Internet & Jobs

2021

Contents

About IGF

The Internet Governance Forum (*IGF*) serves to bring people together from various stakeholder groups as equals, in discussions on public policy issues relating to the Internet. While there is no negotiated outcome, the *IGF* informs and inspires those with policy-making power in both the public and private sectors. At their annual meeting delegates discuss, exchange information and share good practices with each other. The *IGF* facilitates a common understanding of how to maximize Internet opportunities and address risks and challenges that arise.

In the resolution adopted by the UN General Assembly on 16 December 2015, (70/125) 'Outcome document of the high-level meeting of the General Assembly on the overall review of the implementation of the outcomes of the World Summit on the Information Society', the existing mandate of the IGF as set out in paragraphs 72 to 78 of the Tunis Agenda was extended for another 10 years.

IGF Mandate: **Paragraph 72 of the Tunis Agenda**

Paragraph 72 of the Tunis Agenda:

72. We ask the UN Secretary-General, in an open and inclusive process, to convene, by the second quarter of 2006, a meeting of the new forum for multi-stakeholder policy dialogue called the Internet Governance Forum (IGF). The mandate of the Forum is to:

- Discuss public policy issues related to key elements of Internet governance in order to foster the sustainability, robustness, security, stability and development of the Internet;

- Facilitate discourse between bodies dealing with different cross-cutting international public policies regarding the Internet and discuss issues that do not fall within the scope of any existing body;

- Interface with appropriate inter-governmental organizations and other institutions on matters under their purview;

- Facilitate the exchange of information and best practices, and in this regard make full use of the expertise of the academic, scientific and technical communities;

- Advise all stakeholders in proposing ways and means to accelerate the availability and affordability of the Internet in the developing world;

- Strengthen and enhance the engagement of stakeholders in existing and/or future Internet governance mechanisms, particularly those from developing countries;

- Identify emerging issues, bring them to the attention of the relevant bodies and the general public, and, where appropriate, make recommendations;

- Contribute to capacity building for Internet governance in developing countries, drawing fully on local sources of knowledge and expertise;

- Promote and assess, on an ongoing basis, the embodiment of *WSIS* principles in Internet governance processes;

- Discuss, inter alia, issues relating to critical Internet resources;

- Help to find solutions to the issues arising from the use and misuse of the Internet, of particular concern to everyday users;

- Publish its proceedings

About Dynamic Coalition- Jobs

The Internet is the fourth most impactful invention in human history after - the fire, the wheel, the electricity; and yet, we have barely scratched the potential of what Internet can deliver. As we move ahead with technologies and tools built to leverage the Internet, scepticism is gaining ground on the potential impact of the Internet on taking away jobs.

The Dynamic Coalition on 'Internet & Jobs' has come from the realization of the need for sustainable and responsible automation, and the potential of the internet to create jobs and boost the local economies. It is the result of the initiatives taken by Dr. Rajendra Pratap Gupta at the IGF, since 2018 when it was held in Paris and then, in 2019, at Berlin.

Goals

- To create jobs across sectors and geographies through a multi-stakeholder ecosystem approach of Connect, Coordinate, Activate, Train, and Enable.

- To help people realize the human resource and entrepreneurial potential of the Internet across the globe.

Action Plan

- Come out with an annual report on Internet & Jobs, capturing the opportunities, best practices, and success stories, to inspire people to leverage the Internet to build local economies and connect them to the global opportunities.

- Organize online and offline workshops on how local communities can leverage the Internet for a better life.

- Showcase our real-life stories and brain-storm ideas and innovations at the local *IGF* and annual *IGF* meetings.

Mailing List

Mailing list address: dc-jobs@intgovforum.org

For more information, please visit

https://www.intgovforum.org/en/content/dynamic-coalition-on-internet-jobs-dc-jobs

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Foreword

The Internet is not merely a universal platform for connectivity; it is now among the basic necessities of life and a social determinant of health. Simply put, the Internet is indispensable. The right to Internet access is a precursor to the right to life. In today's times, virtual world is where most action lies. Last year, Metaverse entered the Web 3.0 jargon. Metaverse will not only give us a new avatar but also create a new world where humans, markets, products, and services will offer us an opportunity to create businesses and jobs. Of course, it is too early to gauge the job creation and economic potential of the Metaverse.

With the present draft, we bring to you our annual flagship report from the Dynamic Coalition on Internet & Jobs. This report is based on our research on the role of the Internet and Internet access in bridging the divide between education and jobs leveraging Internet tools.

This research was conducted in 2021. We hope it furnishes some actionable insights, and we promise to cover new dimensions in the next year's report.

Till then, read it, share it, and write back to share your views.
Best wishes,

Dr. Rajendra Pratap Gupta, Ph.D.
Chairman
Dynamic Coalition on Internet & Jobs
Internet Governance Forum
Twitter: @rajendragupta

Disclaimer

- For this report, an online study was conducted and people who have access to the Internet were surveyed. The next year's study (for 2022) may have a broadened horizon, that is, it might cover people with no Internet accessibility.

- Weblinks given were functional at the time of preparing this report.

- In case you find any error or discrepancy, please reach out to the contact in the mailing list.

Acknowledgments

This report would not have been possible without the support of our key associates. We are thankful for the wonderful support from the IGF Secretariat.

Special thanks to Mr. Chengetai Masango, Head of Office, United Nations Secretariat, Internet Governance Forum, for his continued inspiration, guidance, and support.

Thanks to Sorina Teleanu and Anja Gengo from the IGF Secretariat.

Smriti Lohia has contributed immensely to drafting the report. A big thanks to her!

We are also grateful to the Digital Health Academy (https://www.digitalacademy.health/) for sponsoring the designing of the report.

Introduction

The Internet is the lifeblood of the economy. The 21st century is rightly attributed to as the knowledge economy, and this economy is about data and information. The Internet is the universal platform for information and data.

It has evolved from being a simple means of exchanging information to acting as a tool that allows people to connect, communicate, create content, and transact. The world has remarkably become a small place with people across the globe being able to easily communicate, sell, buy, and serve in real time. Today, everyone in the world is just a few seconds away.

Out of all the communication alternatives that the Internet has brought forth, the rise of social media and the way it has blended into our everyday lives have changed drastically the way we communicate. Social media has influenced the economy by encouraging entrepreneurship and e-commerce as well as by providing us with new methods to communicate, share, and update.

Nevertheless, notwithstanding all the pros of the Internet, the internet is not equally accessible to everyone. Recently, the sudden shift to remote working, as necessitated by the COVID-19 pandemic, exposed some of the basic technological limitations in this regard. For instance, the digital divide came forth as a huge issue that restricts the overall development by leaving some segments behind; this aspect is covered in this report. Our annual report Internet & Jobs aims to focus on the scenarios of employment, entrepreneurship, and academics prevailing around the world. Moreover, the report presents a comparative analysis of Internet accessibility in terms of region and age group (digital natives and immigrants). The survey findings cover various dimensions of the impacts of COVID-19 on jobs opportunities facilitated by the Internet.

Methodology

An online survey was conducted using a questionnaire on the SurveyMonkey platform. The questionnaire was circulated via the Facebook and Twitter handles of the IGF as well as other similar platforms such as LinkedIn. The survey was in the public domain from July 23 till November 20, 2021. People from a total of six continents, with 46 countries across the globe, responded to the survey. The data collected were analyzed and interpreted to prepare the report.

Regions Covered

Table 1

Continent	%
Africa	**18.7**%
Asia	**40.7**%
Europe	**16.5**%
North America	**16.5**%
Oceania	**3.3**%
South America	**4.4**%

We had representation from across the continents: Africa, Asia, Europe, North America, Oceania, and South America. The largest representation was from Asia (40.7%), which reflects the size of its population, followed by Africa and then Europe and North America with equal representations. The representations from Oceania and South America were the lowest—3.3% and 4.4%, respectively.

Age

Table 2

Age group (years)	Distribution (%)
Below 18	0.00
19 –24	6.59
25–40	42.86
41–50	23.08
51 –60	19.78%
61 and above	7.69%

Maximum respondents of the survey were in the age bracket of 25–40 years (millennials), followed by 41–50 years (Gen X); this trend is similar to that of the last year's (2020) report. The Gen Z (19–24 years) constituted 6.59% of survey respondents; among these, 19.78% and 7.69% were from the age brackets 51–60 and 61+, respectively.

Respondents' Profile

Table 3

Response	Distribution (%)
I have a full-time employment (job)	51.65
I am working part time	4.40
I am a freelancer	2.20
I am self-employed	23.08
I am a student and not employed	3.30
I am a student and working part time	3.30
I am not employed and looking for paid work	5.49
I am not employed and not looking for paid work	0.00
I lost the job during COVID-19	3.30
I am retired and not looking for a job	1.10
I am retired and need work to meet my expenses	2.20

Table 4

Respondents' Work Profile Distribution as per Age Group

Response	19–24	25–40	41–50	51–60	61 and Older	Total
I have a full-time employment (job)	2.20%	27.47%	12.09%	8.79%	1.10%	51.65%
I am working part time	0.00%	1.10%	1.10%	2.20%	0.00%	4.40%
I am a freelancer	0.00%	1.10%	0.00%	1.10%	0.00%	2.20%
I am self-employed	1.10%	4.40%	7.69%	5.49%	4.40%	23.08%
I am a student and not employed	1.10%	2.20%	0.00%	0.00%	0.00%	3.30%
I am a student and working part time	1.10%	2.20%	0.00%	0.00%	0.00%	3.30%
I am not employed and looking for paid work	1.10%	3.30%	0.00%	1.10%	0.00%	5.49%
I am not employed and not looking for paid work	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
I lost the job during COVID-19	0.00%	1.10%	2.20%	0.00%	0.00%	3.30%
I am retired and not looking for a job	0.00%	0.00%	0.00%	0.00%	1.10%	1.10%
I am retired and need work to meet my expenses	0.00%	0.00%	0.00%	1.10%	1.10%	2.20%

The evolution of the Internet has changed the world in numerous ways—from introducing Internet of Things (IoT) to facilitating online medical consultations—and it will continue to change and grow.

We, as the Dynamic Coalition on Internet & Jobs, have covered most of the segments, from students to full-time employees, across different age groups. According to the data presented in Table 3, 2.2% of the respondents were retired and needed work to meet their expenses. Consequently, one of the action items that emerged is as follows: We should look at creating more outreach and policy enablers to help older adults get the benefits of the Internet. Moreover, we should also come up with an upskilling program for senior citizens and women, as previously recommended in our 2020 report. These programs could also help a certain section of people who have lost their jobs due to COVID-19 or as a result of automation.

