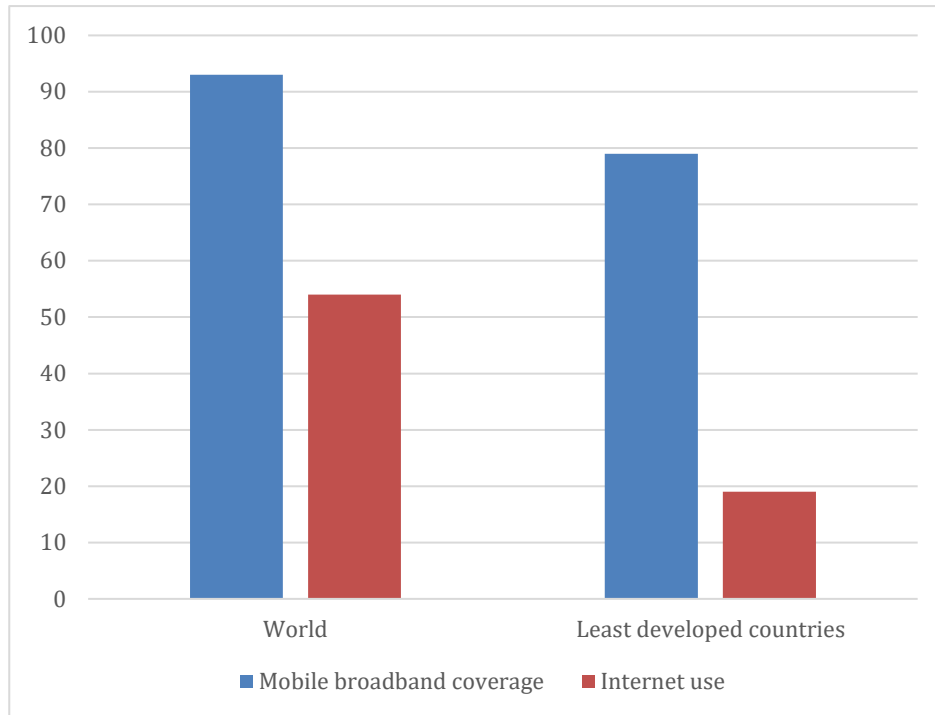


Figure 10. Proportion of population with mobile broadband coverage and Internet use, estimated in 2019 (percentage)

Source: UN report

Solution: E-commerce innovation

When it comes to innovation, we could say that e-commerce itself, in a way, is a kind of innovation. As mentioned by many of our workshop speakers, e-commerce innovates the way how consumers and suppliers are connected and revolutionizes the global market. It removes the obstacles caused by distance so that people in remote areas could also get involved into the broad market. People could easily start their own business through an e-commerce platform without too much professional knowledge. Many of them braced out of poverty or unemployment by engaging in e-commerce, a brand new industry that even doesn't exist 30 years ago. E-commerce also reduces information asymmetry by offering everyone a platform full of information so that the needs of consumers and producers could accurately match. Efficiently connecting supply and demand not only lowers the cost of logistics, but also reduces the cost of wasted goods like fresh food. All of these are the innovations brought by the e-commerce, which has attracted numerous investments in itself and promoted the development of primary industry, secondary

industry and tertiary industry. Therefore, it can be said that e-commerce itself is an innovation of commercial form and industrial integration.

Moreover, e-commerce itself is still evolving and has not yet reached its full potential of innovation. According to Prof. Liang, one of our workshop speakers, many e-commerce enterprises in China are now applying recommendation technologies based on AI to recommend certain products to specific consumers who may be interested in them. Therefore, extensive information is “fed” to those who in need so that they could save the time for searching. Besides, e-commerce platforms are also using the social network to connect demands in a large group. All of these are innovated new models in this age. It showed some characteristics that is called the “human-centered” or “human-oriented e-commerce”.

Last but not least, Prof. Liang also mentioned that e-commerce in the future will sell not only goods, but also services. Meituan and other service-based e-commerce platforms in China especially aim to deliver local services for people, for instance, delivery services of takeaway food or daily necessities, ticket booking, personalized entertainment recommendation and so on. These platforms provide services that cover nearly all the aspects of the daily life of a person. This could liberate people from the ^ daily housework and enable everyone to have more time to enjoy their life.

Solution: E-commerce and network infrastructure

The development of e-commerce is based on complete network infrastructure constructed by ICTs. In September 1993, the U.S. government announced the implementation of a new high-tech program based on the Internet, the National Information Infrastructure (NII), aiming to build an information era highway, the Information Super-Highway (ISHW), so that all Americans can easily share massive information resources. This program plans to spend 200-400 billion US dollars in 20 years to build the NII as the focus of U.S. development policy and the basis of industrial development (Zhang, 1994). It was after that the e-commerce had rapidly become a focus of American economic development. At the end of 1996, President Clinton advocated the establishment of the US government working group on Electronic Commerce, an inter departmental e-commerce

management coordination organization, which is responsible for formulating policies and measures related to e-commerce, and coordinating and supervising the implementation of relevant departments. On July, 1997, President Clinton promulgated the “a framework for global electronic commerce” that the federal government promotes and supports the development of e-commerce. The document established the basic framework of federal government policy and had a positive impact on the development of e-commerce in the United States and even in the world.

It is basically the same in China. Right after the ISHW being proposed by the US, China followed up and proposed “Three Gold Projects” at the end of 1993. The “Three Gold Projects”, composed of “Jinqiao”, “Jinguan” and “Jinka”, are the key projects to promote the informatization of the nation. It unifies the construction of local information systems into a big plan that support the development of the national economy. “Jinqiao” project is to construct a national government information network. “Jinguan” project is the information network for international trade, which makes information networks for customs and trade connect with each other and realize the automation of customs clearance. “Jinka” project, namely the electronic currency project, is an important part of financial digitization and commercial circulation in China (Xu & Cao, 1996). It was also after that, e-commerce prospered in China.

In brief, e-commerce is closely related to network construction. But in turn, in order to foster e-commerce in some remote or poor areas, government will have to improve network infrastructure in these areas, which could make contributions to SDG 9. For example, in China, the State Council has issued many policies to accelerate the construction of rural information infrastructure and the popularization of broadband in rural areas after e-commerce prospers in cities⁴¹. Therefore, the development of e-commerce and the construction of network infrastructure is strengthening each other.

⁴¹ Last consulted on 26/5/2021. The State Council of China, (2015). Guiding opinions of the general office of the State Council on accelerating the development of rural e-commerce. Retrieved from http://www.gov.cn/zhengce/content/2015-11/09/content_10279.htm. (in Chinese: 《国务院办公厅关于促进农村电子商务加快发展的指导意见》)

Solution: E-commerce and ICT innovation

Besides e-commerce itself and the close relationship between e-commerce and network infrastructure, e-commerce also promotes innovation of other ICTs.

Prof. Liang pointed out that the e-commerce can not only be conducted to sell goods or services to consumers, but also to connect the enterprises or even industries. This new model is called “industrial internet”, which emphasizes connectivity among industries. It’ll provide new opportunities for the e-commerce and also encourage the development of relevant technologies and network infrastructure like 5G, etc. The concept of "industrial Internet" was proposed by the General Electric (GE) chairman Ismail, and it refers to a huge physical world composed of machines, equipment, clusters and networks, and can be combined with big data and digital analysis at a deeper level. The core idea of industrial internet is the deep integration of informatization and industrialization (Li & Wan, 2014).

Ms. Hanna Norberg, another speaker of our workshop also mentioned blockchain and e-commerce. Although e-commerce platforms make it easier for firms to find new suppliers and for firms to reach consumer, there's still a gap. Trade and e-commerce is based on the same fundamental principles, namely on information and trust. Providing proof of a firm’s digital identity is a significant trade cost. Therefore, blockchain was developed so that it is revolutionizing how we store and access data. Blockchain enables transaction between two actors that didn't know or trust each other without the use of a middleman. And by putting the information on blockchain, the cost of information drastically lowered while the availability of data increased. For both buyers and sellers, the information becomes verifiable and available. That is to say, once the blockchain technology is widely applied, the sellers, buyers and e-commerce platforms will all benefit. Buyers and sellers can trade directly without needing a third party to manipulate or review it. Therefore, blockchain is another major innovation related to e-commerce, which may change the development mode of e-commerce.

4.1.5 Reduced inequalities (SDG 10)

SDG 10 aims to reduce inequalities within and among countries, and ensure no one is left behind. Inequalities based on income, sex, age, race, religion continue to threaten long-term social and economic development, harm poverty reduction and destroy people's sense of fulfillment and self-worth across the world.

Current situation

In fact, inequality within and among countries is a persistent concern worldwide for a long time, and is growing for more than 70 percent of the global population⁴². Within countries, relative income inequality still widely persists and hinders the development of the nation. Among countries, we can still observe a huge gap between most of the developing countries and developed countries in many aspects, which is also why preferential trade status benefiting lower-income countries is still needed. By promoting SDG 10, we are trying to achieve a life of dignity for all, especially in the case of disadvantaged and marginalized communities.

