



# ***NAIROBI MANIFESTO***

## ***on the Digital Economy and Inclusive Development in Africa***

### **BACKGROUND**

The digital economy, including electronic commerce (e-commerce), is growing quickly in Africa, creating new opportunities for entrepreneurs and businesses to expand their market access and join value chains. Jobs are being created and new business models are emerging. At the same time, the evolving landscape is creating new risks and challenges. The gains from e-commerce are not automatic, and the increased use of digital technologies can result in new divides and wider income inequalities.

It is estimated that there were in 2017 at least 21 million online shoppers in Africa. While this is less than two percent of the world total, the numbers are rising faster than in other world regions. The extent to which people and businesses in Africa participate in e-commerce varies considerably, within and between countries. Three countries - Nigeria, South Africa and Kenya - account for almost half of them. UNCTAD estimates that the B2C e-commerce market in Africa was worth about \$5.7 billion in 2017, which corresponds to less than 0.5% of GDP, far below the world average of over 4%.

Digital entrepreneurship is growing in Africa, but at different speed in different countries. While comprehensive data are lacking on the extent to which African businesses are selling online, anecdotal

evidence of more e-commerce activity in the enterprises sector is starting to emerge. More and more micro, small and medium sized enterprises (MSMEs) recognize the importance of digitalization to participate in domestic and international value chains.

Although African countries have made significant progress over the past few years to enhance their e-commerce readiness, persistent gaps remain and countries are at different stages of e-commerce development. In some countries, less than 10 per cent of the population use the Internet, and large segments of the population remain unbanked or without a postal address. There is also significant variation in the readiness of governments in terms of skills and data to adopt and enforce relevant policies, laws and regulations to harness e-commerce and the digital economy for development.

According to the 2018 version of UNCTAD's B2C E-commerce Index, the African region lags the rest of the world in terms of e-commerce readiness. Mauritius, ranking 55<sup>th</sup> globally, is the highest ranked African country, while nine of the ten least prepared countries are in Africa.

At the same time, African countries are showing significant progress on several key e-commerce indicators. The number of online shoppers has surged annually by 18% since 2014, as compared with the world average of 12%. Growth in ownership of an account at a financial institution or mobile-money service provider has similarly outpaced the global average, and more Africans are using the Internet than ever before. Mobile money continues to rise, and Africa boasts the largest share of adults with mobile money accounts in the world. Although mobile money has centered around Eastern Africa, it is spreading fast also to other parts of the continent. Innovations are emerging in different stages of the e-commerce lifecycle, from payment aggregators and cross-border platforms to drone delivery. African tech start-ups are also raising growing amounts of venture capital.

It is not enough, however, to focus solely on increasing the uptake of e-commerce. For e-commerce to make a real and sustained contribution to development it must benefit all segments of society: producers as well as consumers; entrepreneurs and MSMEs but also established firms; women, girls, men and boys; those living in cities, villages and rural areas; persons with disabilities; and those on the lowest rung of the economic ladder. This will require cross-cutting policy actions and new public-private partnerships. More research and better statistics are also sorely needed to inform such policy actions.

Many African countries continue to exhibit features of commodity dependence and weak productive structures, resulting in high unemployment and insufficient value creation. Discussions on e-commerce needs to take this economic reality into account, in line with the emphasis in the African Union Agenda 2063 for economic transformation. In this context, it is essential that the civil society is fully engaged.

The Africa eCommerce Week was convened in Nairobi, Kenya, to examine ways of enhancing the readiness of African countries to engage in and benefit from e-commerce and the evolving digital economy. More than 2000 people from 60 countries registered for the week, including The President of the Republic of Kenya, Ministers, CEOs, Heads of international organizations and other representatives of the private sector, civil society, academia and international organizations. The week-long event was organized by the United Nations Conference on Trade and Development, the African Union and the European Union. It was hosted by the Government of Kenya, financially supported by the European Union and Germany, and implemented in collaboration with partners of the eTrade for all initiative.