People from different backgrounds shared their views. As depicted in Table 3, more than half of the respondents (51.65%) had full-time employment and 23.08% were self-employed. However, in our 2020 report, 71.5% respondents had a full-time employment.
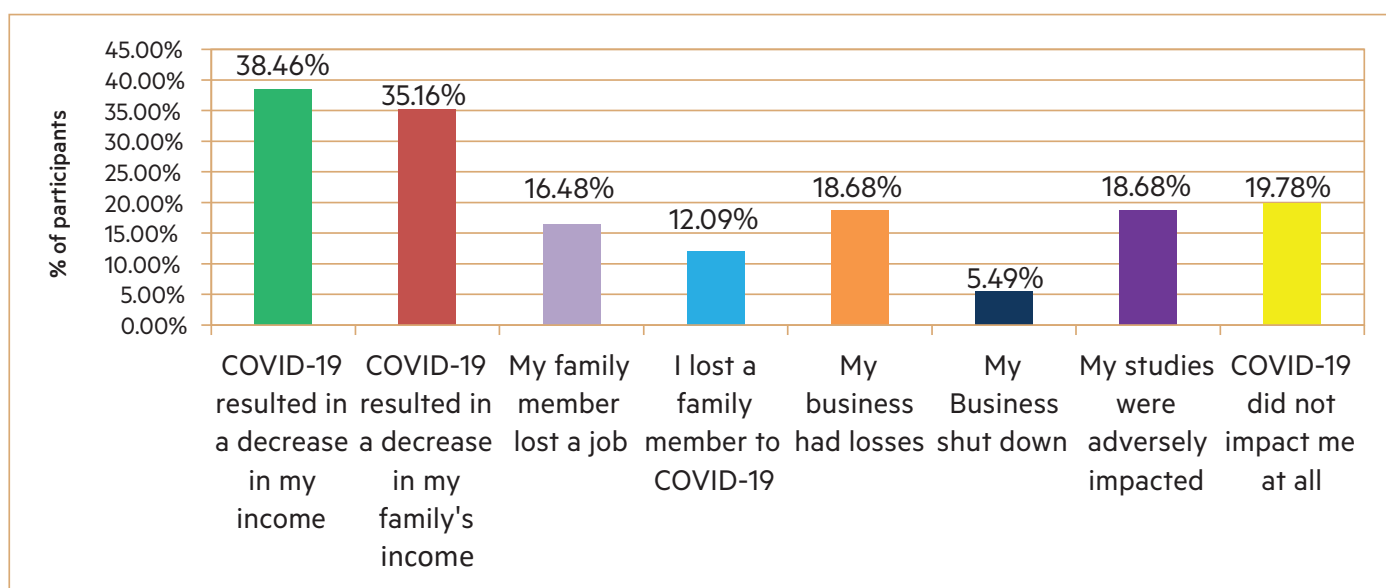
Results

Technology and Employment

How can technology help people (in different age groups) with employment?

According to the data presented in Table 4, 1.1% participants in the age range 51–60 were unemployed and looking for paid work. Moreover, 3.3% of the respondents in the age group of 25–50 had lost their jobs during the COVID-19 pandemic. Further, 2.2% were retired and needed work to meet their expenses. Here, technology can be a key tool to reduce unemployment. We believe countries should focus on creating tech jobs while taking into account all age groups; these jobs may provide job security if any calamity, such as COVID-19, strikes again. In parallel, governments should emphasize training for skills required in the information technology (IT) industry; this will, in a way, serve as a backup plan for people in manual labor or low-value jobs.

Impact of COVID-19

Figure 1

Table 5

Continent-Wise

Continent	COVID-19 resulted in a decrease in my income	COVID-19 resulted in a decrease in my family's income	My family member lost a job	I lost a family member to COVID-19	My business had losses	My business shut down	My studies were adversely impacted	COVID-19 did not impact me at all
Africa	5.5%	5.5%	3.3%	0.0%	5.5%	1.1%	3.3%	3.3%
Asia	17.6%	17.6%	8.8%	5.5%	5.5%	3.3%	6.6%	6.6%
Europe	3.3%	3.3%	0.0%	1.1%	4.4%	0.0%	4.4%	3.3%
North America	7.7%	3.3%	2.2%	3.3%	1.1%	0.0%	1.1%	5.5%
Oceania	1.1%	2.2%	1.1%	1.1%	1.1%	0.0%	1.1%	0.0%
South America	3.3%	3.3%	1.1%	1.1%	1.1%	1.1%	2.2%	1.1%

COVID-19 hit all in-person activities related to services, manufacturing, education, health, etc., and work had to shift radically to operate virtually and remotely. The lockdown and social-distancing measures, adopted due to the pandemic, led to digital surge. The world is now adjusting to a new normal, which requires accessing the Internet in almost every sector with new emerging patterns across sectors. These changes have been observed in all sectors—business, government, academic institutions, organizations/companies, etc. These changes were so sudden that institutions had no time to plan and prepare, but rather had to experiment, adjust, and look for alternate ways. For instance, as depicted in Figure 1, 18.68% of the respondents claimed their businesses had suffered losses during the ongoing pandemic; out of these, Africa and Asia contributed 5.5% each. Further, 5.49% (with 3.3% Asian nationals) mentioned that their businesses had been shut down.

The new normal came with different scenarios; for some, it came with positive outcomes such as online study/work, but for some others it came with losses. As the data depict, for 38.46% of the respondents, COVID-19 resulted in a decrease in their incomes, and for 35.16%, it resulted in a decrease in their family's incomes.

Education domain also witnessed a drastic shift, from operating physically to getting online. As per Table 5, 18.68% respondents claimed that their studies had been adversely impacted due to the pandemic.
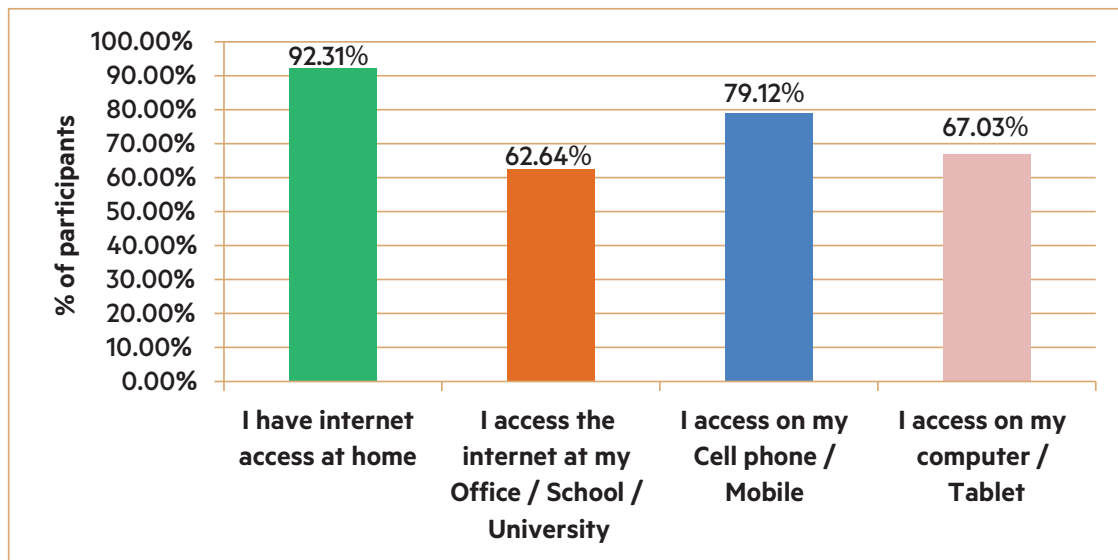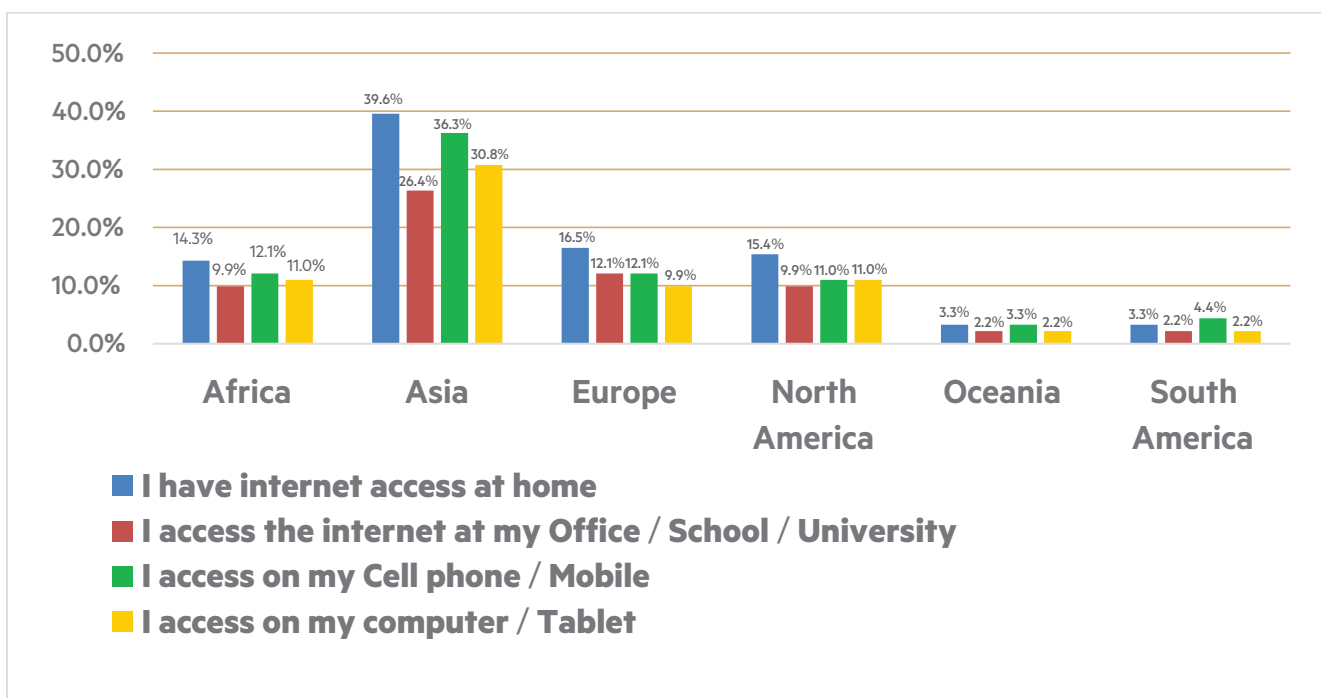
Internet Access

Figure 2

Figure 3

Continent-Wise

The sharing, exchanging, and gaining of information and ideas have become easy with improved accessibility to the Internet. The Internet plays an integral part in the different spheres of life—daily-life chores, education, job search, business handling, medical consultations, etc. It was observed that the maximum number of the respondents accessed the Internet at home (92.31%), followed by those that accessed at offices/schools/universities (62.64%; Figure 2). As per the data presented in our 2020 report, 27.54% of survey participants accessed the Internet at schools/colleges/universities, 84.54% at workplaces, and 95.17% at home. Thus, since 2020, the number of people accessing the Internet at home has increased in comparison to the number of people assessing the Internet outside. This implies people are shifting toward "work from home" or hybrid culture after the COVID-19 pandemic hit the world. According to Figure 3, 39.6% Asian nationals, 15.4% North American nationals, and 14.3% African nationals have access to the Internet from their homes.

As per Statista's (n.d.) December 2021 data, there were 4.95 billion Internet users globally, with Asia having the highest number of Internet users (around 2.8 billion), followed by Europe (736 million users).

Similarly, the Internet has made it possible for education to reach in every possible corner of the globe. Especially after 2020, classes began to be conducted online, with real-time communication, which was a new transition for the education system. Now, if people want to stick to the new normal, high-quality Internet connectivity is necessary.

