



Berlin, 27 November 2017

First steps by the G20 towards the Implementation of the Roadmap Adopted 7 April 2017 in Düsseldorf

1. Improve world-wide access, adoption and effective use of digital technologies for all

Country: Germany
Responsibility: Federal Ministry for Economic Affairs and Energy
Initiative: The Digital Strategy 2025 programme

The **Digital Strategy 2025 programme** demonstrates how the Federal Ministry for Economic Affairs and Energy has been setting priorities in recent years, developing capabilities and using new tools to make a digitised Germany possible. It outlines areas that require immediate action. The strategy focuses on ten steps toward the future: (1) creating a gigabit optical fibre network for Germany by 2025, (2) assisting start-ups and encouraging cooperation between young companies and established companies, (3) creating a regulatory framework for more investment and innovation, (4) encouraging “smart networks” in key commercial infrastructure areas of our economy, (5) strengthening data security and developing informational autonomy, (6) enabling new business models for SMEs, the skilled craft sector and services, (7) utilising Industry 4.0 to modernise Germany as a production location, (8) creating excellence in digital technology research, development and innovation, (9) introducing digital education to all phases of life, and (10) creating a Digital Agency as a modern centre of excellence. The recommendations are intended not only to enable the German economy to respond to new challenges but also to ensure its leading position both in quality and technology for years to come, by combining traditional competitive advantages with the newest technology, modern methods and specific support programmes.

In particular, its objective is to demonstrate that the era of isolated solutions must come to an end. Only by working across organisations, in a network, and in a concerted effort as a community and society, will we be able to find and implement answers to questions arising in the immediate future. Businesses, unions, the scientific community, the government and a motivated public are already developing approaches and projects for the digital transformation in Germany – for [DE.DIGITAL](#). However, regarding digital infrastructure, future work opportunities, data security, future-oriented education and the legal framework, it is high time these aspects are addressed together and with goals in mind. This is a decisive imperative of a digital society – and the logical consequence is to create a connected, intergovernmental organisation – a Digital Agency.

Country: [Argentina](#)
Responsibility: Ministry of Modernization/Ministry of Science and Technology/Ministry of Education
Initiatives:
1. National Plan for Digital Inclusion (Digital Government)
2. Technology for disability
3. Educ.ar

With the objective of boosting digital inclusion in every layer of the society, the government of Argentina has launched 3 main initiatives. Each initiative targets a different population group, traditionally excluded from the digital revolution.

1. **National Plan for Digital Inclusion** has the purpose of providing the necessary skills, motivation, and confidence to use new technologies, this initiative consists of a training program organized into several work streams, including: basic Internet use capabilities development course and professional development oriented courses. Professional development courses are focused on improving employability opportunities in Internet-related jobs.
2. **Technology for people with disabilities.** One of the goals of the National Program for Social Technologies and Innovation (**PROCODAS** by its Spanish acronym) is to promote social inclusion for people with disabilities. In accordance with the 2006 Convention on the Rights of Persons with Disabilities, and through technology development and implementation, this programs aims at achieving full and effective participation in society, on an equal basis with others.

- [PROCODAS - call](#)

- [PROCODAS - program](#)

- [Technologies for Inclusion](#)

3. **School connectivity and digitized management.** Using information and communication technologies (ICT) to improve teaching and learning methods, this program provides Internet access to 48,028 public schools along the country, connecting 8 million students. [educ.ar](#)

The Digital Elementary School program aims to promote digital literacy among children. In order to achieve that, the program trains teachers in the use of ICTs in the classroom at the same time that equips elementary schools with “mobile digital classrooms” (netbooks, wireless router, printer, projector, camera, digital board, etc.). [Digital Elementary School](#)

Virtual training platform for directors and teachers is oriented to the continuous transformation of the pedagogical practices of teachers, the virtual training platform offers pedagogical resources and courses related to classroom challenges.