## POLICY RECOMMENDATIONS

*Discussions held throughout Africa eCommerce Week led to several policy recommendations that could help ensure that the digital economy brings inclusive and sustainable development to Africa, rather than wider inequalities and divides. The recommendations mentioned below were derived primarily from sessions under the main track and are organized along the seven policy areas of the eTrade for all initiative as well as with regard to gender and measurement.*

### I. E-commerce readiness assessment and strategy formulation

*African countries need a clear understanding of their e-commerce readiness to develop strategies for seizing benefits from and addressing challenges with e-commerce. National e-commerce strategies can help accelerate, mobilize and strengthen the effectiveness of available resources and efforts among stakeholders to harness e-commerce in support of economic growth and socioeconomic development. They should be developed through a participatory consultation process involving all relevant stakeholders, and be coherent with national trade and development strategies to ensure that potential benefits of digitalization are inclusive.*

#### Recommendations:

- 1. Secure effective inter-ministerial coordination.** In many African countries, work on e-commerce spans different ministries, departments and agencies, often with parallel and overlapping activities. Elevating the e-commerce agenda to inter-ministerial committees, with one ministry or agency acting as overall ‘champion’, can reduce the overlap across mandates and help streamline policy development.
- 2. Develop national e-commerce strategies.** Having a dedicated e-commerce strategy can help create a unifying ‘whole of government’ approach and provide a common set of definitions, policy objectives and activities. It can empower policymakers to take adequate action and to prioritize resources, and it can make it easier to integrate e-commerce into national development plans. The definition of an African continental strategy could facilitate, for example, the development of regional markets, the harmonization of legal frameworks, the interoperability of payment systems, the sharing of best practices. This is relevant in the context of the African Continental Free Trade Area (AfCFTA).
- 3. Adopt strategies to strengthen domestic and regional digital infrastructure and capabilities.** African countries should develop strategies that help enable the development of local and regional platforms to support local products and businesses. Governments should seek to formulate forward-looking industrial policies to guide the digital sector to grow and cope with competition from global digital platforms, including by adopting strategic policies to harnessing data for local and regional development.
- 4. Strengthen the policy dialogue with relevant stakeholders.** Creating focus groups with the private sector is one way to strengthen policymakers’ awareness of complex issues facing telecom companies, digital payment providers, entrepreneurs and micro, small and medium-sized enterprises (MSMEs). Strengthening dialogue with consumer groups and workers organizations is equally important.
- 5. Foster private-sector coordination.** Private sector views on e-commerce are usually fragmented, with varying levels of experience in the industry and different views of the role of government. Unifying these voices can provide better advice to governments on how to create the enabling

environment for productive investments and innovation in the digital economy, and generate insights for entrepreneurs in African countries on successful business models for start-up to scale up.

**6. Address the gender gap in entrepreneurship.** More should be done to ensure that women entrepreneurs equally enjoy the benefits from e-commerce. The inclusion of gender perspectives within e-commerce strategy calls for increased political commitment accompanied by dedicated actionable measures and resources.

**7. Boost donor funding in support of African countries seeking to participate fully in the evolving digital economy.** While Governments have a significant responsibility to advance the digital agenda in their country and design the tools needed to address bottlenecks identified by Rapid eTrade Readiness assessments, the assistance from development partners – donors and international organizations – should be scaled-up to help countries cope with the digitalization of the economy.

## II. ICT infrastructure and services

*Affordable and reliable ICT infrastructure is fundamental to achieve an inclusive digital economy. Ideally, there should be universal coverage of high-speed broadband, with regular upgrading of infrastructure, and reduced or eliminated barriers to service providers wishing to access the network or other services.*

### Recommendations:

**1. Encourage an increased use of telecommunications/ICTs:** Although the continent is well served with submarine fiber optic cables with almost all coastal countries with one or more landing points, the access costs for the landlocked countries are still relatively high and level of utilization is still relatively low. This impacts the overall cost of accessing Internet-based services. In order to increase the use and reduce the prices of the services, the remote parts of the countries must be connected through the promotion of competition at service provision with less barriers to entry for Micro and Small and Medium Enterprises (MSMEs) to the market.

**2. Bridge the digital divide through digital skills and provision of access to fast and reliable Internet for all.** Development of digital skills in education, and vocational training for MSMEs and startups, to get them ready for the digital age and promote the development of applications and services delivery at grassroot levels as a way to stimulate demand and make rolling out of ICT more sustainable. At the same time, it will help reduce disparities in broadband and Internet access and open e-commerce opportunities for all segments of the population. Infrastructure-sharing among operator and with other sector e.g. joint efforts with electricity companies, effective use of Universal Service Funds and other incentives should be encouraged to cover less-populated areas. Spectrum management should be given high attention to facilitate effective deployment of the wireless system where needed.