Reskilling for the Future

The key to progress is education. Quality education opens doors for people and benefits societies; it impacts the future generations. The Internet may help schools enhance education by supporting teacher training, providing new tools and information sources, and allowing students to experience the digital environment, which is crucial for job opportunities in the digital age. Quality education is a core element of sustainable development, and the Internet holds a great potential to improve it. The UN Sustainable Development Goal 4 (SDG4) is to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" (United Nations, n.d.). Internet access can help with affordable and technical education, which can further open new opportunities.

With online classes, the learning process has come out of a two-way information transmission and become multi-faceted with the help of Internet access at home, world wide web, new software, and new learning patterns.

Online education has become more interesting, open, flexible, and individualized. There is no fixed schedule, no time wasted in commuting, more networking opportunities, more study databases, and online access to other courses.

According to the data presented in Figure 2, 79.12% of the respondents (i.e., four out of five respondents) accessed the Internet on their cell phones/mobiles, which indicates everyone is converging toward smartphones as they are more affordable and portable than laptops. Smartphones could act as a primary tech tool someday, and to that end, they need to be cost effective and accessible to all. In the digital era, some of the people still lack basic tech skills; thus, the countries need to ensure that people know basic skills to operate smartphones.

Many developing nations face a scarcity of health staff. The Internet can be a valuable resource for clinicians in need of any knowledge or assistance and for people caring on their own. The access to information is also essential to farmers everywhere. Farmers can exercise greater control and avail better opportunities to maximize the value of their labor when they have access to information on the price and quality of agricultural inputs and the market pricing for their product. As mobile broadband expands in rural regions, agricultural extension agencies and suppliers will be able to collaborate to increase farm incomes, leading to better food security.

> It is time we talk about the Internet of Things (IoT), which should not become Things without Internet (TwI).

COVID-19 proved the importance of digitalization, not only at workplaces but also at academic institutions and homes. It opened new opportunities as well as highlighted the digital divide.
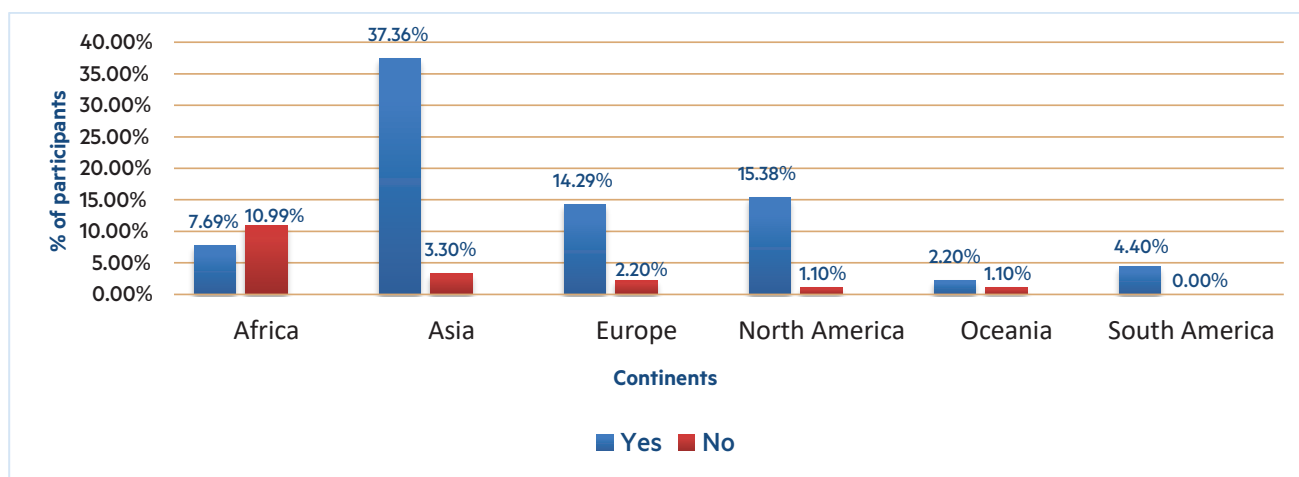
Uninterrupted Internet Connectivity
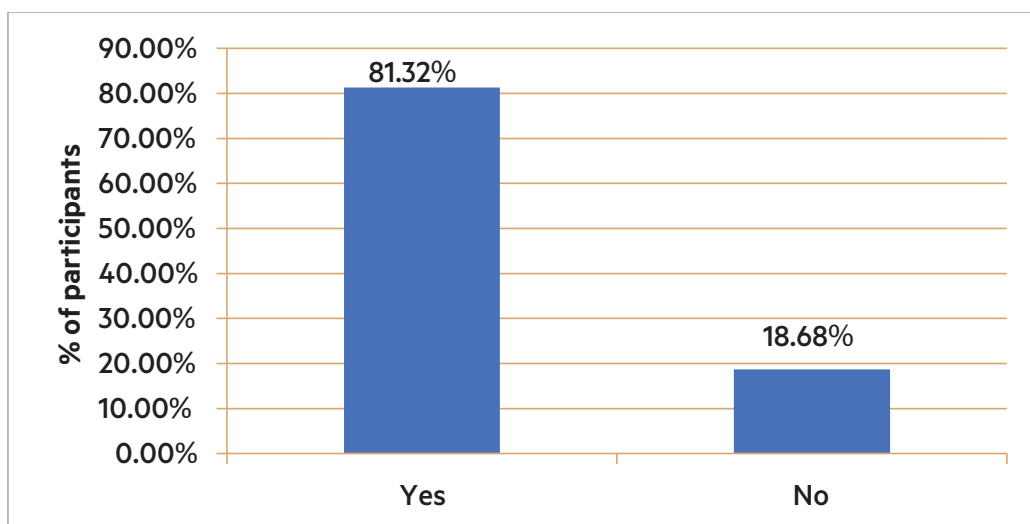
Figure 4

Figure 5

Continent-Wise

Despite living in the age of advanced digital technologies, 18.68%, that is, one out of five, survey respondents said they had an interrupted Internet connectivity (Figure 4). Africa was the only continent where people dealing with disrupted Internet connectivity were found to be more in number than people facing no such issue; in other continents, this number was relatively less than in Africa: In Asia, 3.3% respondents were facing interrupted Internet connectivity, whereas in Europe, North America, and Oceania, they constituted 2.2%, 1.1%, and 1.1%, respectively (Figure 5). There could be several possibilities to ensure a decline in global digital divide. The UN has marked a day, called World Information Society Day, to raise awareness of the ways to reduce the digital divide and focus on the importance of information and communication technology (ICT).

We believe that in coming years, we should work together to eliminate the digital divide, that is, lower the 18.68% value to 0%, in regions such as South America. As the IGF, we should work with countries and learn from the best models to address the issue of Internet connectivity. For instance, the Universal Service Obligation Fund (USOF) model (Department of Telecommunications, Ministry of Communications, Government of India, n.d.) of India provides affordable, effective, and widespread ICT quality services for better connectivity in rural and remote areas. The USOF model can be replicated in regions with the digital divide.

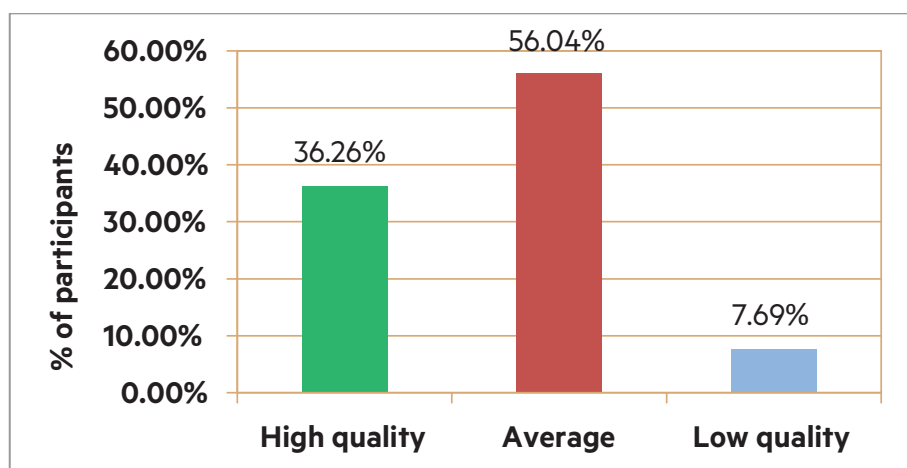## Internet Quality (Speed and Downtime)

Figure 6

Table 6

Continent-Wise

Continent	High quality	Average	Low quality
Africa	2.2%	13.2%	3.3%
Asia	14.3%	23.1%	3.3%
Europe	9.9%	6.6%	0.0%
North America	8.8%	7.7%	0.0%
Oceania	1.1%	2.2%	0.0%
South America	0.0%	3.3%	1.1%

Technology has evolved from 2G to 5G at a rapid pace; however, as depicted in Figure 6, still, only 36.26% of the respondents across the globe had access to the high-quality Internet. Moreover, 56.04% respondents had an average quality of Internet access, and the rest 7.69% faced low Internet quality. Internet coverage does not make any sense if it does not have high quality, that is, high-speed Internet access. And it is crucial to the overall development of a region and growing economic and social prospects of its citizens. Thus, it is high time the right to Internet access should give way to the right to high-speed and uninterrupted Internet.

The findings of this survey indicated that 3.3% respondents from Africa and 3.3% respondents from Asia faced low-quality Internet as compared to 0.0% in Europe, North America, and Oceania, which clearly shows an Internet divide between the developed and developing countries. On the other hand, South America is the region where the access to high-quality Internet seems to be a luxury as none of the respondents had access to high-speed Internet.

The Internet should not be a luxury when it has become a necessity for many jobs, research work, schoolwork, entertainment, communication, and so on. It will become more important in the future. In the foreseeable future, it is expected that the number of people who work from home using the Internet shall increase. Moreover, to improve care and efficiency, medical services will be provided online, and the infrastructure such as buildings, highways, and electric grids may be driven by the Internet. If used effectively and properly, Internet infrastructure may be used to increase economic mobility, link people, and improve the efficiency of the region's infrastructure. Consequently, high-quality and effective Internet access may become a norm in a global society.