Problem: Income Inequalities

We all know that in the present world, some countries are richer than the others for a variety of reasons. People in high-income countries are more likely to live a better life than people in low-income countries. The growing income inequality that we have observed in the world is one of the important challenges that our planet has in front of us. Most of people in the world are well aware of the income inequalities among countries. But if we look at the specific data of the countries in the world, we may find that the income inequalities between countries are even greater than we think.

According to the latest data estimated by the World Bank⁴³, the adjusted net national income per capita (constant 2010 US\$) of the whole world is 8915.73 in 2018. The figure of this indicator is 35800.26 in high income countries while only 3724.52 in

⁴² Last consulted on 27/5/2021. UN, (2020). Reduced inequalities: why it matters. Retrieved from https://www.un.org/sustainabledevelopment/wp-content/uploads/2018/01/10_Why-It-Matters-2020.pdf.

⁴³ Last consulted on 27/5/2021. The World Bank, (2021). Adjusted net national income per capita (constant 2010 US\$). Retrieved from <https://data.worldbank.org/indicator/NY.ADJ.NNTY.PC.KD?view=map>.

lower middle-income countries, which means that the national income per capita of high-income countries is more than 9.6 times that of lower middle-income countries. And the adjusted net national income per capita in the least developed countries (UN classification) is even lower, which is only 785.70 constant 2010 US\$ (Figure 10)

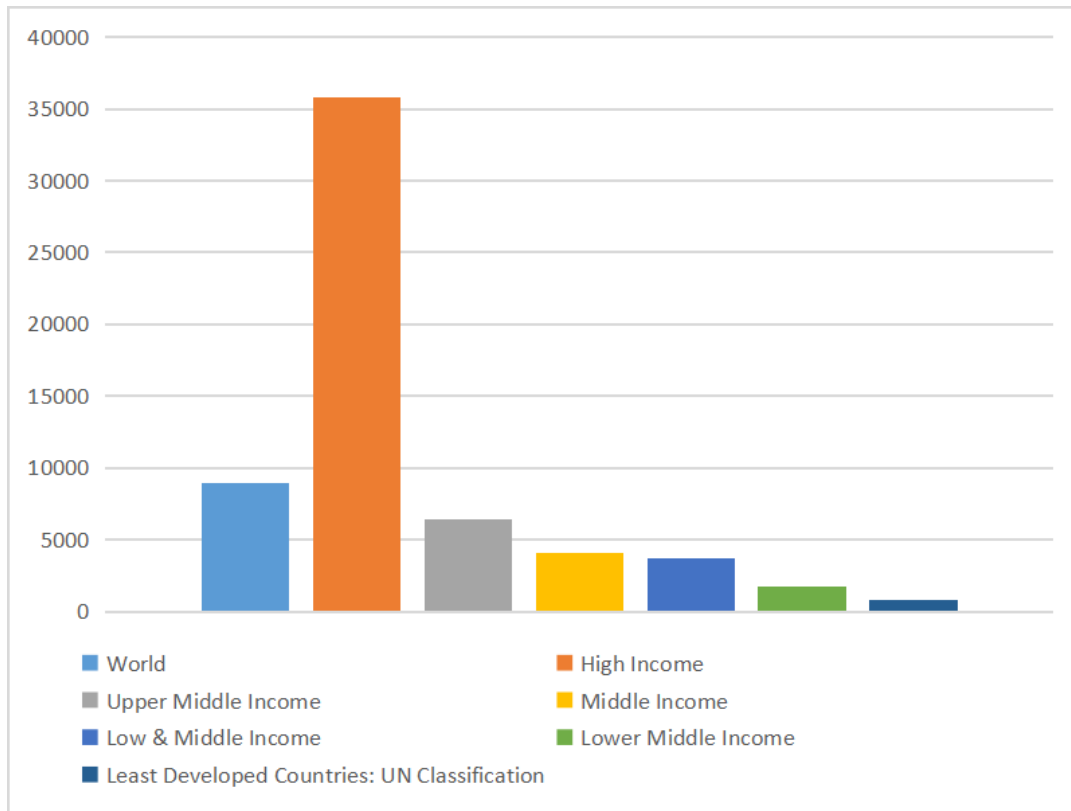


Figure 11. Adjusted net national income per capita (constant 2010 US\$) in 2018

Source: World Bank

It is even more shocking if we sort the available data on national income per capita of all the countries in the world. The number one is Norway, with a national income per capita of 73325.81 while the number of the last one, Burundi, is only 177.27. This means that the national income per capita of the richest countries is more than 410 times that of the poorest countries. From the following bar chart, we can intuitively observe the income gap between the top 3 countries and the last 3 countries in national income per capita. Needless to say, this huge income gap poses a threat for SDG 10.

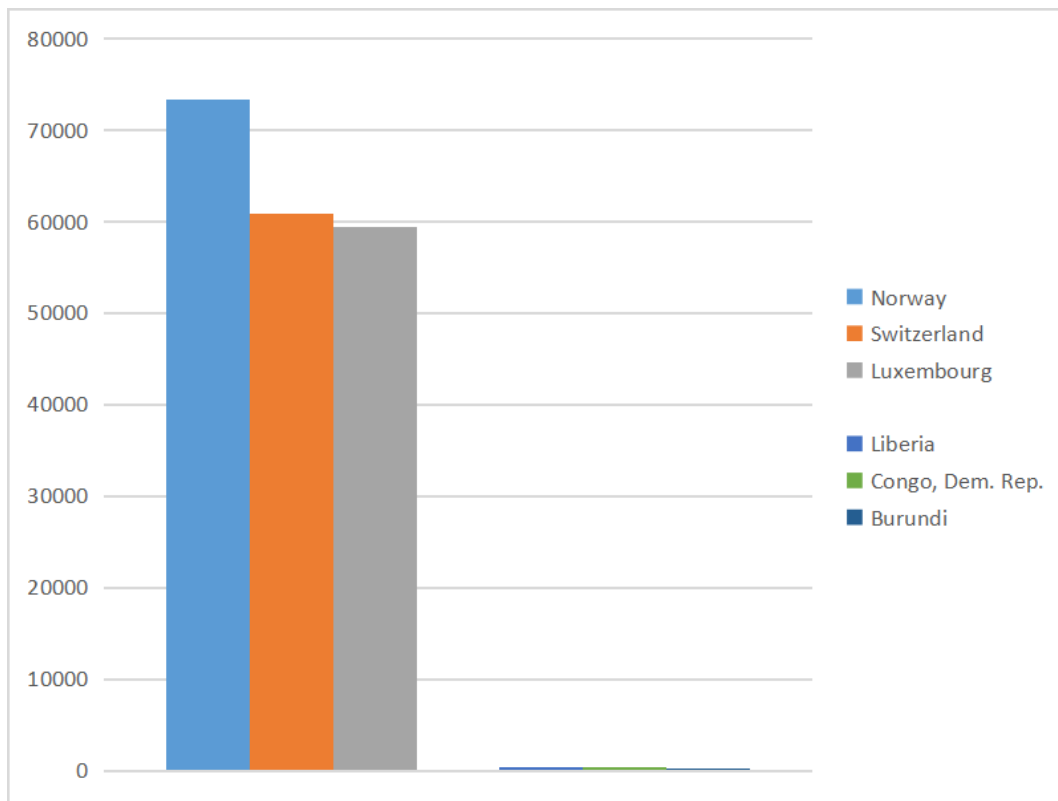


Figure 12. Top 3 and the last 3 countries in adjusted net national income per capita (Constant 2010 US\$) in 2018.

Source: World Bank

Solution: E-commerce and income inequalities

So can e-commerce help to reduce the income inequalities? Marcelo Olarreaga, a distinguished economist at the University of Geneva, who was invited as the speaker of our first workshop, answered in the affirmative, saying e-commerce could help to reduce income inequalities by allowing small firms to enter global markets and reach consumers around the world.

Prof. Marcelo Olarreaga clearly expounded his view at the workshop, first explaining whether international trade has contributed to these growing income inequalities. It seems that economists always enormously disagree over these kinds of topics. Some economists will argue that the trade has contributed tremendously to income inequality while there are other ones that are going to tell you the opposite, saying trade has helped reduce income inequality. Prof. Olarreaga explained that the source of disagreement

between these two positions is often due to the fact that they're talking about different types of income inequality.

There are mainly two types of income inequalities: “between country income inequality” and “within country inequality”. The former refers to the inequality of the average citizen in each country with that of average citizens in the researched country. While the latter means inequality among the citizens of that country. The “between country income inequality” has decreased quite significantly over the last 30-40 years while the world was in a globalization period. At the same time, in terms of how “within country inequality” has evolved, there has been an increase on averages across countries during the same period. Although there are exceptions, but on average across countries, inequality within the citizens of a given country has been increasing. These two different trends can explain the disagreement on what has been the contribution of trade.