**3. Invest in sustainable and secure ICT infrastructure that is conducive to innovation.** African countries should continue to invest in the international, regional and national networks using the appropriate technologies adequate to the geographic location and topography in order to respond to growing demand and needs of its people. The quality, reliability, sustainability and resilience of networks and systems resulting from such investments should be enhanced, while building trust and security in their usage by protecting data and people.

**4. Foster cooperation among all stakeholders in support of the digital transformation.** Public-private partnerships (PPPs) and/or other types of stakeholders partnerships which may include governments, the private sector, civil society, intergovernmental and international organizations, the academia and technical communities should be encouraged to strengthen backbone infrastructure and reach out the less profitable remote areas as well as sharing the risks, leverage the capital and expertise of the private sector and help ensure that public funds are used effectively and efficiently. Alternative ways of providing services, such as through Community Networks, should be facilitated.

### III. Payment solutions

*For all forms of e-commerce, access to competitive payment solutions is a critical facilitator. Payment systems are rapidly evolving, but in most African countries, cash-on-delivery remains the preferred option for B2C and C2C e-commerce. E-commerce and its users benefit from an environment where payments are secure and can be made easily and confidently. This can involve both bank and non-bank players that are applicable to all regions and countries, and universal connectivity and interoperability.*

#### Recommendations:

**1. Create an enabling regulatory environment** led by a developmental state. Financial service providers and payment service providers should be encouraged to develop solutions that are relevant to local consumers and businesses. This will require appropriate regulations that encourage investment, innovation and ensure security. Sufficient competition in the marketplace fosters innovation and the development of tailored e-payment solutions.

**2. Promote mobile payments and other cashless solutions.** As a first step, awareness-raising programmes could highlight the benefits of mobile payments and other cashless solutions, and the hidden costs and risks associated with handling cash. In the medium-term, digital financial literacy among MSMEs will need to be improved. There is then also a need to move from mobile payments towards a focus on value creation, which encompasses access to credit, access to markets and access to business skills.

**3. Enable inter-bank money transfers and payments.** Seamless transfers and payments between banks, at both the national and international levels, make it easier to conduct e-commerce. This also attracts more consumers to the formal banking sector, as it would no longer be necessary to open accounts at several establishments.

**4. Increase interoperability among e-payment platforms.** Mobile payments and cashless solutions must be easy-to-use. Payment solutions should reduce operating costs for businesses and platforms. Enhanced interoperability will reduce friction in e-commerce transactions, increase ease-of-use for consumers and reduce costs for platform operators.

**5. Monitor developments and protect users.** To ensure that mobile money meets its potential, it is key to monitor and analysis data of the use of mobile money, account for the generational change in mobile users, and ensure data and consumer protection.

## IV. Trade logistics: transport and trade facilitation

*Well-functioning trade logistics environments and services are vital for achieving e-commerce success, domestically as well as internationally. Concrete solutions to achieve transparency and predictability of cross-border delivery times include Single Windows, cargo tracking systems and trade information portals. At the national level, the implementation of the provisions included in the WTO Trade Facilitation agreement can help achieve these objectives. For this to happen, countries need strong National Trade Facilitation Committees that are empowered to monitor e-commerce processes to detect potentials for improvements and foster further simplification. Warehouse consolidation and the exchange of data among logistics companies can help optimize transport operations. Postal services and express carriers play a fundamental role in this optimization, as well as the integration of cross-border deliveries with Customs procedures and the payment of duties and taxes.*