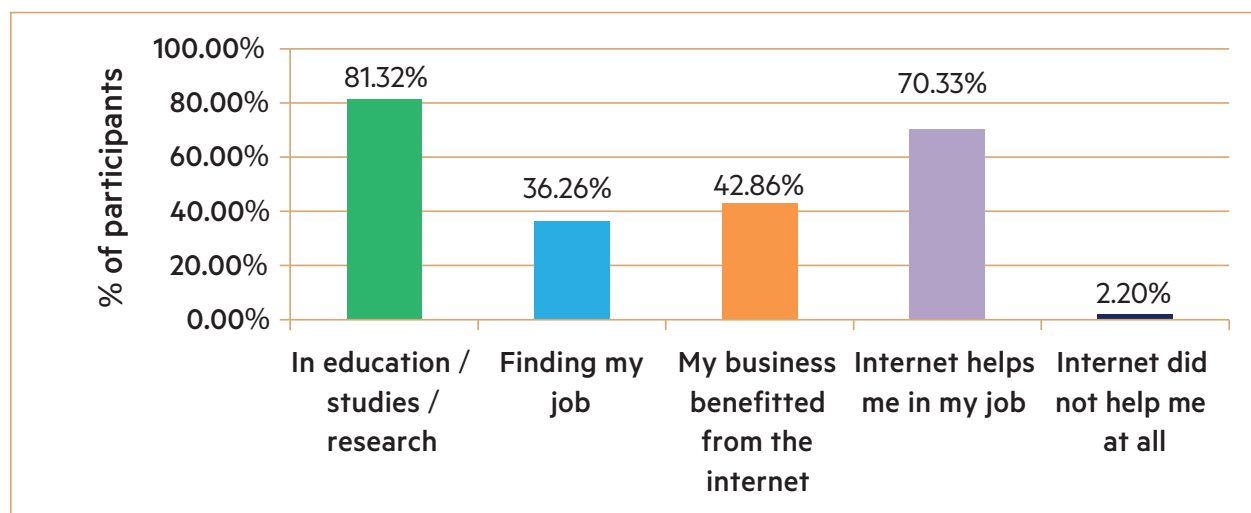## Role of Internet: Inseparable and Indispensable

Figure 7

Table 7

Continent-Wise

Continent	The Internet helps me in education/-studies/re-search	The Internet helped me in finding my job	My business benefitted from the Internet	The Internet helps me in my job	The Internet did not help me at all
Africa	12.1%	2.2%	9.9%	9.9%	0.0%
Asia	34.1%	16.5%	16.5%	27.5%	2.2%
Europe	13.2%	8.8%	4.4%	11.0%	0.0%
North America	14.3%	3.3%	7.7%	14.3%	0.0%
Oceania	3.3%	1.1%	3.3%	3.3%	0.0%
South America	4.4%	4.4%	1.1%	4.4%	0.0%

The Internet is now emerging as a critical tool in finding and doing a job. In our survey, 36.26% respondents claimed that the Internet did help them in finding their jobs (Figure 7). The percentage of respondents who required Internet at their job was 66.18% in the 2020 report, and this fraction increased to 70.33% in 2021 (Figure 7). However, 2.2% respondents, which were all Asians, asserted that the Internet did not help them at all.

As presented in Figure 7, according to 81.32% of the respondents, Internet access helped them in their education/studies/research, which shows the importance of the Internet in academics. According to the 2020 report, 84.54% respondents reported that the major reason for Internet usage is education and research. As we can see, 12.1% respondents from Africa, 34.1% from Asia, 13.2% from Europe, 14.3% from North America, and survey respondents from Oceania and South America revealed that Internet access helped them in their education/studies/research (Table 7). At the IGF, we should strive for improved Internet coverage to leverage the full potential of the Internet in academics. Governments and academic institutions need to prioritize digital skills for students to equip them with new technologies. Internet coverage helps and improves educational outcomes. The Internet can provide access to information and vast educational resources and expand learning possibilities beyond the classroom. Teachers can also utilize resources available online to better fulfill their role, and students can use them to broaden their horizons.

> The Internet access has the potential to increase the quality of education.

Not having access to appropriate bandwidth limits the potential of the Internet in important sectors such as education, research, and development. Broadband connectivity requires a legal and regulatory framework that encourages investment and innovation. This is about more than simply connectivity. The access must be rendered inexpensive for academic institutions so that digital literacy and other skills leverage the full potential of digitalization.

Internet and Wealth Creation

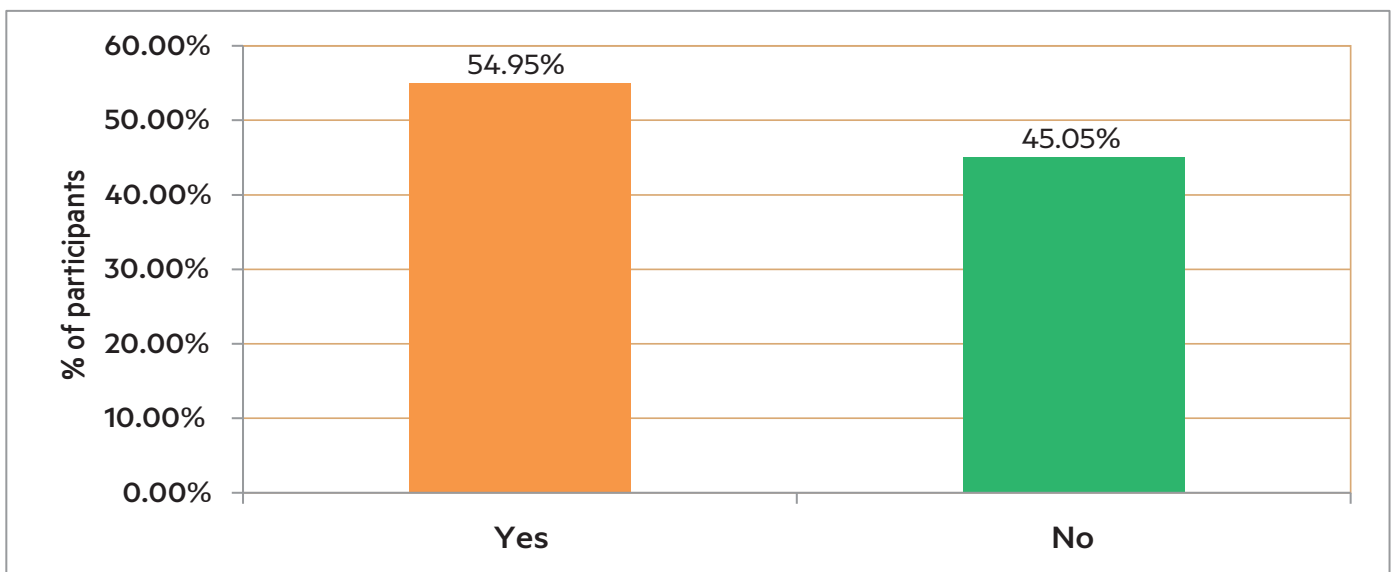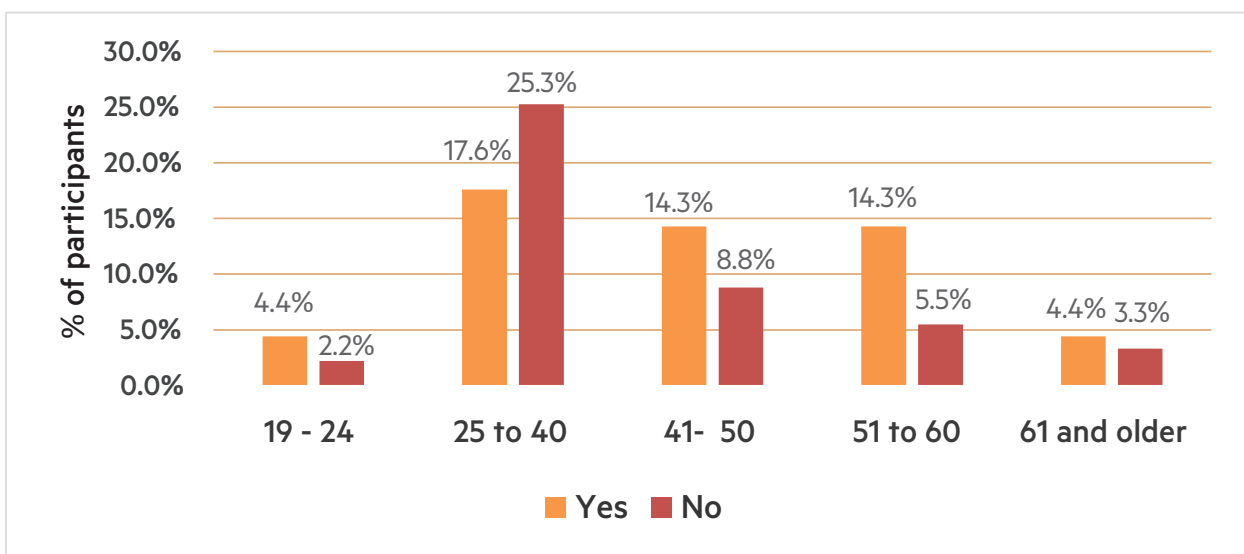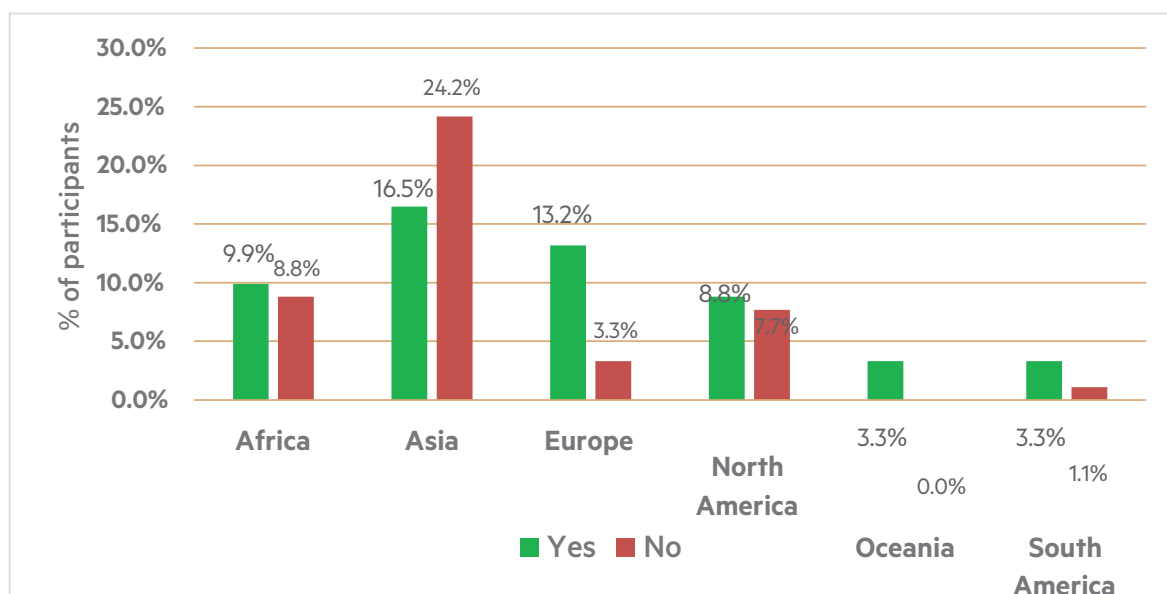**Did you ever make money using the Internet?**

Figure 8

Figure 9

Age-Wise

Figure 10

Continent-Wise

The survey results showed that 45.05% of the respondents never made money using the Internet, whereas 54.95% (one out of two) did make money using the Internet (Figure 8). Thus, there is enormous potential for growth.

> The Internet is wealth if we properly leverage.

Further, from Figure 9, it can be observed that 25.3% in the age bracket of 25–40 claimed that they never made money using the Internet. In the digital era, some of the millennials have not explored the Internet-based methods to earn money or perhaps the digital ecosystem does not exist for them. About 3.3% of the respondents (Table 3) claimed they lost their jobs during the COVID-19 pandemic. We believe that the Internet is a good platform for them to make money as it has emerged as the universal platform. After losing jobs in the pandemic, many people across the globe looked for making money online, be it from freelancing, blogging, content writing, vlogging, or many other opportunities that abound.