On the one hand, international trade allowed low-income countries that were totally disconnected from global markets to become more connected to global markets. These low-income countries have adopted reforms so that they can connect better and compete in a global market, and that has led to more rapid growth in those low-income countries than in other countries who have already adopted global markets and policies that allow them to integrate into that. In brief, by helping low-income countries to integrate into global market, international trade reduces “between country income inequality”

On the other hand, international trade faces many of the trade costs and trade barriers, so in order to be an exporter, companies need to have distribution channel, and to do marketing abroad and that involves large investments at the beginning. That means, only large and very productive firms that generally hire more skilled workers can become an exporter and benefit from the global market. And all these forces are going to contribute to increasing inequality. The smaller, less productive firms that tend to hire more unskilled workers will be left behind and cannot benefit from the global market. That is the reason why we have observed the increase in income inequality within countries over the last decades.

And that is the problem that e-commerce is solving. E-commerce reduces the trade costs by allowing people in a remote area to connect with the rest the world. Prof. Liang and Mr. Zhu, the other two speakers of our first workshop, also mentioned that e-commerce enables farmers or other people who intend to start their businesses in remote areas of China to be connected with the consumers in the whole country or even consumers on the other side of the planet. As a result, the barriers to trade internationally have come down quite significantly.

Therefore, according to a series of studies that Prof. Olarreaga has undertaken at University of Geneva, e-commerce has allowed smaller firms, less productive firms that tend to hire more unskilled workers to enter global markets and be able to reach all these global consumers around the world, which has led to reductions in income inequality. However, we should also be clear that e-commerce is not a sliver bullet to reduce income inequality because its impact is relatively modest today. Nowadays, e-commerce is still not as large as international trade, but that may be also because that it has not grown to its full potential yet. As a result, in the future, maybe we can expect e-commerce to play a bigger role in income inequality reduction.

In addition, Prof. Olarreaga also accentuated the importance of a good competition policy to assist e-commerce to develop properly. Platforms like Alibaba, Amzon and eBay is taking more and more market share. Therefore, putting competition policies in place so that competition among those platforms is encouraging is necessary. Otherwise, the rent from e-commerce or part of the rent from e-commerce will be captured by these platforms through their monopolistic power, thus hindering the role of e-commerce in reducing inequality.

Solution: E-commerce reduces inequalities for the disabled

Besides reducing income inequality, e-commerce could also reduce inequalities for the disabled. Disabled individuals are usually in a vulnerable position in a labor market. Due to their obvious mobility and communication barriers, many of the disabled people with employment intention are unemployed. However, in the Internet era, e-commerce has created a barrier free living and working environment for the severely disabled. The

physical conditions of the disabled are no longer the biggest obstacle limiting employment, and the disabled are no longer excluded from the labor market. The practice of many cities in China has proved that enabling the disabled to get involved in the e-commerce helps to realize home employment for them (Gao & Fan, 2018).

In China, many local governments are promoting e-commerce employment training for the disabled. For instance, since 2012, Wuhan city has started to conduct online training courses for the disabled to teach them how to set up in online businesses. After 4 months of learning, nearly 70 students have all started their online business. Also, assisting the disabled to work in e-commerce related professions such as marketing, customer services, logistics management, advertising is being widely encouraged in many provinces or cities in China (He, 2016).

4.1.6 Peace, justice and strong institutions (SDG 16)

It is important for citizens in a society to have compassion. However, security and justice cannot be guaranteed. Strong institutions, global standards of justice, and a commitment to peace everywhere are essential for a society.⁴⁴ By 2030, illicit financial and arms flows should be reduced, the recovery and return of stolen assets should be strengthened and all forms of organized crime should be combated.⁴⁵

Current situation

Cybercrime has become one of the most serious problems in the field of security worldwide. McAfee estimated that more than \$400 billion were costed in the world because of cybersecurity. The national income of most countries and governments was less than this figure. However, companies often underestimated the risk of cybersecurity.⁴⁶ According to 2018 Internet Development Statistics, China's cybercriminal size was around \$15 billion, which was growing more than 30% per year. Besides, more than 400,000

⁴⁴ Last consulted on 3/8/2021. The Global Goals for Sustainable Development. United Nations (2021). Peace, Justice and Strong Institutions. Retrieved from <https://www.globalgoals.org/16-peace-justice-and-strong-institutions>

⁴⁵ Last consulted on 19/7/2021. The United Nations. (2021). Goal 16: Promote just, peaceful and inclusive societies. <https://www.un.org/sustainabledevelopment/peace-justice/>

⁴⁶ Last consulted on 19/7/2021. McAfee. Net Losses: Estimating the Global Cost of Cybercrime

people made a living by cybercrime.⁴⁷ In 2019, the scale of China's cybersecurity industry reached US \$124.4 billion, with a growth rate of 9.11%.⁴⁸ The size of cybersecurity industry has grown fast. In 2004, the global cybersecurity market was worth \$3.5 billion and in 2017 it was worth more than \$120 billion.⁴⁹ In China, the scale of China's cybersecurity industry reached 156.359 billion yuan in 2019, an increase of 17.1% compared with 2018.⁵⁰ In the field of e-commerce, cybersecurity involves customers personal information protection and property security, etc.

Problems of cybersecurity in the field of e-commerce

There are several problems of cybersecurity in the field of e-commerce. Firstly, e-commerce companies collect personal information from consumers.⁵¹ E-commerce operators collect consumers' personal information by using tracking. On the Internet, when consumers visit every website, they will be recorded by the site they visit.⁵² Through tracking, e-commerce operators can snoop on consumers' interests, consumption tendencies, Internet habits, etc., and use high-tech software technology to collect consumers' personal data, such as email address, mobile phone number, purchase records and other private information. According to the information they collect, these companies improve sales by behavioral targeting, advertising products personally, improving customers satisfaction, dynamic pricing and end-to-end analyzing.⁵³ Secondly, customers' data is sold illegally.⁵⁴ E-commerce develops fast in China, e-commerce companies have opportunities to collect confidential personal data. The illegal business of selling personal

⁴⁷ Last consulted on 19/7/2021. Ilen Bernard. (2020). Chinese cyber criminals are getting more organized and dangerous. Retrieved from <https://www.techrepublic.com/article/chinese-cyber-criminals-are-getting-more-organized-and-dangerous/>

⁴⁸ Last consulted on 19/7/2021. Gartner, Information Security and Risk Management, Worldwide, 2018-2024, 2Q20 update

⁴⁹ Last consulted on 19/7/2021. Steve Morgan. (2020). Cybercrime To Cost the World \$10.5 Trillion Annually By 2025. Retrieve from <https://cybersecurityventures.com/hackerpocalypse-cybercrime-report-2016/>

⁵⁰ Last consulted on 19/7/2021. China Academy of Information and Communications Technology. (2020). White Paper on China's Cybersecurity Industry. (in Chinese:中国网络安全白皮书).

⁵¹ Last consulted on 19/7/2021. Max Freedman. (2020). How Businesses Are Collecting Data (And What They're Doing With It. Retrieved from <https://www.businessnewsdaily.com/10625-businesses-collecting-data.html>

⁵² Last consulted on 19/7/2021. CF Global. Understanding browser tracking. Retrieved from <https://edu.gcfglobal.org/en/internetsafety/understanding-browser-tracking/1/>

⁵³ Last consulted on 3/8/2021. Customer Data And eCommerce-How Important Is It? Retrieved from <https://www.thecommerceshop.com/blog/customer-data-and-e-commerce-how-important-is-it/>

⁵⁴ Last consulted on 3/8/2021. The police again exposed: multiple e-commerce and express delivery "inside ghosts" sold tens of millions of personal information. Retrieved from https://www.sohu.com/a/149056646_690311 (in Chinese: 警方再曝光: 多名电商、快递“内鬼”贩卖个人信息千万条).

data emerges.⁵⁵ Some people working in e-commerce companies sell data of customers to other companies. For example, an employee of the department of cybersecurity in Jingdong, one of the biggest e-commerce companies in China, colluded with hackers to provide important information to break into the website, including logistics information, transaction information, personal identity and other data information on Jingdong, which provides a powerful technical guarantee for criminal gangs to carry out illegal activities.⁵⁶ Thirdly, exemption clause is a kind of contract clause, which refers to a clause agreed by both customers and companies in advance, aiming at limiting or exempting them from future liability. In order to avoid future cases of infringement of personal privacy filed by consumers, lots of e-commerce companies take the exemption clause as a legal shield to protect their own interests.⁵⁷ When consumers log on to a website to seek information, shopping and downloading software, they are often required to become members of the website. After filling in personal information, they are forced to agree on the exemption clause, otherwise they cannot proceed to the next operation.

The protection of customers data is very important. The privacy right of consumers requires that e-commerce companies must protect personal information. The right to privacy is one of the most important personal rights. Besides, property loss is often caused by personal information disclosure. More cases of property loss were caused by fraudulent information leaking. With an average loss of 24,549 yuan per person, the per capita loss of online fraud increased year by year from 2014 to 2019.⁵⁸ Lawbreakers often take advantage of the network loopholes of e-commerce websites to steal the data of consumers in the process of data storage, transmission, etc. Criminals use illegally stolen consumer

⁵⁵ Last consulted on 19/7/ 2021. Scott Ikeda. (2018). Selling Customer Data Is Big Business in China. Retrieved from <https://www.cpomagazine.com/data-protection/selling-customer-data-is-big-business-in-china/>

⁵⁶ Last consulted on 3/8/2021. Why does e-commerce user data leakage become the norm? Retrieved from <http://www.linkshop.com.cn/web/archives/2017/372576.shtml> (in Chinese: 一文看懂电商用户数据泄露为何成常态?).