### Recommendations:

- 1. Strengthen systems to locate and reach individuals and businesses.** Physical addressing systems remain underdeveloped in many African countries, particularly outside urban areas, making it difficult to efficiently deliver packages resulting from domestic and cross-border e-commerce. Dealing with this issue requires a multi-pronged approach, including improving road infrastructure, developing forward-looking postal service strategies and increasing the capacity of national postal services and private sector couriers.
- 2. Streamline customs clearance.** Cumbersome cross-border procedures are an obstacle for the growth of e-commerce. Clearance of the growing volume of small parcels, which are a characteristic of B2C e-commerce, poses new challenges to Customs and other border agencies. Continued modernization of Customs procedures, through automation and digitalization of documents, is of particular importance for the shipment of small parcels across borders. Strengthening existing single window systems also helps increase efficiency and transparency, especially for MSMEs.
- 3. Support to capacity development and professionalization of the logistics sector.** Providers of logistics services, including the post, couriers and freight forwarders, need to invest in human, institutional and technological capacity building. Capacity building programmes in the areas of Customs automation, freight forwarding, and transport operations are thus particularly relevant for the e-commerce readiness of African countries.
- 4. Foster monitoring and simplification.** In view of continued technological progress and the demands of e-commerce, countries need strong systems that continuously monitor and review trade procedures. The requirement for such continued review is also among the provisions of the WTO Trade Facilitation agreement. Countries need strong National Trade Facilitation Committees that are empowered to monitor e-commerce processes to detect potentials for improvements and foster further simplification and transparency. Trade Information Portals can be a useful tool to monitor and compare processes.
- 5. Promote regional integration.** Many trade facilitation measures require collaboration among neighboring countries. In order to promote the consolidation of e-commerce shipments and the use of land- rather than air-transport for e-commerce within Africa and African RECs, ambitious regional trade facilitation programs need to be encouraged. The outcomes of the Ministerial Trade Facilitation Retreat of the East African Community that took place during the e-commerce week point in this direction, including the harmonization of procedures, transit regimes, and regional trade facilitation monitoring tools.
- 6. Support the development of e-commerce delivery solutions.** Private enterprises are beginning to develop innovative package delivery solutions, including in rural areas. Governments have an important role to play in supporting new solutions across the packaging-shipping-delivery chain of e-commerce. Support can be provided through flexible regulation. A country case comes to mind: the law limits the number of foreigners that courier delivery services can hire as drivers, but there are not enough nationals to satisfy the demand, so growth prospects are limited.

**7. Facilitate the Integration of logistics services and trade:** Postal services and express carriers play a fundamental role towards the integration of cross-border deliveries with Customs procedures and payments of duties and taxes. Trade logistics solutions and reforms need to go hand-in-hand with reforms of other e-commerce building blocks, such as payments, legal and regulatory framework, infrastructure, and skills development.

## V. Legal and regulatory frameworks

*Security and trust are fundamental to e-commerce because they reassure both consumers and businesses. It is essential for countries to establish appropriate laws and regulations related to electronic transactions including in a cross-border environment, and digitalization, consumer protection, competition, data protection and cybercrime. Frameworks need to provide standard definitions of common keywords used in e-commerce, agreed mechanisms of contract, finance and dispute resolution and enable collaboration between different regulatory authorities. Digital platforms' role and responsibility vis-à-vis consumers and businesses need to be duly considered.*

### Recommendations:

**1. Adopt baseline e-commerce legislation or update relevant laws and regulations and enforcement mechanisms.** As many African countries lack a legal framework for e-commerce, adopting baseline legislation based on international best practice is instrumental, integrating provisions regarding cross-border e-commerce. A review of existing laws and the drafting of new laws in the areas of electronic transactions, consumer protection, privacy, cybercrime, financial regulation and other areas relevant to e-commerce and the digital economy, should be undertaken to boost the confidence of e-commerce providers and consumers. In this context, African States need to pursue regional and international regulatory convergence to facilitate digital single markets, aiming to achieve technology neutral and principles-based regulatory frameworks.

**2. Build capacity of lawmakers and the judiciary.** Capacity building would help governments formulate informed policies and laws in the area of e-commerce and strengthen enforcement of such laws. Members of Parliament who adopt relevant legislation should be included.

**3. Involve the private sector and NGOs in consultations.** Multi-stakeholder consultations would help policymakers identify current regulatory constraints faced by the private sector as well as concerns voiced by civil society. Governments should avoid over-regulation that may hamper innovation and trade.

**4. Raise public awareness of existing e-commerce laws.** Sensitize consumers and businesses would increase their confidence in participating in e-commerce and the digital economy. Redress and dispute resolution mechanisms should be put in place as well as joining networks such as the International Consumer Protection and Enforcement Network (ICPEN) could be helpful to create a trustworthy environment for the development of e-commerce.