If we consider continent-wise, the percentage of respondents who said "yes" to making money using the Internet across the continents is as follows: 9.9% from Africa, 16.5% from Asia, 13.2% from Europe, 8.8% from North America, 3.3% from Oceania, and 3.3% from South America. There is a clear relation between Internet quality and money-making using the Internet. As Figures 5 and 10 show, the percentage of Asians having high-quality Internet and making money using it is the highest.

Internet: A Job Creator?

Will jobs or businesses gradually become obsolete after COVID-19 due to advancements in the Internet and automation?
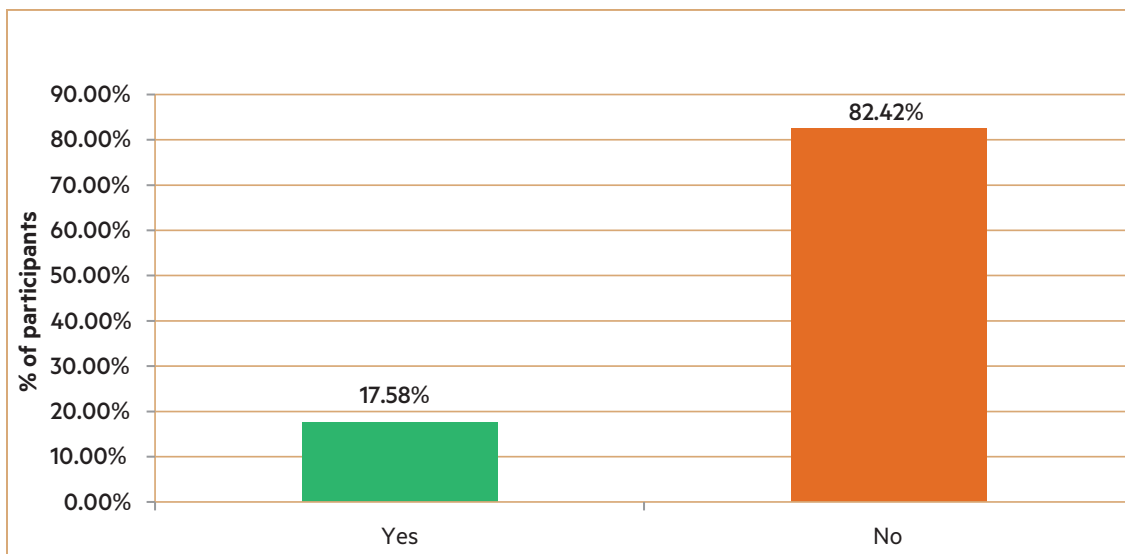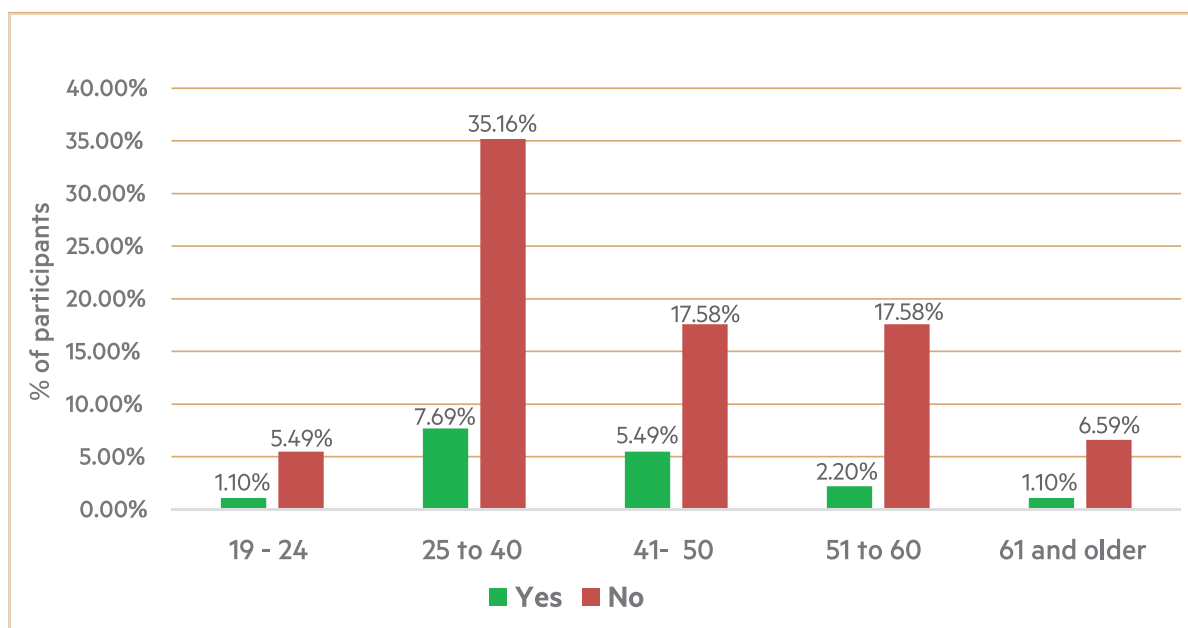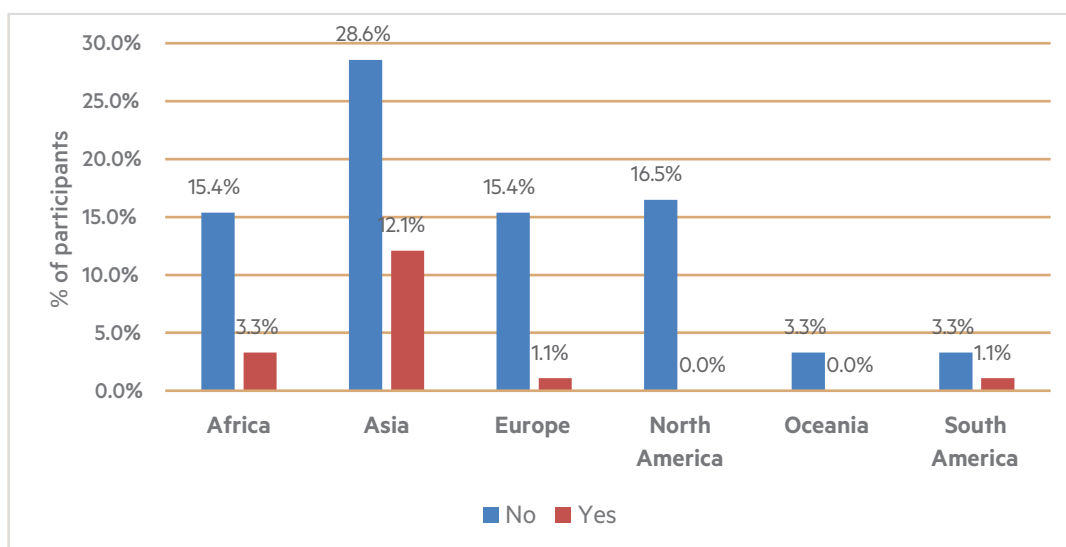
Figure 11

Figure 12

Age-Wise

Figure 13

Continent-Wise

According to the survey data presented in Figure 11, 17.58% of the respondents believed that their job or business will become obsolete after COVID-19 as the Internet and automation evolve. This, although technology has provided numerous opportunities, there is a fear of loss of jobs due to Internet and automation. Evidently, 7.69% respondents from the age bracket 25–40 believed that jobs and businesses are vulnerable to automation (Figure 12).

It is predicted that in the near future, machines are going to take over the manual jobs/low-value jobs in most of the sectors. The demand for manual skills might decline as automation advances. To address growing needs for the changing labor market, a broader range of education and skills-building programs should be developed. A new education and training ecosystem prepared in a traditional classroom setting might not be enough for different age groups or sectors; hence, online learning platforms could also be a great way to upskill individuals in order to meet the increasing demand.

Further, as can be seen in Figure 13, the survey respondents from North America and Oceania thought that their job or business will not become obsolete after COVID-19 due to the evolution of the Internet and automation, whereas 3.3% of the respondents from Africa, 12.1% from Asia, 1.1% from Europe, and 1.1% from South America thought otherwise.

Skills for the Internet

Do you have skills to make full use of the opportunities provided by the Internet?
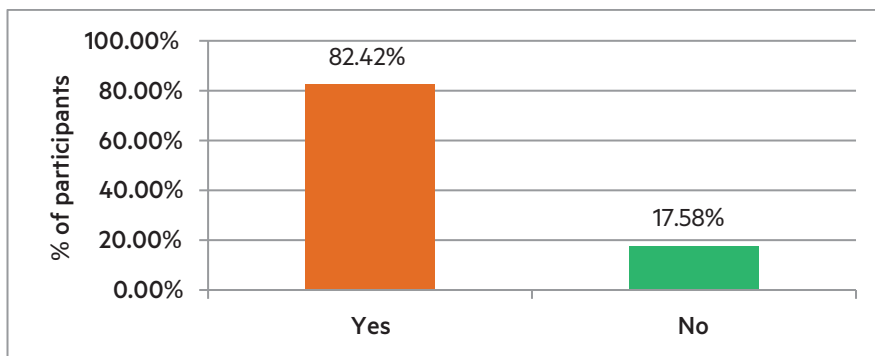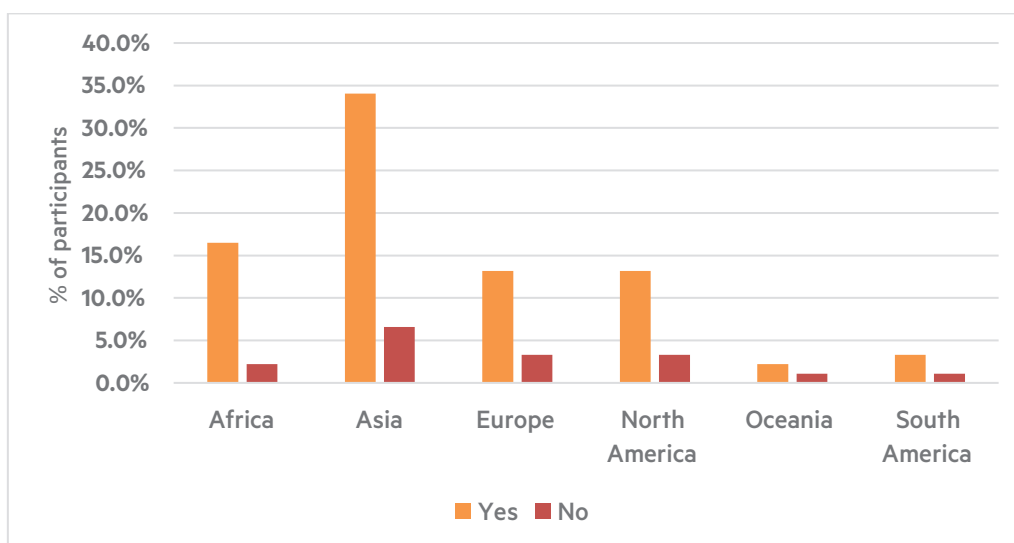
Figure 14


Figure 15

Continent-Wise

We found that 17.58% survey respondents believed that they did not have the skills to make full use of the opportunities provided by the Internet (Figure 14). Out of this 17.58%, 6.6% were from Asia, 3.3% from Europe, 3.3% from North America, 2.2% from Africa, 1.1% from Oceania, and 1.1% from South America (Figure 15). With the advancements in digitalization, tech skills will be essential, be it from an employment point of view or using technology in household chores. Therefore, it is high time that countries start investing in upskilling.