⁵⁷ Last consulted on 3/8/2021 clauses in user service contracts. Retrieved from <http://finance.sina.com.cn/roll/2017-03-16/doc-ifcynikk0912605.shtml> (in Chinese: 美团等九家电商被研究机构指出: 用户服务合同内设强势条款) .

⁵⁸ Last consulted on 3/8/2021. Analysis of the number of online fraud reports, the per capita loss of online fraud and the development prospects of online information security in China in 2019. Retrieved from <https://www.chyxx.com/industry/202003/839736.html> (in Chinese: 2019 年中国网络诈骗举报量、网络诈骗人均损失及网络信息安全发展前景分析) .

information for extortion. They threaten consumers with money in exchange for personal privacy, otherwise they release consumers' personal information.

Solution: E-commerce, cybersecurity and peace

In the workshop of “E-commerce and sustainable development in China”, both Ms. Shiduo Feng and Ms. Rashmi Banga gave speeches on cybersecurity. In order to promote sustainable development of e-commerce, the government of China released policies and law on cybersecurity. The Chinese government has promulgated the E-commerce law of the People's Republic of China and the Cybersecurity law of the People's Republic of China. On April 29, 2021, the Standing Committee of the National People's Congress (NPC) published the Personal Information Protection Law (the second draft) and the Data Security Law (the second draft) to the whole society and solicited public opinions, and China's data security and personal information protection system legal framework is gradually forming. It will also have a profound impact on China's digital economy, personal information protection and corporate data compliance.⁵⁹

4.1.7 Partnerships for the goals (SDG 17)

Global partnerships and cooperation are important for achieving sustainable development goals. Development assistance did not reach target, though more financial resources were needed because of COVID-19. In order to promote economic growth, it was important to encourage cross-border trade. SDG 17 aims to enhance North-South and South-South cooperation to achieve all the targets. Promoting international trade to help developing countries increase their exports is beneficial for all.⁶⁰ International trade is an important part for global partnerships and cooperation, relevant targets are below⁶¹:

⁵⁹Last consulted on 3/8/2021. Peng pai. (2021). Follow | The Legal Work Committee of the National People's Congress held a press conference to release the latest amendments to the Data Security Law and Personal Information Protection Law. Retrieved from https://www.thepaper.cn/newsDetail_forward_12375403. (in Chinese: 关注|全国人大法工委举行记者会公布数据安全法草案、个人信息保护法草案最新修改内容) .

⁶⁰ Last consulted on 19/7/2021. UNDP. Goal 17 PARTNERSHIPS FOR THE GOALS. Retrieved from <https://www.undp.org/sustainable-development-goals#partnerships-for-the-goals>

⁶¹ Last consulted on 19/7/2021. UNDP. Goal 17 PARTNERSHIPS FOR THE GOALS. Retrieved from <https://www.undp.org/sustainable-development-goals#partnerships-for-the-goals>

- Promote a universal, rules-based, open, non-discriminatory and equitable multilateral trading system under the World Trade Organization, including through the conclusion of negotiations under its Doha Development Agenda
- Significantly increase the exports of developing countries, in particular with a view to doubling the least developed countries' share of global exports by 2020
- Realize timely implementation of duty-free and quota-free market access on a lasting basis for all least developed countries, consistent with World Trade Organization decisions, including by ensuring that preferential rules of origin applicable to imports from least developed countries are transparent and simple, and contribute to facilitating market access

Current situation

Trade is one of the most important part of China's economy, which contributed to the economic growth. According to WTO report in 2020, as for exports of goods in 2019, there were USD 2,499.4 billion. As for imports, there were USD 2,078.4 billion. Besides, exports of services were about USD 281.6 billion and import reached USD 497 billion. According to official sources, in 2019, exports in China increased 19.5% and imports rise 18.7%.⁶² Since 2010, the transaction size of China's cross-border e-commerce industry has maintained a growth rate of more than 20%. In 2019, according to the statistics of China E-commerce Research Center, the transaction size of China's cross-border e-commerce industry reached 1.05 billion yuan, a year-on-year growth of 16.7%. In 2019, the volume of e-commerce transactions across the country reached 34.81 trillion yuan. As one of the sub-sectors of cross-border e-commerce, the volume of transactions accounted for an increasing proportion of the volume of e-commerce transactions across the country.

⁶²Last consulted on 3/8/2021. CHINESE FOREIGN TRADE IN FIGURES. Retrieved from https://santandertrade.com/en/portal/analyse-markets/china/foreign-trade-in-figures?url_de_la_page=%2Fen%2Fportal%2Fanalyse-markets%2Fchina%2Fforeign-trade-in-figures&&actualiser_id_banque=oui&id_banque=0&memoriser_choix=memoriser

In 2019, China's cross-border e-commerce transactions accounted for 30.2 percent of total.⁶³

Table 2. International Trade in China

Foreign Trade Values	2015	2016	2017	2018	2019
Imports of Goods (million USD)	1,681,951	1,587,431	1,843,793	2,135,748	2,078,386
Exports of Goods (million USD)	2,274,949	2,098,161	2,263,345	2,486,695	2,499,457
Imports of Services (million USD)	466,330	453,014	464,133	520,683	496,967
Exports of Services (million USD)	285,476	208,488	226,389	269,697	281,651

Source: World Trade Organization (WTO); Latest available data

Problem

COVID-19 influenced international trade significantly and immediately. In January 2020, there was first downturn for international trade in the world. In the second quarter, international trade declined sharper, with global merchandise trade falling by more than 20 percent compared with the same quarter of 2019. Besides, the unresolved tensions between the United States and China had impacts on international trade. COVID-19 had a significant impact on consumer behavior. People were recommended to stay at home to avoid risk of being infected, so they preferred to purchase online, which made consumers purchase online.⁶⁴ Thus, COVID-19 promoted cross border e-commerce.

Solution: Cross border e-commerce policies in China

Ms. Rashmi Banga talked about cross border e-commerce policies in China, which promoted the development of cross border e-commerce. Since The Belt and Road Initiative was put forward in 2013, China has adopted import and export tax policies for cross-border e-commerce, to a great extent has played a role of "boost exports, expanding domestic demand". On December 30, 2013, the Ministry of Finance and the State Administration of Taxation issued the Notice on the Tax Policy of Cross-border E-commerce Retail Export,

⁶³ Last consulted on 3/8/2021. Analysis of the market status and competitive landscape of China's cross-border e-commerce industry in 2020 . Retrieved from <https://supplier.alibaba.com/content/detail/PX803N8J.htm>. (in Chinese: 2020 年中国跨境电商行业市场现状及竞争格局分析) .

⁶⁴ Last consulted on 3/8/2021. COVID-19 : The Impact on Cross-Border Ecommerce. Retrieved from <https://www.global-e.com/resource/covid-19-cross-border-e-commerce/>

which stipulated the tax refund and exemption of e-commerce enterprises' export goods.

⁶⁵On December 18, 2015, the Ministry of Finance and the State Administration of Taxation issued the Notice on the Tax Policies of the Export Goods of China (Hangzhou) Cross-border E-commerce Comprehensive Pilot Zone. ⁶⁶On September 28, 2018, the Ministry of Finance and other four departments jointly issued the Notice on the Tax Policy of Retail Export Goods in the Comprehensive Cross-border E-Commerce Pilot Zone. ⁶⁷

4.1.8 Case study: TruTrade Africa facilitates SDG 1, SDG 2 and SDG 8

Last but not least, we also provide a case to illustrate how digital economy could support several SDGs simultaneously. We use the case of TruTrade Africa to illustrate how digital economy supports SDG 1 (no poverty), SDG 2 (zero hunger) and SDG 8 (decent work and economic growth)⁶⁸.

TruTrade Africa is a social enterprise that uses a cloud-based digital platform to provide smallholder farmers with a more transparent and efficient market for their crops in Sub-Saharan Africa, especially in Kenya and Uganda. The idea of this enterprise originates from mismatch between smallholder farms and buyers in Sub-Saharan Africa, which leads to low efficiency and low income of the small-scale farmers. It is estimated that 500 million smallholder farms provide livelihoods for over 2 billion people, and produce about 80% of the food in sub-Saharan Africa and Asia. However, small-scale farmers work in an unorganized and fragmented way with no connection to buyers, and they have poor agronomical practices, limited logistics and access to finance for production or aggregation. As a result, although for most agricultural produce, both supply and demand exist, there is

⁶⁵ Last consulted on 3/8/2021. 2014. Circular on export tax policies for cross-border e-commerce retail. Retrieved from http://www.gov.cn/zwggk/2014-01/09/content_2562892.htm. (in Chinese: 关于跨境电子商务零售出口税收政策的通知)

⁶⁶ Last consulted on 11/8/2021. 2015. Circular of the Ministry of Finance and the State Administration of Taxation on tax Policies on Export Goods of China (Hangzhou) Cross-border E-commerce Comprehensive Pilot Zone. Retrieved from <https://www.customslawyer.cn/portal/fkg/detail/id/66796.html>. (in Chinese: 财政部、国家税务总局关于中国(杭州)跨境电子商务综合试验区出口货物有关税收政策的通知)

⁶⁷ Last consulted on 11/8/2021. 2018. The new Courier | cross-border electricity retail outlet "shall be exempted from not retreat" new interpretations. Retrieved from https://www.sohu.com/a/257093427_396046. (in Chinese: 新政速递|跨境电商零售出口“免征不退”新政解读)

⁶⁸ Last consulted on 23/7/2021. TruTrade Africa, (2021). Retrieved from <http://www.trutradeafrica.net/>.

mismatch between buyers and small-scale farmers, which leads to a lack of market security, high price volatility and inefficiencies.