Country: [Australia](#)
Responsibility: Department of Communications and the Arts/Department of Industry, Innovation and Science/ Geoscience Australia
Initiatives:
1. The National Broadband Network and the Mobile Black Spot Program
2. Standards Australia participation in ISO and IEC
3. Open Data Cube
4. ANZLIC Foundation Spatial Data Framework

1. The Australian Government is removing barriers to participation in the digital economy by investing in communications infrastructure, through the **National Broadband Network (NBN) and Mobile Black Spot Program**. Research conducted by the Department of Communications and the Arts in 2016–17 indicates that for home

broadband services the rollout of the NBN is improving choice and reducing prices for regional consumers. The Government's Mobile Black Spot Program works to expand reliable mobile phone coverage and competition in outer metropolitan, regional and remote communities.

2. The Department of Industry, Innovation and Science supports **Standards Australia**, our National Standards Body, participating and leading the development and adoption of international standards to improve the interoperability of technology and improve global access and use of technologies for all.
3. Every year, new Earth observation satellites are generating increasingly significant amounts of data with global coverage. The potential of this data for addressing environmental, economic and social challenges, at local, regional and global scales is enormous. However, even today, much of this data is underutilised. **The Open Data Cube (ODC)** initiative aims to increase the impact of satellite data by providing an open and freely accessible exploitation tool, and to foster a community to develop, sustain, and grow the breadth and depth of applications. The ODC initiative builds on technologies like the Australian Geoscience Data Cube. Geoscience Australia is now implementing the ODC in Australia under the [Digital Earth Australia program](#) and is a key partner in the ODC open source development. The ODC solution will support global priority agendas, such as those found in the United Nations Sustainable Development Goals, and the Paris and Sendai Agreements.
4. Foundation spatial data is the authoritative geographic information that underpins, or can add significant value to, any other information; and supports evidence-based decisions across government, industry and the community. **The Foundation Spatial Data Framework (FSDF)** provides a common reference for the assembly and maintenance of Australian and New Zealand foundation-level spatial data in order to serve the widest possible variety of users. It delivers national coverage of the best available, current, authoritative foundation spatial data, which is standardised and quality controlled. Geoscience Australia has built [FSDF-LINK](#), an information platform that provides users with access to foundation data and information about its governance, licensing, provenance and future state.

Country: [Brazil](#)

Responsibility: Ministry of Science, Technology, Innovation and Communications (MCTIC), acting as coordinator for the entire Federal Government.

Initiative: Brazilian Strategy for Digital Transformation

The Brazilian Strategy for Digital Transformation recently submitted to public consultation and soon to be officially published, sets forth a set of strategic actions to boost national competitiveness and increase productivity within the next five years. This strategy focuses on nine key areas (or axes) for action. Five of these axes aim at providing an enabling environment for digital transformation, namely: (1) network infrastructure and Internet access, (2) research, development and innovation, (3) confidence and security in the digital environment, (4) education and vocational training, and (5) international issues. A second set of axes are at the core of the digital transformation: (6) a data driven economy, (7) a world of connected devices, (8) new business models and (9) digital transformation of government. For each axis, the strategy establishes a diagnostic of the status quo, a vision for the future, a set of strategic actions that will lead us to digital transformation, and a set of indicators to measure progress in achieving the goals.

Country: [Canada](#)

Responsibility: 1. Treasury Board Secretariat
2. Innovation, Science and Economic Development Canada

Initiatives: 1. Canadian Open Data Exchange (ODX)
2. Affordable Access

1. **The Canadian Open Data Exchange (ODX)** is a Public-Private Partnership between the Government of Canada, private sector, academic, and civil society, designed to connect those who need data with those who have data, develop tools to share data, provide training and networking opportunities, and influence policy and standards.

It is a national initiative to strengthen Canada's technology brand and accelerate commercialization. Programs offered include Civic Challenge, Ventures, Connect, and Business Ready Badge.

2. The new **Affordable Access** initiative will invest CAD\$13.2 million over five years to develop a secure, confidential portal that will help connect eligible low-income Canadians to Internet Service Providers offering low-cost home Internet solutions. It will also support the refurbishment and distribution of 50,000 computers through the Computers for Schools program.

Country: **China**

Responsibility: Ministry of Industry and Information Technology/National Development and Reform Commission/Cyberspace Administration of China

Initiatives:

1. Broadband China Strategy, Internet+ Initiative
2. National Big Data Strategy

1. Unveiled in 2013, **Broadband China Strategy and its Implementation Plan** identified specific targets, including broadband network available in both urban and rural areas; household penetration of fixed broadband to 70% and penetration of 3G/LTE service 85%; the proportion of villages with broadband network no less than 98%; the bandwidth of broadband service in urban and rural households to 50Mbps and 12Mbps respectively and some home users in developed cities 1GBps.