**5. Develop tax policies adapted to the digital economy.** Governments should endeavor to strike a balance between ease of collection and fairness, and to be neutral with regard to different sectors of the economy. They should encourage unregistered businesses to register to broaden the taxable base. While some governments are looking to digital service providers as a means of collecting taxes, for example, by taxing mobile money transactions or social media use, care must be taken to avoid unintended consequences arising from tax policies on entrepreneurs, small businesses and the poorest members of society.

**6. Create an institutional framework to facilitate the adoption of cloud computing and the development of digital platforms.** Cloud computing and digital platforms represent key infrastructure for the digital economy. While offering substantial benefits, especially in terms of access, policy-makers and regulators should ensure that such infrastructure is appropriately secure and does not become an avenue for anti-competitive conduct.

## **VI. E-commerce skills development**

*For e-commerce to be effective, the people managing and engaging in it need the right skills. In many parts of Africa, there is a need to enhance the awareness and understanding of e-commerce and its implications by enterprises, organizations, the government and the general public. Addressing existing skills gaps requires effective collaboration between public sector organizations, academia and the private sector. Training may need to be offered to government workers, entrepreneurs and MSMEs to help them seize e-commerce opportunities.*

### **Recommendations:**

**1. Develop appropriate strategies for the development of skills and conduct a mapping of the skills requirements and gaps for the digital age.** Countries differ in their national strategies toward the digital economy and e-commerce – and should undertake a gap analysis and adapt their strategies for the development of skills accordingly.

**2. Support entrepreneurial activities that can create e-commerce businesses adapted to the needs of and opportunities in Africa.** Prioritize co-working, mentoring spaces and exchange of ideas between research and local entrepreneurs. Support the development of business skills among entrepreneurs

**3. Adapt training on core management disciplines within tertiary education and Technical and Vocational Education and Training (TVET) programmes to the requirements of e-Commerce.** Small businesses need to master the basics of quality and process management in order to offer products and services that are tailored to the needs of online markets. They also need to be trained on specific topics in e-commerce, such as marketplaces, payments and digital marketing. New e-commerce courses should be practical and tailored to the local job market, with opportunities for hands-on training.

**4. Educate merchants and small firms on the factors that favor the development of trust online.** Clearly indicate site policy towards customers, encourage the use of customer testimonial and trust marks, secure data technologies, effective and consistent customer service.

**5. Educate consumers and merchants on the costs and benefits of cashless transactions.** Many consumers, especially the unbanked, perceive cashless transactions as risky. Educating consumers on the benefits and risks of cashless transactions would increase consumer confidence and accelerate the uptake of e-commerce. Highlighting the benefits and costs of cashless payments to merchants would also help close the trust gap. Entrepreneurs could also be trained on how to do business online.

**6. Prioritize the skills development of women and girls.** Digital literacy of women in African countries remains low, and women are underrepresented in the ICT sector workforce. Prioritizing e-commerce skills development for women and girls would help to bridge the gender divide, bring more working women into the formal sector and provide new opportunities for women entrepreneurs.



## VII. Access to financing

*A robust financial architecture that funds innovation and entrepreneurship at all points across the e-commerce value-chain is important. This requires access to adequate solutions for affordable financing. Most African countries lack reliable financial services or early stage capital/debt to start-ups and growth-oriented businesses in the e-commerce ecosystem.*

### Recommendations:

- 1. Develop tailored lending standards and products.** Lending institutions should be encouraged to adopt broader terms for evaluating the creditworthiness of e-commerce entrepreneurs and MSMEs, including women-owned businesses. For example, commercial banks could loosen the standard collateral requirement of land or buildings by also recognizing the value of receivables, inventory, export capability, technology and experience. Encourage responsible lending in regard to low-income entrepreneurs and MSMEs.
- 2. Provide financial literacy and business training.** Enhancing the capacity of MSMEs to develop bankable business plans, in line with the requirements of commercial banks and other lending institutions, can help improve access to financing. MSMEs could also be supported in upgrading their accounting, financial planning and record management systems. Invest in education in order for startups to develop and raise financiers' confidence. It is also necessary to alert vulnerable and disadvantaged consumers and small businesses to responsible borrowing and to the risks entailed by micro credit.
- 3. Increase awareness of incubators, business accelerators and venture capitalists.** Entrepreneurs and MSMEs should also be encouraged to look beyond banks and financial institutions for capital. Alternative financing models, such as public-private partnerships, innovation grants, loan guarantees, crowdfunding and venture capital should be explored.
- 4. Increase financial inclusion, including for youth and women.** Mobile money enables participation in markets and the development of businesses. This has opened up opportunities for segments of the population that typically have fewer resources and less access to financial services. Financial institutions should be encouraged, and incentivized, to provide innovative products for all segments of society, including women and youth. This would improve the financial literacy and credit standing of current and future business owners.
- 5. Create dedicated funds.** African countries and development partners should consider the adoption of policies that lead to the creation of dedicated funds aimed at providing financial support to innovative MSMEs, including capital investment grants, to help entrepreneurs secure finance for commercialization of products. They should also consider schemes for the provision to digital entrepreneurs of specialist information and expertise such as the development of business plans and investment briefs to help them secure private sector funding.