> Technology is getting integrated in every job, and this trend is certainly going to continue. At one stage, every job is going to be either delivered by technology or dependent on technology.

Owing to technical advancements, technical abilities are no longer limited to people in technical jobs. Today, regardless of sector or employment type, technical abilities are becoming increasingly crucial. In the not-so-distant future, every sector and job function will be significantly reliant on modern technology. Therefore, one needs to upskill their technical abilities.

## Internet Perceptions

Figure 16
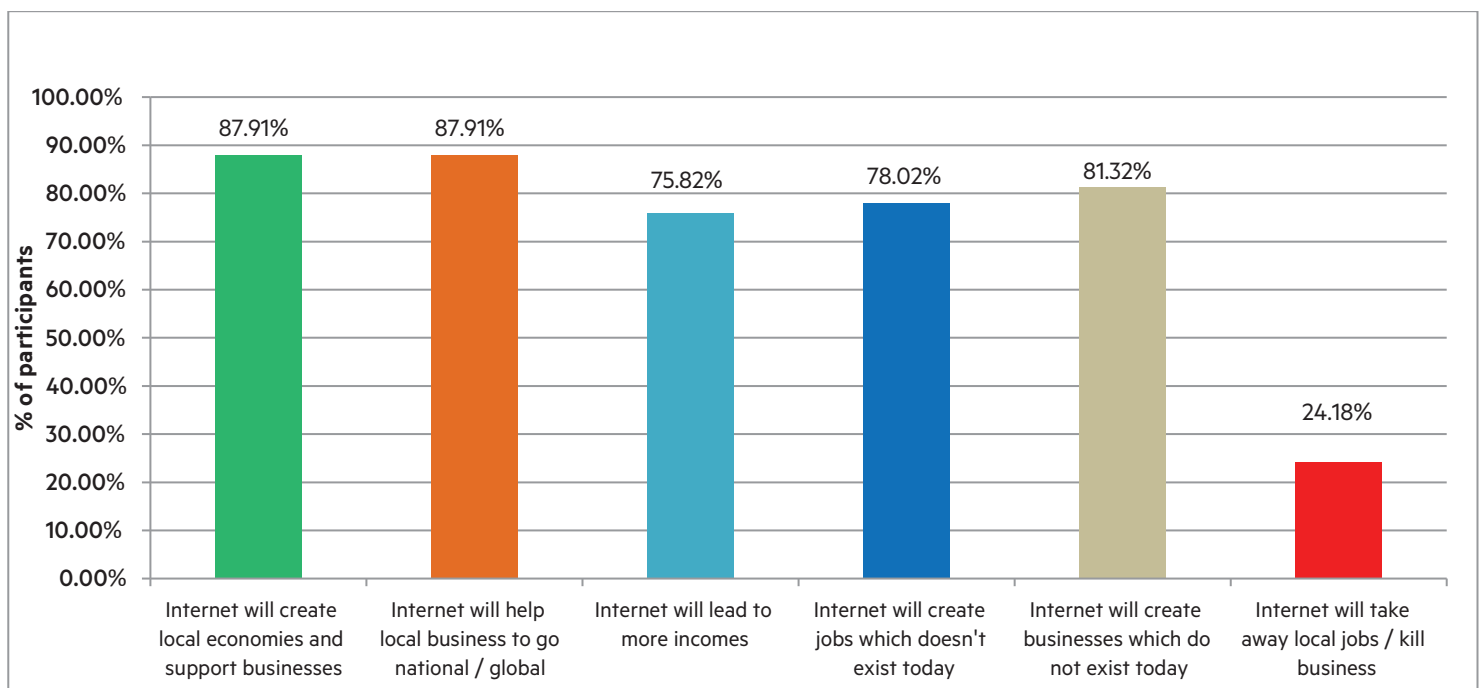
The Internet has transformed the way the world does business. Indeed, the Internet has made businesses global in terms of consumers and competitions. Undoubtedly, the advantages of shifting to online businesses have brought a lot of benefits to people. For example, as per Figure 16, 87.91% of our survey respondents thought the Internet will create local economies and support business and will also help local businesses to go national and global; nevertheless, 24.18%, that is, one out of four, respondents thought that the Internet has also brought significant drawbacks for some businesses in the way that it will take away local jobs or kill businesses.

The Internet provides a matchless platform to businesses of all sizes, thereby helping them add value, increase volume, and explore newer suppliers and markets, leading to scaling up of businesses with higher margins. The Internet has brought about a paradigm shift in customer service through cost efficiency, chat bots, etc.

Internet—Leveraging the Potential

How do you intend to maximize the opportunities through the Internet?

Figure 17
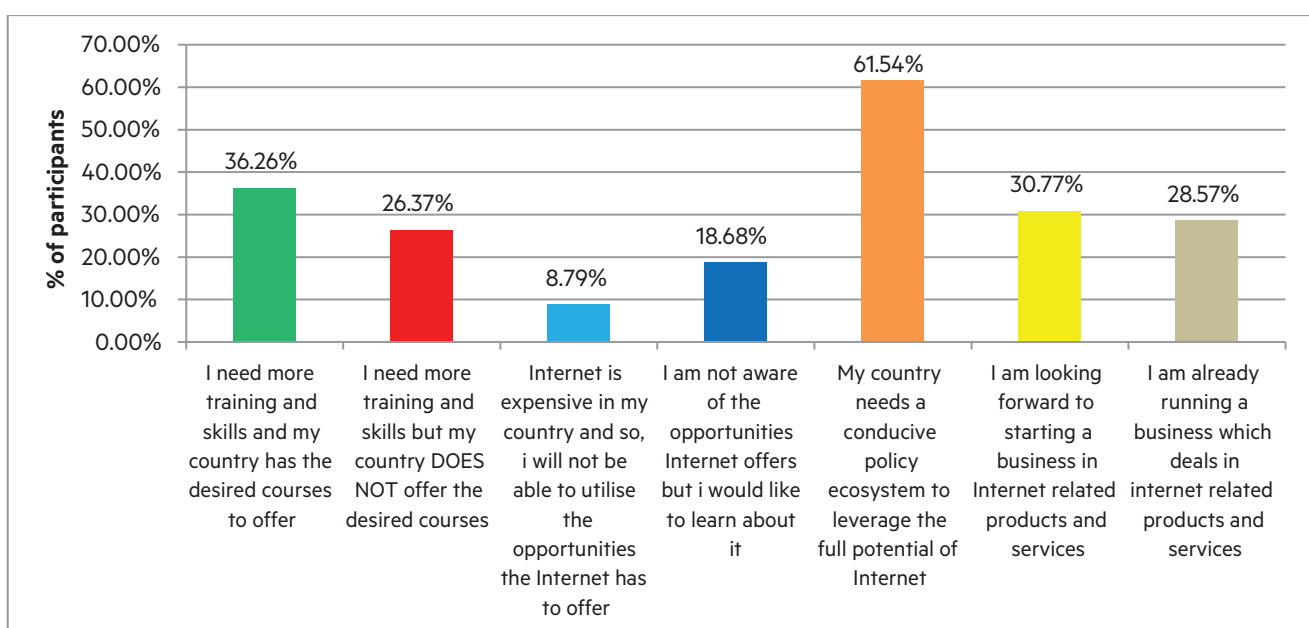
In response to the question, 61.54% of the respondents expressed that their country needs a conducive policy ecosystem to leverage the full potential of the Internet (Figure 17). Costs of Internet access can be reduced by a variety of policy, economic, and technical interventions. Countries should establish demand-stimulating policies, which could include subsidies on retail Internet access, both for infrastructure and end-user devices. Lowering end-user prices is the most effective approach to make the Internet more accessible and affordable; unit costs will reduce as volume increases, allowing for additional price reduction. This is the strategy countries should adopt in order to enhance Internet affordability.

Further, 8.79% of the survey respondents believed that the Internet is expensive in their respective countries and that, thus, they will not be able to utilize the opportunities the Internet has to offer (Figure 17). Thus, eliminating the digital divide should be a top priority, along with declaring the high-speed home Internet as a "basic service or public good." Reducing taxes on equipment and mobile service providers would also increase Internet usage, allowing more people to participate in the digital economy.

> Ensuring the right to Internet access would be a huge step in the direction of providing affordable and high-quality Internet services to all.

According to the World Economic Forum (2022) data, the Asia Pacific region has the highest number of students using online platforms, with 28 million new online learners, who registered for 68 million courses.