Furthermore, small family-run farms are home to the majority of people living in absolute poverty. For example, about 35 million people in Uganda depend on the outcomes of smallholder farming, and 80% of them live in absolute poverty. In Kenya, at least 16 million people rely on smallholder farming for their livelihoods. As a result, easing the mismatch between buyers and small-scale farmers helps to increase their income and support SDG 1 and SDG 2, because intermediate traders get the highest part of the total profits while farmers only get a small proportion in the traditional mode.

In order to solve the mismatch between small-scale farmers and buyers, TruTrade Africa develop three key tools: online platform for supply chain management, network of sourcing agents, and trade finance.

(1) Platform

Firstly, TruTrade Africa built an online trading and payment platform, which can also be used on mobile phones, for collaborative supply chain management. This platform could capture all the information and analysis related to costs, transaction viability and price setting of agricultural goods, and it could also track the produce from collection to delivery. In addition, farmers and buyers need to register on the platform and all the payments are on the platform. By providing digital trading records, this platform opens up significant new possibilities for smallholder farmers and gives global commodity buyers the ability to connect to their smallholder farmer suppliers.

(2) Agent network

Secondly, TruTrade Africa built an advanced network of sourcing agents who are responsible for managing collection points, checking and weighing agricultural products and triggering payments related to farmers. By doing so, TruTrade Africa expanded its Market Connect Service across rural areas in Kenya and Uganda, which enables smallholder farmers to engage directly with volume buyers in the Europe and benefit from economies of scale.

(3) Trade finance

Lastly, TruTrade Africa provides trade finance which covers the whole process of trade. The farmers can be paid as they hand over their agricultural products at the collection point. The trade finance also covers transaction costs including packaging, handling, storage, transport, taxes and any value addition services up to delivery to final buyer. When the buyer pays TruTrade the fund is replenished. As a result, the trade finance addresses the sale to settlement gap which typically constrains market opportunities, thus increasing the efficiency and security.

Next, this is how TruTrade Africa illustrates the whole process of a commodity trade to better understand how they can help in every stage of the trade. The whole process is depicted in Figure 13.

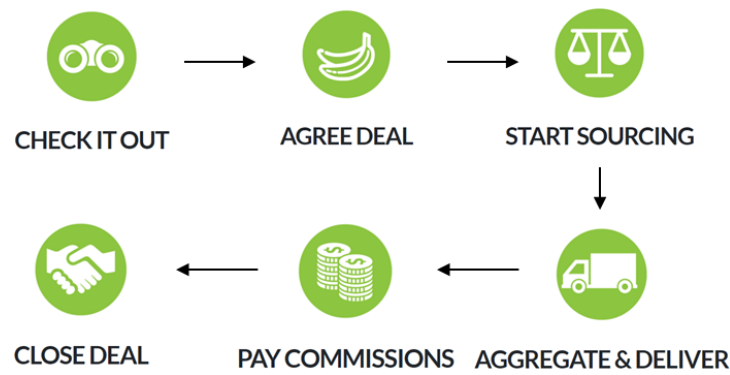


Figure 13. The whole process of a commodity trade

Source: website of TruTrade Africa: <http://www.trutradeafrica.net/>

The first stage is “check it out”. At the initial stage, TruTrade uses its online platform to collect the market information, check out the commercial viability and social impact of potential transactions. The second stage is “agree deal”. TruTrade negotiates a price and quantity of a commodity that a buyer will offer to purchase and it will sign supply contracts or Local Purchase Orders (LPOs) with buyers. Next stage is “start sourcing”. Agents of TruTrade display the price to the farmers, and farmers can bring produce to a collection point, and give them to the agents to check quality and weights.

Agents buy from smallholders based on the terms provided by TruTrade, and they are incentivized to provide the best price possible to farmers. TruTrade provides traders with financing so that they can pay farmers “cash on the bag”, and payments directly from TruTrade will be transferred to the farmers’ mobile or bank accounts when the trade is completed. Meanwhile, farmers can see the full costs of intermediation, including the commissions of TruTrade and of the agent. The fourth stage is “aggregate and deliver”. TruTrade aggregates the agricultural products from different agents, and use logistics to deliver them to the final buyer. The fifth stage is “pay commissions”. TruTrade and agents earn a commission from the trade, and the commission is based on the volume of the agricultural products and their quality. The final stage is “close deal”. After TruTrade receives the payment from buyers and all figures are finalized, TruTrade will share the profit equally with farmers at the end of the season, if there is any additional profit.

We also provide an example to show how TruTrade Africa helps ease the mismatch between small-scale farmers and buyers in Uganda.

TruTrade helped farmers diversify production in line with market demand amidst the COVID 19 pandemic in Uganda⁶⁹. Although it was amidst the COVID 19 pandemic, with the challenges of limited mobility and social distancing, TruTrade broke the record on August 2020 in Uganda. In only one month, TruTrade sourced 330MT of agricultural goods from smallholder farmers, which contains 291MT Soyabean and 39MT sesame seed worth 104,000 U.S dollars. There were 652 farmers using the service, and each of them, on average, earned an income of \$200.

The success of TruTrade is attributed to two reasons:

The first reason is that TruTrade has been using digital technologies to provide information and maintain communication with smallholder farmers efficiently, which supports them to improve productivity and the quality of produce. TruTrade developed their Agri-Advice system on April, 2020, to provide farmers with targeted and timely SMS messages on good agricultural practices, as well as digital content on production and post-

⁶⁹ Last consulted on 23/7/2021. TruTrade Africa, (2020). Retrieved from <http://www.trutradeafrica.net/2020/09/03/record-breaking-month-trutrade-uganda/> and <http://www.trutradeafrica.net/2020/07/23/digital-advisory-service/>

harvest handling to meet buyer specifications. This system was firstly trialed in Uganda in the rice, sesame seed and soybean value chains. In only 3 months, Agri-Advice has sent over 16,500 messages to more than 3,750 farmers, in seven different languages. The innovative system allows TruTrade to keep in touch with farmers throughout the growing season, with each receiving an average of 4-5 messages throughout this period. By doing so, they also supported farmers to diversify production in line with market demand. A typical example of this is that 2020 is the first year when TruTrade have sourced Soyabean from Kitgum and Lamwo districts in Northern Uganda, an area where farmers predominantly grow sesame. When farmers got the information about the huge demand of sesame from the online platform, they changed their plans to meet the demand of the market and made more profits. In addition, they also have an Agent WhatsApp group to maintain efficient communication contact with farmers.

The second reason is that TruTrade has created the confidence in the market. Firstly, they create the confidence of farmers. In the COVID-19 crisis, Uganda implemented lockdown policy, and farmers were very worried about whether there would be any buyers due to the pandemic at the beginning. However, TruTrade kept updating information and providing agricultural advices, market assurance and virtual support for the farmers on the online platform, which enables them to benefit from the good harvests they are seeing, thus boosting confidence of the farmers. It is because the farmers have benefited from TruTrade before that they trust the information TruTrade provides and plant in line with the market demand. Ajok Sunday, a farmer in Omoro, said “these messages have given me assurance in growing my soya beans, because I was worried that due to the situation, TruTrade would not buy the crop”. Edward Onzima, a farmer from Moyo district, commented “I increased the size of my field, because I received a message from TruTrade saying that they are going to buy the crop.” Meanwhile, TruTrade also create confidence of buyers. They put in place Standard Operating Procedures in adherence to the guidelines set by the Ministry of Health in Uganda, and the measures were displayed at the collection points in local dialects. TruTrade also provided transparency and traceability along the supply chain, from production to final market. These measures built the confidence of buyers because they can assure that TruTrade provides safe supply chains.

The impact of TruTrade is significant and it supports SDG 1, SDG 2 and SDG 8 in Sub-Saharan Africa. Firstly, TruTrade significantly reduces the cost of trade, thus increasing the income of smallholder farmers in Africa. TruTrade provides an alternative to the buy-low-sell-high trading practice common in agricultural value chains in Africa, and the costs it reduces will become a part of the income of farmers. Over the last three years, TruTrade pays the farmers on average 20% more for their crops compared with the traditional buy-low-sell-high. In north Kenya, TruTrade even pays the farmers 100% more for their crops for the European market. These additional money helps increase the income of farmers of small family-run farms which are home to the majority of people living in absolute poverty, and builds their confidence to invest in production, thus supporting SDG 1 and SDG 2 in Africa. Secondly, TruTrade creates rural employment opportunities, in particular for youth as village agents, which supports SDG 8 in Africa. Lastly, TruTrade enables agribusinesses to source sustainably and creates shared value.