Guidance on the Promotion of Internet+ Initiative and other relevant documents were released to promote the integrated development of Internet+ entrepreneurship and innovation, Internet+healthcare and Internet+e-commerce.

2. **Implementation of National Big Data Strategy.** The Guidelines on Big Data Promotion were released, aiming to boost the intensive and in-depth applications of big data in multiple areas, including e-governance, finance, transportation, tourism, agriculture and industry, so as to reinforce government capability and better cater for people's needs and accelerate industry transformation.

Country: **European Union**

Responsibility: European Union

Initiatives:

1. Digital Single Market Strategy for Europe
2. Mid-term review of the Digital Single Market Strategy

1. The **Digital Single Market Strategy** (DSM) was adopted on 6 May 2015. It aims to open up digital opportunities for people and business and enhance Europe's position as a world leader in the digital economy. It is built on three pillars:

- **Access:** better access for consumers and businesses to digital goods and services across Europe;
- **Environment:** creating the right conditions and a level playing field for digital networks and innovative services to flourish;
- **Economy & Society:** maximising the growth potential of the digital economy.

The DSM Strategy includes 16 specific initiatives which have been delivered by the Commission till January 2017. Legislative proposals are now discussed by the co-legislator, the European Parliament and the Council.

The DSM can create opportunities for new start-ups and allow existing companies in a market of over 500 million people. Completing a Digital Single Market could contribute € 415 billion per year to Europe's economy, create

jobs and transform our public services. An inclusive DSM offers opportunities for citizens also, provided they are equipped with the right digital skills. Enhanced use of digital technologies can improve citizens' access to information and culture, improve their job opportunities. It can promote modern open government.

2. On 10 May 2017 the Commission published the **mid-term review of the Digital Single Market Strategy**. It shows the progress made in implementing the Strategy since 2015 and where further actions are needed. The European Commission has identified the completion of the Digital Single Market as one of its 10 political priorities.

Country: France
Responsibility: DGE (Direction générale des entreprises)/Ministry of Economy and Finance
Initiative: Société numérique, Digital Act

Société Numérique is part of the DGE and implements an action plan to promote the autonomy and the capacity of all French citizens to seize the opportunities of digital and to accompany the transition of the territories. An ambition to collaborate together for the emergence of an innovative and inclusive digital society.

Collect data and analyze the digital world

- *Aggregation of data and knowledge on digital uses, practices and expectations:* it aggregates existing data and surveys carried out by the Digital Agency with third parties.
- *Analyzing digital issues:* beyond the aggregation of data, we give rise to the publication of analyzes and news articles to understand and make more intelligible the knowledge on the digital. It will have a dual international and territorial dimension.

Digital mediation

Société numérique also supports the “**APTIC check**”, a project led by the Aquitaine referent of digital mediation (Médias-Cité), with the objective of generalizing these checks (or vouchers) during 2017. The objective is to meet the needs of training of citizens (individuals, employees, associations) by creating a link between the actors of digital mediation offering accompanying actions (third parties) and the funders of these actions. Three objectives will be pursued:

- Offer partial or total support for the digital accompaniment services offered to citizens with a priority given to accompanying the dematerialization of public services;
- Strengthen the capacity and capacity of digital mediation structures to meet the growing expectations and needs of citizens;
- Provide a map of digital mediation services to enhance the visibility of citizens on service delivery, gathered within a single national network.

Right to maintain Internet connection

Passed in 2016, the **#DigitalAct** introduced the right to maintain connection for the most deprived persons in case of default. Their Internet connection will thus be maintained by their service provider during the time of the instruction of their request for assistance with the departmental services.