Further, 18.68% of the respondents opined that they were not aware of the opportunities the Internet offers and would like to learn about them. In addition, 26.37% respondents needed more training and skills, but their countries do not offer the desired courses. We, as the IGF community, can start initiatives to bring forth the opportunities made available by the Internet around the world. If accessible to all, the Internet can be a tool for sustainable development. Moreover, it can be a tool to address the challenges of inequality and poverty.
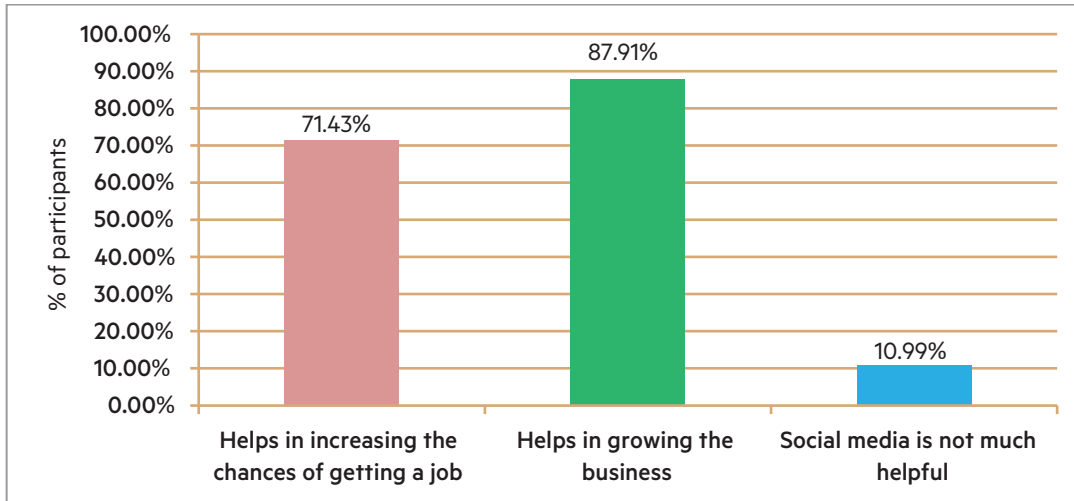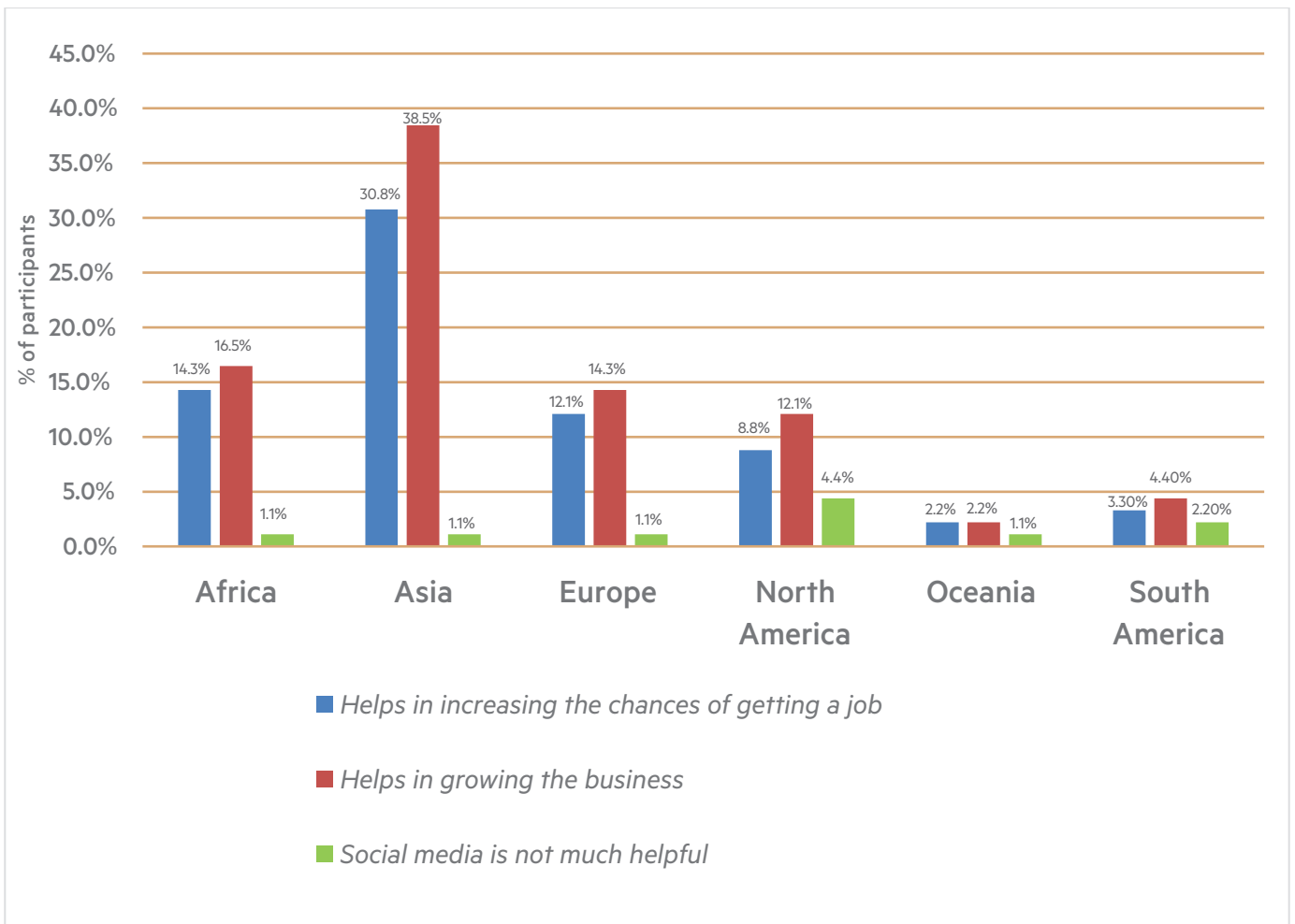
Role of Social Media

Figure 18

Figure 19

Continent-Wise

As shown in Figure 18, 87.91% of our respondents felt that social media helps in growing the business; 71.43% believed it helps in increasing the chances of getting a job; and according to 10.99%, social media is not much helpful. The role of social media varies: It could be used for business, entertainment, job hunting, and a lot more. Social applications have become a daily necessity for people in today's time. Sharing pictures and exchanging messages to express opinions are merely one click away. Click "Apply" and the talent seekers will know your interest. The hustle of long procedures to find your desired job has been morphed into a hassle-free online task by platforms such as LinkedIn.

As can be seen in Figure 19, out of 40.7% Asian respondents, 38.5% claimed that social media helps in growing the business; the statistics from the other regions are as follows: 16.5% from Africa, 14.3% from Europe, 12.1% from North America, 2.2% from Oceania, and 4.4% from South America.

> Social media has become business media. Applications such as Instagram and Facebook have become trade channels for businesses' growth as well as for entrepreneurs.

Content creation is the new job opportunity that social media has opened up for youngsters. Moreover, online platforms are providing crowd-sourcing opportunities for entrepreneurs. Additionally, almost every company/organization/brand has made their presence on such platforms to target the right audience, thereby creating job and business opportunities. Furthermore, during COVID-19, social media was the only means to connect with friends and family to get and give updates.
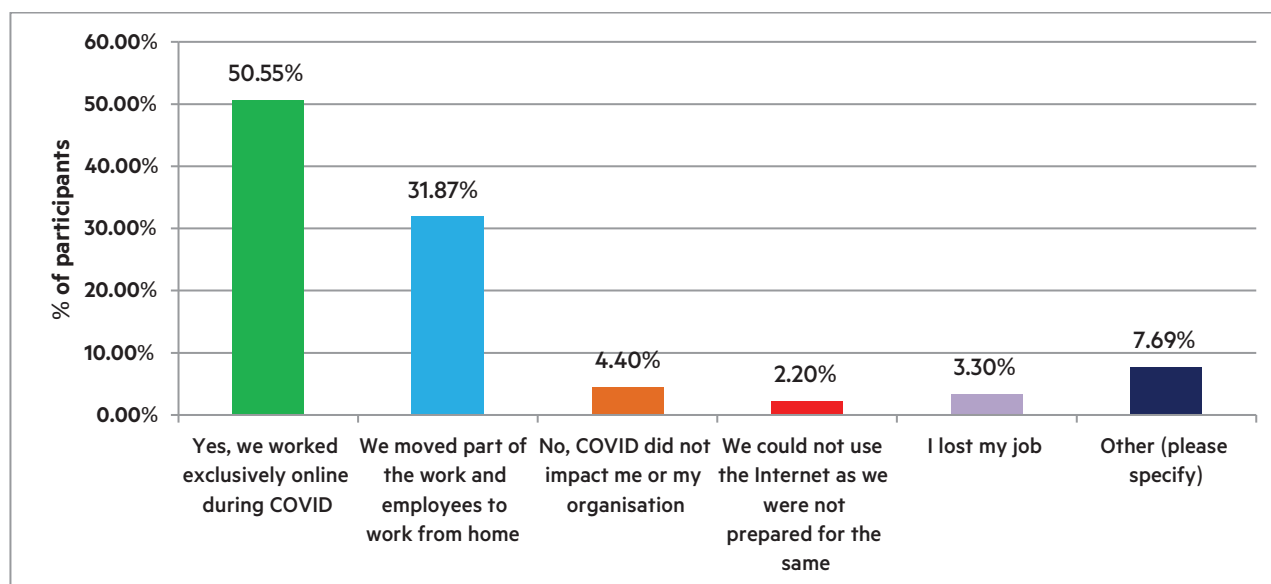
Figure 20

Table 8

Continent-Wise

Continent	Yes, we worked exclusively online during COVID	We moved part of the work and employees to work from home	We could not use the Internet as we were not prepared for the same	No, COVID did not impact me or my organization	I lost my job	Other
Africa	6.59%	7.69%	0.00%	0.00%	1.10%	3.30%
Asia	25.27%	10.99%	2.20%	1.10%	1.10%	0.00%
Europe	7.69%	5.49%	0.00%	0.00%	1.10%	2.20%
North America	7.69%	6.59%	0.00%	2.20%	0.00%	0.00%
Oceania	2.20%	0.00%	0.00%	1.10%	0.00%	0.00%
South America	1.10%	1.10%	0.00%	0.00%	0.00%	2.20%

The COVID-19 pandemic has changed several facets of people's lives across the world. It led to shut down of schools, companies, and workplaces, forcing billions of people to stay at home for long periods of time and opening new vistas at the same time. To slow down the spread of the virus, public health officials advocated limiting social contact, which drastically changed the way people worked, learned, communicated, celebrated, and so on. In such a situation, technology played a pivotal role.

Workplaces had to shift to new roles and activities, and the work dynamics changed to remote working. According to our study, 50.55%, that is, one out of two, respondents worked exclusively online during the pandemic; among these, 25.27% were Asians (Table 8). Further, 31.87% respondents said that they moved part of the work and employees to work from home (Figure 20). Remote work allowed employees and employers certain benefits: flexibility and time-saving on long commute hours, along with opportunities for social engagement and collaborative work.

As is shown in Table 8, 3.3% respondents hailing from Africa, Asia, and Europe claimed they had lost their jobs during the pandemic. Business and social sectors should take actions to manage the employment crisis that emerged during the pandemic. Countries should create a granular plan based on where jobs are at risk and where more labor demand exists; small enterprises and the most vulnerable employees in the informal sector, conventional businesses, people working in remote/rural areas, women, and senior citizens must be prioritized from this perspective.

Internet—We Are Spending More Time!

Table 9

Response	Distribution (%)
Less than 30 minutes	1.10
Between 30 minutes and 1 hour	1.10
1−2 hours	3.30
2−3 hours	6.59
3−4 hours	7.69
4−5 hours	4.40
5−6 hours	6.59
6−7 hours	6.59
7−8 hours	8.79
8−9 hours	12.09
9−10 hours	6.59
More than 10 hours	35.16

Table 10

Age-Wise

Age group	Less than 30 minutes	Between 30 minutes and 1 hour	1−2 hours	2-3 hours	3-4 hours	4-5 hours	5-6 hours	6-7 hours	7-8 hours	8-9 hours	9-10 hours	More than 10 hours
19 −24	0.0%	0.0%	0.0%	0.0%	0.0%	1.1%	0.0%	0.0%	2.2%	2.2%	0.0%	1.1%
25 −40	1.1%	1.1%	3.3%	1.1%	5.5%	1.1%	2.2%	4.4%	0.0%	7.7%	2.2%	13.2%
41 −50	0.0%	0.0%	0.0%	3.3%	1.1%	1.1%	1.1%	2.2%	2.2%	1.1%	1.1%	9.9%
51 −60	0.0%	0.0%	0.0%	1.1%	0.0%	0.0%	2.2%	0.0%	2.2%	1.1%	2.2%	11.0%
61 and above	0.0%	0.0%	0.0%	1.1%	1.1%	1.1%	1.1%	0.0%	2.2%	0.0%	1.1%	0.0%

The Internet has become integral to our daily routines, and we regularly spend time on the Internet. Our survey revealed that 35.16% of the respondents spent more than 10 hours daily on all devices combined to access the Internet (Table 9); strinkingly, this figure was 28.99% in our 2020 report. Over the last decade, the Internet has had a significant impact on our lives. As a result of advancements and innovation in Internet technology, doing business online, purchasing online, playing video games, live streaming, and so on have become common practice. Today, people use social media to observe what is going on across the world, seek information and services, and communicate with friends and family who are far away. Nowadays, the Internet is so integral to people's lives that we cannot imagine life without it.