In summary, the case of TruTrade Africa illustrates how digital financial services help increase the income of the poor, create rural employment opportunities and develop a sustainable agribusiness in Africa, which supports SDG 1, SDG 2 and SDG 8.

4.2 Digital economy in the time of COVID-19

4.2.1 Digital economy contributes to economic recovery during the epidemic

From 1999 to 2019, the number of people living in extreme poverty worldwide has fallen by more than 1 billion. However, some people returned to poverty due to Covid 19. About 120 million additional people are living in poverty because of the pandemic, and it is estimated that about 150 million people are likely to return poverty by the end of 2021.

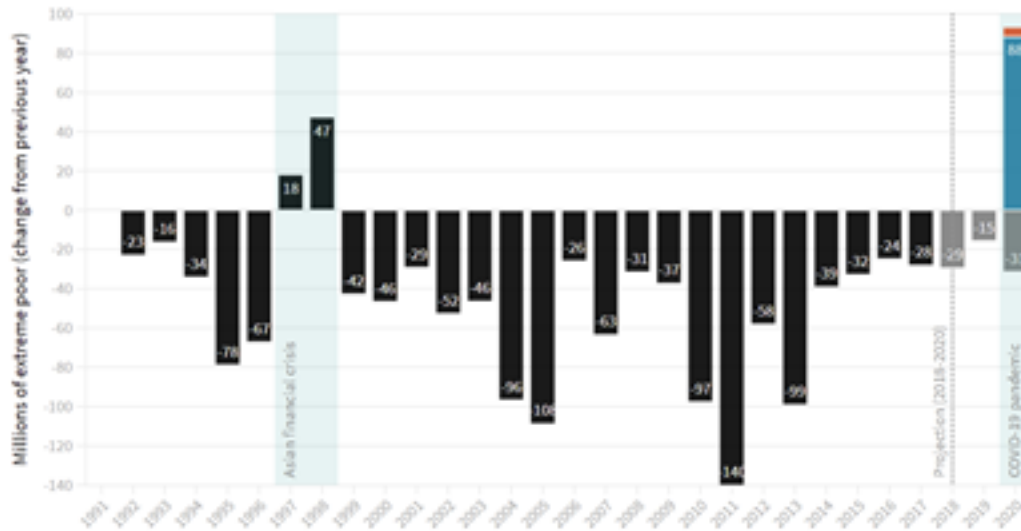


Figure 14: Annual change in the number of extreme poor (in million), 1992-2020

Source: World Bank

In China, the epidemic had negative impact on domestic economic growth, because factories closed and transportation blocked, especially in Hubei province. E-commerce companies contributed to promoting economic growth.

After the epidemic was under control in Hubei, Pinduoduo, Hubei Provincial Department of Agriculture and Rural Affairs and CCTV news cooperated in order to promote economic recovery in Hubei. The local government and Pinduoduo corporation signed the Strategic Cooperation Agreement on "Rural Revitalization and Anti-epidemic Assistance to Farmers" to promote the connection of agricultural products in Hubei to the national market. CCTV News, launched a large-scale activity of "Buy agricultural products from Hubei". Through the innovative mechanism of "government guidance -mainstream media platform promotion - core market connection", new business forms to promote the development of Hubei's agriculture-related economy in the post-epidemic period was discovered.⁷⁰

⁷⁰ Last consulted on 11/8/2021. Finance. 2020. Pinduoduo online "Hubei Youpin Library" 600 million people for Hubei "pinduoduo". Retrieved from <https://tech.sina.com.cn/roll/2020-04-02/doc-iimxyqwa4684269.shtml>. (in Chinese: 拼多多上线“湖北优品馆”6亿人为鄂“拼单”)

Hubei has a large output of agricultural products. Hubei has a leading edge in many agricultural industries, such as grain and oil, vegetables and fruits, tea, aquatic products and so on. It has spawned many national famous brands, such as Qianjiang crawfish and Honghu lotus root.⁷¹

As the epidemic was effectively controlled, lots of Hubei's leading agricultural enterprises gradually started working. However, affected by the marketing channels, it was difficult for many agricultural products in Hubei to sale. The recovery of agriculture-related economy was not only important for the Hubei farmers to make a living, but also significant for accelerating economic recovery in the post-epidemic period of 61 million people in Hubei.⁷²

As an important platform for agricultural products in China, Pinduoduo took the lead in taking measures to help Hubei farmers solve production and marketing problems. Pinduoduo invited agricultural professors in Pinduoduo live studio. The live broadcast attracted a total of 1.25 million people and the sale of navel orange exceeded 60,000 kilograms.⁷³

On this basis, Pinduoduo corporation continues to improve the system of selling agricultural products in Hubei Province by supporting merchants to resume work and production and opening up exclusive logistics channels.

On April 1st, Pinduoduo officially launched the "Hubei Products Shopping Mall", including Honghu lotus root, Jingmen rice, Qianjiang crawfish, Shennongjia mushroom, Jiangnan rapeseed oil and other famous products in Hubei. This mall was the first provincial shopping mall opened on Pinduoduo, and the first one on domestic e-commerce

⁷¹ Last consulted on 11/8/2021. 2021. Hubei local e-commerce "June 18 online shopping Festival" performance eye-catching. Retrieved from http://district.ce.cn/newarea/roll/202106/30/t20210630_36680273.shtml. (in Chinese: 湖北本土电商 “6·18 网购节” 表现抢眼)

⁷² Last consulted on 11/8/2021. 2020. The Wuhan Municipal government and Pinduoduo have reached a strategic cooperation to jointly promote economic development in the post-epidemic period. Retrieved from http://www.xinhuanet.com/tech/2020-04/09/c_1125833099.htm. (in Chinese: 武汉市政府与拼多多达成战略合作, 携手推动 “后疫情时期” 经济发展)

⁷³ Last consulted on 11/8/2021. China daily. 2020. "Citrus academician" and deputy head of Zigui county live broadcast: sold out of 60 thousand jin navel orange. Retrieved from <https://hb.chinadaily.com.cn/a/202003/17/WS5e7099fca3107bb6b57a7142.html>. (in Chinese: “柑橘院士” 和秭归副县长同台直播: 售罄 6 万斤脐橙)

platform. All Hubei agricultural products in the provincial shopping mall on Pinduoduo enjoyed subsidies to ensure that farmers and merchants in Hubei could earn money, and consumers all over the country could help promote economic growth in Hubei. Users could directly connect to the "Hubei Products Shopping Mall" by searching for keywords such as "Hubei", "Come on, Hubei".⁷⁴

⁷⁴ Last consulted on 11/8/2021. 2020. Pinduoduo teamed up with CCTV to 'eat aid' Hubei, 580 million users' make orders for Hubei '. Retrieved from <http://12316.agri.cn/news/202043/n61027800.html>. (in Chinese: 拼多多联合央视“吃援”湖北, 5.8 亿用户“为湖北拼单”)

5. Group Reflective position and feedback

Online distant working had emerged as the main ways of studying and working during the Covid-19 pandemic. Initially, many institutions and working places resisted moving online. However, as the pandemic was here to stay for a long time people realized that working online was the optimal solution for the situation. Online platforms such as Zoom and VooV Tencent emerged as important platforms for work and people were getting used to the idea of working from distance, online meetings, etc.

Our team of 4, which include Xingyu Zhou, Xinhe Yan, Yuhan Li and Quang Anh Duong, had some difficulties coordinating and adjusting to online studying and working at the initial stage. However, as the pandemic went on, we also managed to get used to online working even with the time difference between Geneva, Beijing and Hanoi. In addition to that, while organizing our workshops we had to reach out to experts and professionals around the world where the time difference is even greater. However, online distant working also had its advantages such as meeting with people around the world had never been this easy. Setting up meetings and having online encounters were timesaving and could bridge the distance between people. As people were getting used to online working the time saved for a flight between New York and London or Moscow and Beijing could be used for other work. Nevertheless, the lack of face-to-face interaction was also a big issue because some people could only connect easily while meeting face-to-face. In addition, the connection problems and technology issues also added to the challenges of moving online.

Working online required proper coordination and our supervisors provided helpful guidance for the experience. Vladimir Stankovic, Ruth Sidabutar and Gitanjali Sah were always there to discuss and guide us throughout the internship. Moving online the whole process was also new for our supervisors but we managed the learning curve pretty well. We had weekly meetings with Vladimir, Ruth and Gitanjali on the progress of our work, team building, the WSIS Forum, etc. Our supervisors provided invaluable advice on reaching out to speakers from various spectrums emphasizing the need for diversity in our workshops.