Country: **India**
Responsibility: Ministry of Electronics and Information Technology (MeitY)/Department of Telecommunications
Initiative: Digital India Programme

Digital Economy has emerged as the key driver for global economic growth with integration of Data-driven technologies into every sphere of human activity. At the heart of this paradigm shift is the rapid proliferation of digital connectivity between human and devices. Global improvements in Internet connectivity have shown humungous potential to bridge the digital divide, empowering and improving the quality of life of citizens worldwide. In this digital era, India remarkably stands at an advantageous position, enjoying the dual competitive advantage due to its demographic dividend as well as its multi-lingual and multi-cultural society. Be it education, health, women empowerment or judiciary India believes that effective application of digital technologies provide ample opportunities for it to leapfrog and emerge as a key global player in digital economy. **Digital India Programme** with a vision to transform India into a digitally empowered society and a knowledge economy and combining it with initiatives such as Make in India, Start-Up India, Skill India and Digital Payments are the key drivers for this digital economy. The coming into effect of landmark Goods and Services Tax (GST) in India will also push the small-to-medium businesses to digitize and make them more transparent. In short Digital India is well poised for transforming governance and creating an equitable, inclusive and empowered society using Digital Technologies.

Digital India has also laid a robust foundation for India to embark on Digital Transformation. Programmes like AADHAAR, JAM Trinity (Jan Dhan Accounts, AADHAAR and Mobile), BHIM, eSign, Digital Locker, Aadhaar Enabled Payment System (AEPS) are now able to connect and empower our society in a way not conceivable earlier. Whereas, 1.17 Billion people including 99% of adults now have a unique digital identity called AADHAAR, there are more the 1 billion Mobile users and also 1 billion bank accounts. The combination of the three is being leveraged for bringing transparency, accountability and efficiency in various government schemes and programmes directly impacting the life of common man.

Increased use of Digital Payments in recent times will bring in transparency and accountability and will also reduce friction in economy and spur economic growth. The manifold growth in various forms of digital payments exhibits people's endorsement of this programme. Digital payments in India have increased from 4 Million transactions to over 10.5 Million transactions per day in last 9 months.

250,000 Common Service Centres (CSCs) as Digital kiosks to provide services to citizens in rural areas is being implemented through public-private partnership. CSC is a unique PPP model where micro-entrepreneurs are creating sustainable livelihoods and bringing digital revolution in the villages of India. While initially Government subsidized these initiatives, but as Digital India started to grow these CSCs are now fast becoming economically viable. More than five to seven hundred thousand rural youth have secured employment through these kiosks and providing more than 300 digital services to rural areas.

Country: **Indonesia**
Responsibility: Ministry of Communication and Information Technology/Ministry of Transportation/
Ministry of Cooperative and SME Financial Services Authority
Initiatives:

1. National Movement for 1000 Digital Start-ups
2. A Nexicorn Program to Promote and Match-making Indonesia's "Missing-Middle Digital Start-up" to Investors
3. Opening and Scaling Up MSMEs through Online Marketplace
4. On-boarding 8 million MSMEs into E-commerce platforms by 2020, Joint Program of Indonesian Postal Service and Nurbaya Initiative.
5. Opening and Creating More Jobs from Transportation on Demand Services.
6. Enabling Branchless Banking with Agent "LakuPandai"

1. **A National Movement for 1000 Digital Start-ups** is an initiative which aims to create 1,000 high-quality digital start-ups by 2020 that focus on providing concrete solutions for real problems by leveraging digital technology and the large base of Internet and smartphones uptake. The incubation and development of Innovative Digital

Economy Business Models is the significant steps to create a huge impact in improving wealth distribution. A research by Al-Mubarak, H.M., and Busler, M., in 2016 provides insightful evidence on the benefits of start-up incubation capable for creation of 2,179 jobs in a designated region. This indicated the potential economic impact from a focused and well-structured start-up incubation program.

Through the setting-up of a host platform and initiation system for start-ups, the 1000 Digital Start-ups Initiative acts as a creator for innovative digital business models to eventually produce streamline of champion technopreneurs succeeding and excelling at a larger geographical footprint. The lasting impact of this far reach beyond boosting the number of start-ups built in this country, but it is also expected to build qualified digital companies that directly lead the enablement of sharing economy and workforce digitalisation, which ultimately contribute in narrowing the prevailing gap in wealth and income distributions.

With the aim of fostering the incubation and development of various Digital Economy business models, the 1000 Start-up Digital program has been rolled out in 10 major cities in Indonesia. As per October 2017, the 1000 Digital Start-ups Initiative has attracted more than 28,300 registered participants and enrolled more than 112 start-ups currently in incubation phase. Through the program, various start-up models, ideas for incubation, and sector-specific innovation issues were addressed.