## E-commerce and women empowerment

*Improving women's access to the opportunities offered by the digital economy can help not only to bridge the gender digital divide, but also give them the possibility to earn (additional) income, increase employment opportunities and access information. This could benefit women and their families, thus enhancing the well-being of society as a whole. However, on top of the well addressed technological and economic hurdles, there are individual, legislative and cultural barriers (such as inherent gender biases), that prevent women in Africa to benefit from the opportunities offered by e-commerce and the digital economy.*

### Recommendations:

- 1. Change the current narrative.** Give attention to bringing more value through women empowerment in Africa by thinking bigger and helping women to thrive beyond the informal sector, beyond the rural areas, beyond the micro loans/initiatives and beyond subsistence level.
- 2. Go beyond the financial and technical support provided to bridge the personal development gap.** Mentoring, networking and more exposure to relevant role models can help overcome inherent gender biases, cultural norms that limit women ability to confidently start or sustain projects outside of their comfort zones, including in e-commerce.
- 3. Leverage the new network of women leaders in e-commerce in Africa.** It is important that women leaders get more visibility as role models and more opportunities to influence policy debate at national and international levels.
- 4. Bridge the data gap by using more relevant statistical frameworks.** More accurate assessment of the challenges is important to make informed policies and accurately monitor progress in the field of women in digital and economic empowerment.
- 5. Promote affirmative action.** This should aim at increasing gender inclusivity and give more women a seat at the table when decisions are made by businesses and policy makers.
- 6. Promote dialogue between policy makers, private sector and civil society for real progress on how to empower women in the digital economy.**

## Measuring e-commerce and the digital economy

*While Africa has a rapidly growing digital economy, and is at the forefront of the use of technologies such as mobile money, the availability of statistics based on which future policy-making can be informed is very limited. Improving this situation requires concerted efforts by ministries, statistical offices and development partners, including international organizations. A conspicuous and important gap exists in the availability of statistics related to e-commerce.*

### Recommendations:

- 1. At the national level, ministries and statistical offices should work in partnership to improve the access to relevant statistics.** This is important to ensure that statistics needed to support planning and policy formulation about the digital economy are collected. Traditional sources of statistics, such as household and business surveys, as well as administrative records, can provide more breakdowns of information (such as gender), and may have high coverage where a legal requirement exists to

provide such data. Governments should especially endeavor to improve their business registers, which form the backbone of sound business statistics.

**2. The international community should invest more resources into supporting African countries in their efforts to measure the digital economy.** The collection of statistics is an essential basis for evidence-based policy making. The needs of African countries should be matched by capacity building by international organizations, and adequate funding by donors. Such support needs to be sustained over time.

**3. International frameworks for measuring key aspects of the digital economy should necessary developed.** Member States and international organizations with relevant expertise should partner to develop and agree on common international definitions, concepts and methodologies for the statistical measurement of cross-border e-commerce and the digital economy, to allow better measurement of these phenomena in a way that is internationally comparable.

**4. Countries may explore diverse sources of data and tools to measure the digital economy measurement.** Potential sources include digital service providers, mobile network operators and other private sector entities. Transparency and ethics concerning the treatment of users' data are of vital importance in this context.

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*The more than 60 sessions were organized by international organizations, civil society, governments and the private sector. Beyond the nine areas covered above, many other sessions were held on specific policy issues of relevance to e-commerce and the digital economy. These included the growing role of digital market places; implications of algorithmic bias and algorithmic discrimination in the digital economy; trade policy implications of digitalization at regional and global levels; youth innovation; the role of tech hubs; employment implications and building online trust.*