The distribution of respondents spending more than 10 hours on the Internet across different age groups is as follows: 1.1% were in the 19–24 age bracket, 13.2% in the 25–40 bracket, 9.9% in the 41–50 bracket, and 11% in the 51–60 bracket.

Using the Internet for everyday learning and working is unavoidable, however, spending excessive time on phones or laptops for activities such as playing video games, which many youngsters are nowadays addicted to, is certainly not good for health. The Internet has become social determinant for health. The important question here is whether our spending time on the Internet is affecting physical/mental health or not. In our 2022 report, we are going to cover this topic.

Internet and Entrepreneurship

What do you need to leverage the full potential of the Internet for boosting the local economies and creating businesses and jobs?

Figure 21
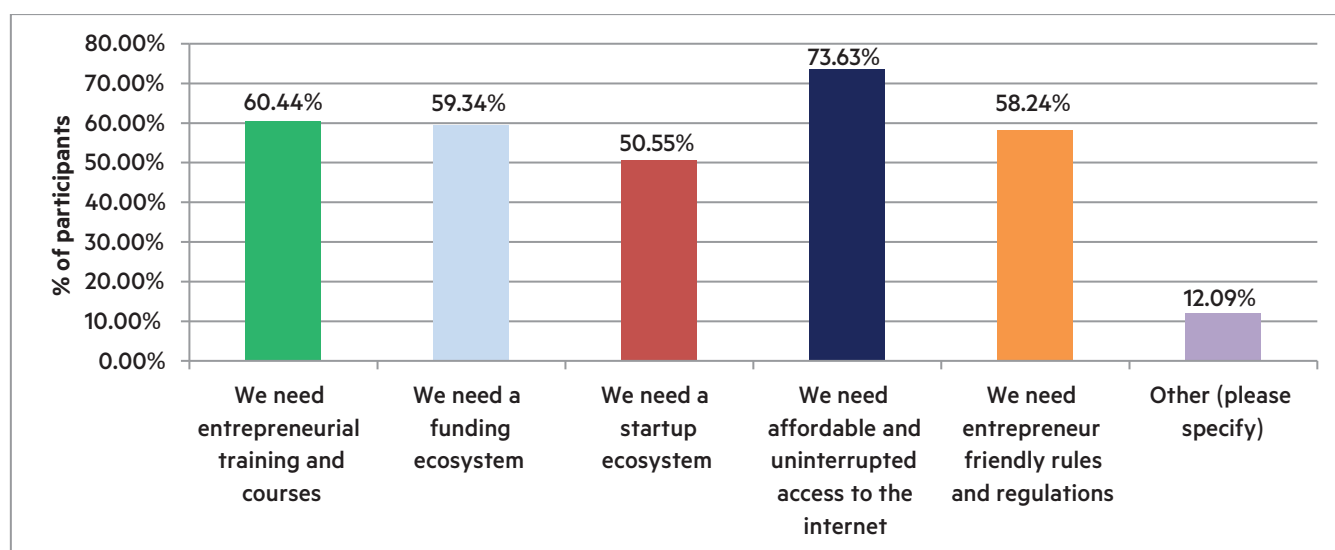
In response to the question, 73.63% respondents stated that to leverage the full potential of the Internet for boosting the local economies and creating business and jobs, they would need affordable and uninterrupted access to the Internet (Figure 21). This reveals that many people and areas lack good quality Internet services. This also shows how important it is to have affordable high-quality Internet access for the overall economy.

> To optimally utilize the Internet for businesses, one needs to have the required skills.

People very well understand the value of command over the skills set to make proper and maximum use of the Internet, as 60.44% of our respondents opined that they needed entrepreneurial training courses, and 58.24% of respondents opined that they needed entrepreneur-friendly rules and regulations.

Further, 59.34% respondents thought that they needed a funding ecosystem to boost local economies. In addition, 50.55% felt the need for a startup system for the same. Startup culture helps the economy in many ways. It stimulates economic activities that contribute to the expansion of the economy and aims to maximize revenues through technology and innovation, thus moving the country forward. It also boosts a country's gross domestic product (GDP) by producing jobs and increases economic competitiveness by pushing current enterprises to adopt newer technology.
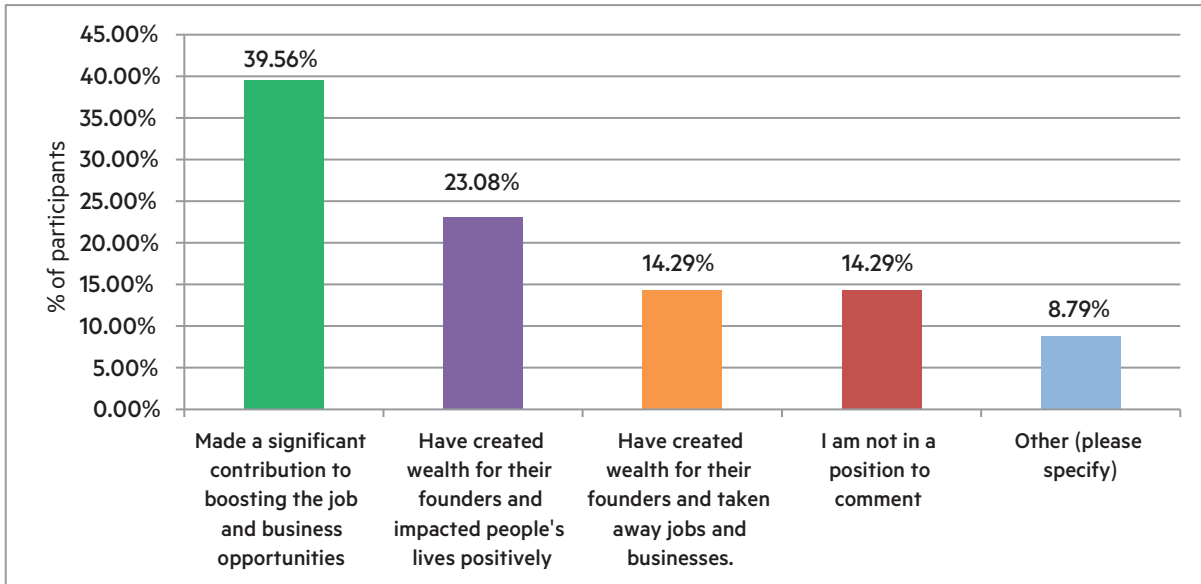
Figure 22

Figure 23

Continent-Wise

On the matter of the role played by big tech in an economy, 39.56% respondents thought that these companies have made a significant contribution in boosting job and business opportunities (Figure 22). This pool of respondents comprised 9.9% African nationals, 15.4% Asian nationals, 8.8% European nationals, 5.5% North American nationals, and 1.1% Oceania nationals (Figure 23). Due to the acceleration in digitalization during the last two decades, large corporations have heavily contributed to creating employment. They have also helped in creating jobs by encouraging entrepreneurship. Major corporations boost job growth through entrepreneurial skill development and training.

Considering many people lost their jobs during the pandemic, after COVID-19, it will be interesting to analyze whether the big tech companies will be able to create more job opportunities as the world witnesses advancements in digitalization.

Big tech companies need to raise their digital transformation efforts. Further, they should invest in initiatives for skilling up people in technology in order to absorb them in the digital world.

This report covers people having access to the Internet and may not provide the factual representation of the proliferation of the Internet or its coverage and usage. Hence, there is a likelihood that the numbers that represent the education and job loss may not be the factual representation of the scenario on-ground, which could be far worse.

Recommendations

1 Right to high-quality Internet :

Internet access is an important tool for sustainable economic growth, and it remains a basic necessity in every country. It is important to have affordable access to high-quality Internet in every corner of the world. The Internet needs to be treated as a public good for social inclusiveness. Countries should create various schemes and initiatives to provide good Internet connectivity and to bridge rural–urban digital divide. A model similar to India's USOF can provides economical services to people residing at places with less or no Internet accessibility. Internet access is absolutely an essential social good as it has become a basic necessity in the information age. After the COVID-19 pandemic, one thing in the world that has seen an immense growth is digitalization: from online education, video conferencing to online health services.

2 Digital upskilling :

Governments and organizations around the world need to create different digital learning programs for people from various gender and age groups across urban and rural areas; this will further contribute to developing small businesses and spreading awareness about different aspects of the Internet. Governments need to support and promote startup culture, which will help in creating more jobs, growing local economies, and reducing the digital divide. As Dynamic Coalition on Internet & Jobs, we recommend countries to promote digital education, especially in the least developed countries or areas where children do not have access to education. All of this requires infrastructure, which these countries lack. Infrastructure for Internet accessibility and Internet access through smartphones have become the prime requirements in those parts of the world where Internet quality is still considered the secondary issue. Internet accessibility in academic institutions is a must have, as it will help in life-long upskilling and creating a future-ready workforce.

3 Public–private partnership :

Internet holds a lot of potential to bridge the digital divide. Private and public sectors need to work in tandem to provide Internet access to everyone, irrespective of anyone's economic background. Gender/Age digital divide remains a big issue in today's world. However, it is reducing as digital literacy and awareness are gradually increasing. According to The Mobile Gender Gap Report 2021, in low- and middle-income countries, women are now 15% less likely to use mobile Internet than men in comparison to 27% in 2017 (GSMA, 2021). Countries need training and upskilling program for women, especially where public and private partnerships can play a huge role.

4   **Conducive policy ecosystem** :

Digital programs should be inculcated in policy-making to provide required tech skilling to people. Governments, private companies, and academic institutions must ensure that digital literacy programs are accessible for people across all the age groups. For millennials and Gen X, there should be separate special training digital programs in order to provide them financial stability, which will further add to economic growth of countries. These special programs are important for digital immigrants as they were born before the introduction of the digital technology. On the other hand, digital natives, who have grown up around technology, need to be provided with the provision of quality digital education, online certificate courses, and distant learning courses by academic institutions as well as governments.

5   **Work flexibility** :

Companies and organizations must consider working from home or hybrid working mode, as these modes are comparatively more cost effective. Due to the COVID-19 pandemic, remote working gave companies the flexibility to work effectively, and the Internet made it convenient for employees to stay connected.

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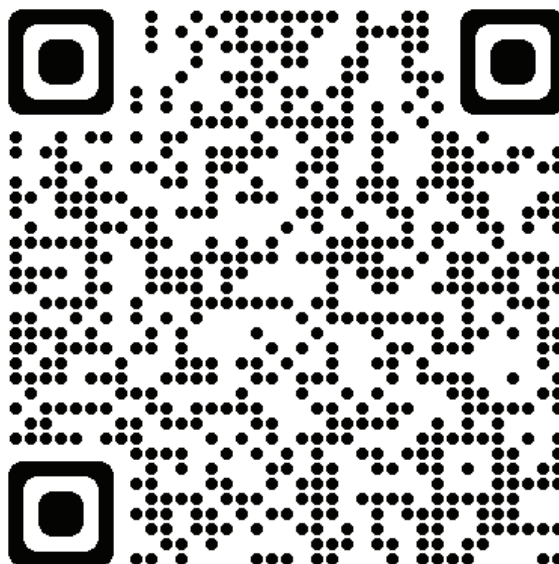
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