In the agricultural sector, start-ups such as Milikita, OKE Garden, Kandang.in, Shushi, Pasarbumi and Kopitani provide solutions to connect local farmers with processing centers or directly with consumers. The solutions allow farmers to channel their fresh harvest to the intended value chain destination more seamlessly, timely, practically, and conveniently than ever before. By having new ability for direct selling of their products, the farmers have the opportunity to gain greater profitability from such direct selling approach. This example of business model could provide significant improvement for more than 26 million households in Indonesia with farming as their main source income.

Digital start-ups are also capable of increasing and distributing the number and value of skilled professionals. Roosak, Panggilin and Servond are start-ups that offer platforms to connect professional repairman and maintenance professionals directly to people seeking for such services. The solutions bring their previously offline business to online, thus improve the visibility and reachability to new base of customers. With greater access, repairmen and maintenance professionals now gain new competitive advantage and chance for stable and improvement of income.

We need to support the process of scaling up the number of qualified start-ups that directly lead the enablement of sharing economy and workforce digitalization, which ultimately contribute in narrowing the prevailing gap in wealth and income distributions. This case study to foster the incubation and development of various digital economy business models as enablers for sharing economy for addressing the need for reducing wealth and income disparity (Roadmap point 1.5).

2. **The Next Indonesian Unicorn**, or simply known as **Nexicorn**, is a project designed to scale up more high-growth Indonesian digital start-ups. Over the past year, Go-Jek, Traveloka, and Tokopedia have been the prime examples of Indonesian start-ups to have surpassed a billion dollars valuation and consequently defined their status of Indonesia's own Tech Unicorns. Top global Venture Capitals such as Tencent, Softbank, Sequoia, Expedia, and Alibaba are among the foreign investors behind them.

A research has concluded that high-growth companies can contribute to the creation of up to 50% of new jobs. The expansion of such employment opportunities also encourages growth in connected industries, subsequently creates further new jobs in new locations. Indonesia has the largest archipelago landscape in the world, which presents enormous challenges for equality of access, promotion and opportunities for social economic mobility. Recently, the country has witnessed growth of digital start-ups in both large and smaller cities. The government identified this opportunity to overcome challenges to attain socio-economic growth by scaling up middle-low growth companies through investment in their business models.

Go-Jek and Tokopedia are companies that already showed their business models have been beneficial for people by creating more channels to distribute MSMEs products, to provide professional services such as masseurs,

mechanics, hair-stylists, and cleaning services. These business models will help people to gain benefit and increase the income opportunity. Based on this experience, the government created the Nexicorn Program to speed up the scaling up process of innovative business models which identified have impact to reduce the wealth gap distribution by connecting and engaging them with foreign investors to provide such follow-on funding. While funding comes relatively easy for early stage Indonesian start-ups, evidently, they tend to experience successively tougher challenges to raise follow-on money.

The committee for Nexicorn project is formed jointly between the Government and several prominent institutions. This committee will highlight and actively assist the well-selected Indonesia's digital start-ups, to access foreign investments. The committee hosts series of events to promote the Indonesian technology investment climate and introduce the most investable start-ups to serious potential investors such as VCs from various foreign markets.

To be selected in Nexicorn project, digital start-ups must currently be in their Series B fundraising stage and have proven potential for creating larger impact in wealth and economy through the enablement of sharing economy and workforce digitalisation in Indonesia. Tanihub is an example of a participating start-up focusing on agriculture e-commerce and crowdlending platform that connects farmers directly to individuals and businesses. TaniHub operates in blue-ocean sector of Indonesia's rural agriculture, which predominantly still only involve the lowest forms of technologies. Their solution aims to eliminate inefficient supply chain and expand the market access for farmers as an approach to improve their livelihood.

Only three months upon its initiation, the Nexicorn project already had a couple of successful events worth noting. On September 2017, the Nexicorn project hosted the first investment event through coordination with the Japan External Trade Organization (JETRO) to gather upwards of 90 Indonesian start-ups, that have already secured their Seed Stage and Series A rounds with 12 Japanese Venture Capital firms. For a number of the Japanese investors the event became the very first opportunity to closely assess the potential of Indonesian start-ups, while others already had the experience of investing in the Indonesian market. The event was immediately followed up on in October 2017 with an investment roadshow to top Venture Capital firms based in Silicon Valley. Go-Jek, Tokopedia and 14 promising start-ups participated on the event which also served as the opportunity to discuss updates on the latest Indonesian digital ecosystem landscape, potential, challenges and Government policies to help easing the concerns of foreign investors.