One of the things that our team felt was missing was the experience of living in Geneva where the international environment would shape our understanding of the whole. For example, Lincoln had been to Geneva and knew what it felt like to be there. Not being physically present in Geneva was one of the biggest loss for us. Nevertheless, we made the best of our online internship. We managed to reach out to experts, speakers and teammates. We also had virtual tours of the city as a part of our academic program. In addition, several of our classmates were physically present at the site and could provide us with the experience of being there.

One of the colleagues in our team (Lincoln Quang) could clearly compare the differences between the experiences of working remotely and traditionally as he had had the experience of working at International Center for Trade and Sustainable Development (ICTSD), which was also based in Geneva, Switzerland. In 2016 Lincoln was interning as Junior Associate working with the Development Team contributing to research, outreach to partners and experts, planning for conferences and reviewing numerous papers and reports. The nature of the work at ITU and ICTSD was of the same kind. The work and the tasks could be handled remotely. However, the experience of being in Geneva, working on site and interacting with colleagues taught Lincoln things that could not be learnt online. He believed that working and learning from other people was really important. For ITU's online internship we made the best to connect and interact with colleagues, supervisors and experts through emails, WhatsApp and online meetings. Nevertheless, the experience was never the same as having casual lunch with colleagues and interacting with supervisors at the office.

As a result, there were many advantages and disadvantages of online working. We hope that this report would provide the readers with our experience. Thus, readers would have the understanding of what it is like to do a remote internship during Covid-19 pandemic. Many lessons could be drawn to make both online and on-site internship a more fulfilling experience in the future if there would ever be a situation like we were in 2020-2021. We hope that even after Covid-19 we would make the best of online meetings and conferences. Saving the time and money on travels were significant considerations for the

future of work. We had already got used to the idea of online meetings, which should be complement to physical meetings.

In fact, our online workshops “E-commerce and Sustainable Development in China” had received very positive feedback from the participants, experts and advisors. For example, Don, the officer of Pinduoduo company, congratulated us for the successful workshop and expressed to us the desire to participate in other events in WSIS Forum. (Andre Zhu, senior vice President of strategy and global affairs of Pinduoduo company was one of the speakers for our workshop)

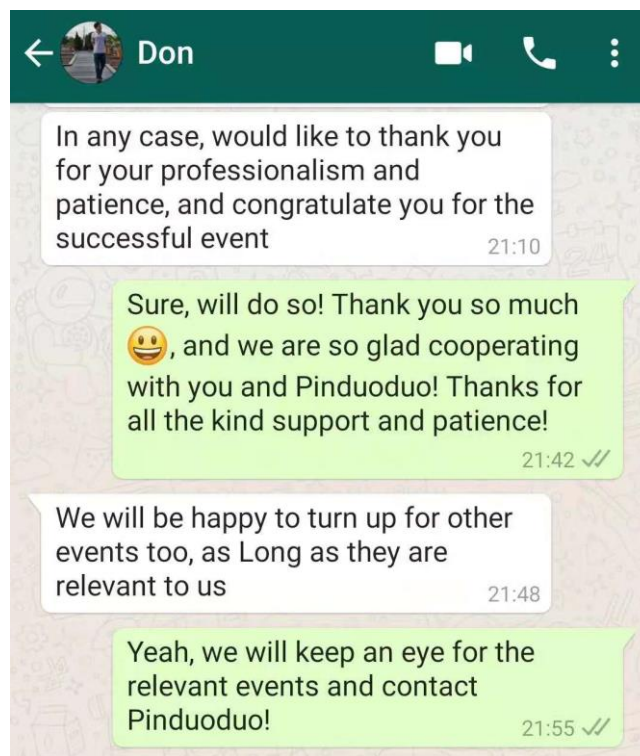


Figure 15. Whatsapp conversation with Don in Pinduoduo

6. Conclusion

As of the end of July 2021, the greatest vaccination campaigns in history had been administered in the US, Europe, China and many other countries. In the US more than 350 million shots of vaccination had been given to the population. In China the number of vaccinations stood at 1.6 billion doses.⁷⁵ The vaccination campaign, which the Biden administration had directed, started showing its results. The US economy of second quarter of 2021 got back to its pre-pandemic level, and life in many states and cities were getting back to normal. Nevertheless, the world was still facing the new Covid-19 Delta variant that was more transmissible and dangerous than other variants. Delta variant was first found in India in October 2020. The world needed to direct more resources to administering more vaccination in developing and less developed countries to reach herd immunity and prevent emergence of new variants. Unless the whole world was safe from Covid-19, no single country could be exempt from the tolls it brings.

The year of 2020 and 2021 saw dramatic changes in our life. The way we worked, studied and interacted had changed because of Covid-19. Even in countries like China or Vietnam that had successfully controlled the outbreaks of Covid-19 by May 2021 remote studying and working became the new normal. In fact, Xingyu, Yuhua and Xinhe were able to return to Tsinghua Campus in Beijing back in fall 2021. Life in China, except for more regulations on daily life, was close to normal. Lincoln who had been working remotely from Hanoi, Vietnam also noted that Vietnam's control of Covid-19 was successful up until May 2021. In May 2021 the new wave of the virus with the more dangerous Delta variant appeared in the country. As of the end of July 2021 Vietnam recorded more than 120,000 infections and 828 deaths. Hanoi, Ho Chi Minh city and many provinces imposed lockdown. Lincoln got back to social distancing.⁷⁶

As the world moved online for most of the time during Covid-19 we have also witnessed the rise of E-commerce and digital economy. During the pandemic as the

⁷⁵ Last consulted on 15/7/2021 Bloomberg news (2021) Retrieved from <https://www.bloomberg.com/news/articles/2021-07-07/germany-renews-vaccine-plea-as-europe-struggles-to-contain-delta>

⁷⁶ Last consulted on 15/7/2021 Vnexpress (2021) Retrieved from <https://e.vnexpress.net/news/news/vietnam-coronavirus-tally-in-new-wave-tops-120-000-death-toll-at-828-4332640.html>

population stayed at home the transition to digital economy accelerated. According to the report "Digital Trade in the U.S. and Global Economy," the definition of digital trade is the use of the Internet to trade related activities, that is, the delivery of goods and services over the network, the form and means of completing trade. E-commerce is the most important application of digital trade at present.

COVID-19 effectively promoted the improvement of e-commerce. First of all, the epidemic prompted China's e-commerce companies to explore the international market. Although China's e-commerce had part of the global business, but in the international market there were strong competitors in the same field, Chinese enterprises did not reflect a strong competitiveness. During the epidemic, China's pharmaceutical industry recovered quickly, exporting products such as masks, protective clothing and nucleic acid reagents to other countries through online trade. Secondly, the epidemic had improved the management of e-commerce platforms in China. The epidemic had caused problems in supply, inventory and logistics, which has objectively raised the threshold for enterprises to operate in e-commerce and promoted their ability to cope with uncertain crises. Finally, the epidemic had caused some offline trade to move online. On the one hand, many enterprises had explored online trade forms such as live broadcasting, which had promoted the development of e-commerce, not limited to platforms such as Taobao. On the other hand, people became also more customary to online transactions improving the trade process and channels.

COVID-19 had a great impact on traditional trade in services, tourism and transportation, but it was also an opportunity to promote the digitalization of China's trade in services and develop service trade in emerging fields. With the advent of the information age and the development of Internet technology, the importance of technology-intensive emerging fields of trade in services is gradually increasing. However, China's emerging field of trade in services began to develop late, compared with some developed countries, there were still some deficiencies. Trade in high value-added services, such as electronic information, consulting and finance, could be provided online, so it was less affected by the epidemic. China should focus on supporting the progress of Internet information

technology, facilitate the structural transformation of trade in services, and increase the proportion of trade in services in emerging areas.

Covid-19 changed the way we lived, worked and studied. Nevertheless, the pandemic also accelerated the transition to remote working, E-commerce and digital economy. We hope that our report of the online internship focusing on E-commerce during the pandemic would be a useful and valuable contribution for future readers and researchers. In fact, our experience of online study and work in Geneva from Hanoi and Beijing may serve as a guide for more research into the future of work and education. As for us, by the time we graduate in December 2021 work and study would most likely remain online, at least partially.

7. Personal Statement

7.1 Xinhe Yan

Undoubtedly, I was glad to have an internship in the ITU WSIS team. This is a valuable and impressive internship experience for me.

Together with Yuhan Li, Xingyu Zhou and Lincoln Quang Duong, we formed a great team to start our internship. Yuhan is skilled in coordinating, communicating and organizing. Xingyu has profound knowledge of economics and public policies. And Lincoln had rich experiences of working in an international organization. It was a great pleasure to work with my 3 dear teammates. Even though we had some difficulties to meet with each other in person during this special Covid-19 situation, but still, we managed to work it out. All of my teammates are creative and professional individuals that are easy to get along with. I could learn a lot from each of them in our cooperation of this internship. And I believe our friendship got strengthened after completing this internship together.

Besides, I have met excellent colleagues in the WSIS team. Gitanjali, Vladimir, Ruth, Karin, and Tala, all of them had been a great help for us. As students, we are actually not very experienced and sophisticated in terms of working in an international organization like ITU. But whenever we seek some guidance from our colleagues, they are always there and ready to help us. It's really a happy process to discuss ideas with them. We sincerely appreciate every effort that the WSIS team colleagues had made for us. Also, I cannot forget the massive help Prof. Basile has provided to us. Prof. Basile is our academic supervisor and also the moderator of our first workshop. His professionalism and patience impressed me a lot. We had many online meetings with Prof. Basile, and every time he would offer us very detailed suggestions, which proved to be super helpful when we actually start our work in organizing our workshop.

In addition to the wonderful people that I work with during this internship, I improved my skills in many aspects and enriched my mind. Before this internship, I have never held an online workshop that involves speakers from different countries and regions. And we did confront with some difficulties in inviting speakers. But finally, we managed

to have 6 speakers for our first workshop and 5 for the second. This process enabled me to learn to how to communicate with others more efficiently. Besides, the content of the first workshop was also very impressive for me. The speakers we invited gave their insightful thoughts regarding e-commerce. After listening to their speeches, I had a deeper understanding of e-commerce and poverty alleviation, innovation, inequality reduction and so on. Writing this report enabled me to further reflect on e-commerce and employment, innovation and inequalities.

Briefly, thanks to this WSIS internship experience, I improved not only my knowledge about e-commerce, public policies and SDGs, but also my skills of organizing an event as well as cooperating with others.

7.2 Yuhan Li

The ITU WSIS internship was one of the most memorable working experiences for me. When I heard about the opportunity to work in ITU as an intern, I contacted my classmates, Xinhe Yan, Xingyu Zhou and Lincoln, to ask if they would like to work in a team. We used to work together and we are good at different things. Xinhe Yan can delve into the problem and solve it with the knowledge of economics and public policy that she is equipped with during her undergraduate and graduate study. Xingyu Zhou is adept at solving tough problems efficiently, and cooperating with others. Lincoln has had several experiences interning for international organizations and centers around the world. I am adept at solving problems innovatively and organizing activities well. They were also interested in this internship, so we formed a team.

When Sah Gitanjali and Stankovic Vladimir told us that we were in charge of organizing two workshops from the beginning to the end, I was surprised and excited. Interns can only assist in organizing activities most of the time, but ITU WSIS team provided us with an opportunity to hold workshops. We brainstormed and discussed the topics of workshops. As we all had backgrounds of economics or international trade, we were interested in e-commerce and mobile payment. Besides, e-commerce become more and more important during epidemics. Thus, we decided on the themes of two workshops.

My skills of organization, communication and cooperation improved because of this internship. The internship was very challenging, we not only drafted lots of documents such as concept note, agenda and OCP form, but also needed to invite speakers and confirmed details. I had difficulties to contact speakers at the beginning, they neither replied for invitation emails nor didn't have interest in taking part in the workshop. I made reflection and summary, and found out that I contacted lots of foundations, but they couldn't benefit much from the workshop. Thus, I searched for the contact information of internet companies. These companies contributed to alleviating poverty by promoting development of agriculture and providing jobs, which was very relevant to the theme the workshop. Besides, they needed opportunities to publicize contributions to sustainable development. Pinduoduo corporation replied soon and we had a video call to confirm details. Besides, I also found information on the websites of other international organizations such as WTO. They organized workshops related to e-commerce, so I contacted the speakers. They were interested to share their research in the workshop.

I learnt the cutting-edge knowledge of e-commerce, sustainable development and mobile payment from the workshops. For example, some speakers shared their opinion on policies of digital transformation and cybersecurity in China. I did some research after the workshop and started to think about public policies which were intended to promote sustainable development of e-commerce in China.

In conclusion, thanks to this opportunity to work in ITU WSIS as an intern, I not only improved my ability to organize events, but also learned lots of knowledges relevant to my profession.

7.3 Lincoln Quang Duong

The internship at International Telecommunication Union had provided me with deep insight about the changes and trends of information and communication technologies. In fact, organizing the World Summit on Information Society (WSIS) Forum 2021 gave me invaluable experience and opportunities to meet experts in the field.

Even though the internship was online I had the opportunity to reach out, connect and learn from many experts in the field. Of course, not being able to meet people face-to-face is a disadvantage but I made the best of the Covid-19 situation. The internship and the WSIS Forum entirely moved online. Thus, it was the whole experience not only to organizers but to the participants as well. WSIS Forum team had successfully put together and moved online the whole experience that we have never seen before. In fact, our team that was in charge of organizing two workshops on e-commerce also succeeded in putting together the online workshops. My skills of communicating, outreaching and connecting to people have greatly improved. I learnt to outreach and communicate with many experts in the field and learn about e-commerce. In fact, I was able to even invite my former supervisor, Nick Frank, for whom I worked with at International Center for Trade and Sustainable Development (ICTSD) while I was studying in intern in Geneva in 2016. I learnt a lot about coordinating and team working. In fact, working with teammates in different time zones has been a challenging but invaluable experience for me during the internship. Coordinating and managing the time and meeting the deadlines trained me to be proactive in my work.

Working for ITU, especially during the time of Covid-19, had truly taught me how to be a global citizen working for an international organization. The opportunities of communicating with experts and working with colleagues from many parts of the globe, indeed, made the world seemed flat to me. I learnt a lot about information communications technology for development goals at the WSIS Forum. In fact, I learnt a lot about E-commerce, digital finance and sustainable development in China and around the world. My supervisors and colleagues had taught me a lot about team working especially during Covid-19. Remote working required a lot of effort of coordination and time management. Our team had managed to learn as we work and plan the first in its history online WSIS Forum. The WSIS Forum had attracted many experts, professionals, and stakeholders even in the time of Covid-19 proving its prestige of the largest annual gather of the 'ICT for development' community.

The only drawback was the lack of face-to-face interaction of online working. Meeting my teammates and supervisors in real life would really be a positive emotional

support. Only after working online and not meeting people face-to-face we realized how important the human interaction and connection were. However, as the world was on lockdown and fighting the Covid-19 pandemic moving online and managing the new working environment was the most we could do. Extraordinary circumstances require extraordinary measures. I believe we made the best of the situation. Hopefully, experience and lessons we learnt would be needed at some point in the future.

7.4 Xingyu Zhou

The ITU-WSIS internship was my first internship. Before that, I had spent almost 20 years simply studying at schools or universities, so this internship gave me the opportunity to develop my communication and organization skills as well as abilities for dealing with challenging tasks and requirements which I had never met before. After this internship, not only have I gained some new skills and experiences, but also figured out what truly interests me in my career path. In this personal statement, I will first explain why I decide to pursue the internship and review the whole process of the internship. In the second part, taking stock of my personal experience, I will briefly discuss the personal reflections towards the internship.

Review of the internship

I decided to take this internship because we can do it remotely and it is recommended by other elder students from the same master program. Since I had no experience for internship or work, I wanted to find an internship which is suitable for unexperienced ones like me and the ITU-WSIS internship perfectly fell into this category.

Our work for the internship contains three parts: hold virtual workshops, “build” virtual exhibition spaces and write reports for the WSIS Forum. Among them, the most important one was holding virtual workshops. Since each group was responsible for organizing two workshops, we decided to split our group into two small groups, and each of them is responsible for one workshop. The first step was to settle down the main topics. Since three of us have economics background, we tried to link ICT to economic issues. After several rounds of discussion, we finally settled down the main topic: digital economy

and SDGs. In the workshop organized by Lincoln and I, we focused on e-commerce, mobile payment, and internet finance. Then we began to contact and invite potential guest speakers, which was the most difficult mission for us. We followed our advisor's suggestions to find and contact "big names" in the related fields, and then when one of them was confirmed, it would be much easier to get the rest of speakers. In our group, we first invited Mr. Koopman and Mr. Seong to our workshop. After getting these two "big names", we quickly got all our guest speakers, and the workshop is very successful. In addition, after organizing the workshops, we also "built" our GTI exhibition space and wrote some reports for the WSIS Forum.

Personal reflections

I personally found my internship at WSIS rewarding, not only because it was my first experience of doing an internship in the United Nations, but also because I learnt about useful professional skills. I improved my amenability, resilience and problem-solving capabilities. Before this internship, I had never organized workshops, especially finding and inviting guest speakers, which was a big challenge for me. During this internship, I learned to curate events and select participants, facilitate their participation, and successfully run a panel discussion as part of a team of three. Thanks to the platform of WSIS Forum, I was able to reach some well-known scholars, such as Robert Koopman (I even held a short ZOOM meeting with him). Before this internship, I was one of the audiences of their lectures or speeches. After doing this internship, I knew more about the structure and daily operation of international organizations. I had also gained more problem-solving abilities and become more proficient in using online tools such as ZOOM and Microsoft Teams. I also got to meet and converse with a lot of passionate people in the sector of the ICTs and the SDGs, which opened a lot of doors personally and professionally.

However, after the internship, I had decided not to do the similar work at international organizations in the future, because I found that doing research was more attractive and suitable for me. Maybe I would first pursue my doctoral research and find research jobs in the international organizations in the future.

In conclusion, thanks to the internship opportunity provided by ITU, not only I learnt a lot of skills, but also figured out what I was truly interested in, which was essential for me to choose my career path in the future.

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