The presence of innovative business model has been providing a proven impact and benefiting to more people. To create more opportunity and benefits from various innovative business models, we need to support the process of creating new start-ups and scaling up the number of qualified start-ups that directly lead the enablement of sharing economy and workforce digitalisation, which ultimately contribute in narrowing the prevailing gap in wealth and income distributions.

We need to support the process of creating more opportunity of qualified start-ups that directly lead the enablement of sharing economy and workforce digitalization, which ultimately contribute in narrowing the prevailing gap in wealth and income distributions. This case study to foster the incubation and development of various digital economy business models as enablers for sharing economy for addressing the need for reducing wealth and income disparity (Roadmap point 1.5).

- 3. Opening and Scaling up MSMEs through Online Marketplace** is the initiative to enable the ideal digital business platform to attract and create new entrepreneurs and businesses, including those operating from rural areas, which proved to be beneficial for the improvement of people regardless of their socio-economic background. More than 50 million MSMEs in Indonesia employ more than 101 million people. Contributing to the generation of almost 60% of the national GDP, most MSMEs however have remained unbanked or underserved and with limited or no access to nor competencies in utilizing digital technology for improving their respective product and services offerings.

In reality, most of MSMEs are unable to develop their business further due to limitation to market access. Traditional MSMEs in Indonesia are highly reliant on their business location. Capital and operation costs combined

with challenges of middlemen, logistics and distribution restrict their market coverage. Innovative business model such as online marketplace platform presents greater business, commercial and transactional opportunities for MSMEs. The platforms allow merchants to conduct business for selling and purchasing.

Successful online marketplaces present the capacity to induce greater business, commercial and transactional opportunities for MSMEs. They could also serve as the conduit for the creation and emergence of new business models and inventive product and service categories. Accordingly, the public and private sectors should collaborate further in devising practical and wide-reaching shared economy business models to encourage greater participation by the unbanked and underserved sections of the population, particularly those disenfranchised by geographical, educational, and financial disparity. Online marketplace focusing on the MSMEs segment could serve as the ideal digital business platform to attract and create new entrepreneurs and businesses, including those operating from rural areas, which proved to be beneficial for the improvement of people regardless of their socioeconomic background. Upon learning the impact of online marketplace platform, the government has swiftly moved to facilitate intermediation and matchmaking events between online marketplace platforms and their stakeholders with aim to accelerate the adoption of innovative business models.

Tokopedia is the largest online marketplace platform in Indonesia. The success of Tokopedia is attributed to enabling 2.3 million merchants in 4,700 districts, including MSMEs, to sell 69 million products directly to millions of buyers in 5,700 districts in 35 provinces in Indonesia. Evidently online marketplace platform is able to empower MSMEs to greatly extend their visibility and reachability to new customers at previously unreachable areas. MSMEs are then able to come out from their local market to access nationwide market. While the platform attracts more MSMEs primarily for the promise for enhancement of wealth, they also serve as the conduit for the creation and emergence of new business models, as well as invention of new products and services. This is a testament to the effectiveness of sharing economy business models in inducing market, products, and services innovation, development, and expansion of business, in particular with regards to empowerment of MSMEs.

We need to support the process of creating more opportunity of qualified start-ups that directly lead the enablement of sharing economy and workforce digitalization, which ultimately contribute in narrowing the prevailing gap in wealth and income distributions. This case study to foster the incubation and development of various digital economy business models as enablers for sharing economy for addressing the need for reducing wealth and income disparity (Roadmap point 1.5).

The marketplace business models have impact to attract and create new entrepreneurs and businesses, including those operating from rural areas, which proved to be beneficial for the improvement of people regardless of their socio-economic background. The government does movement to facilitate intermediation and matchmaking between platforms and their stakeholders with aim to accelerate the adoption of innovative business models. And this case study to foster the adoption of various digital economy business models as enablers for sharing economy for addressing the need for reducing wealth and income disparity (Roadmap point 1.5).

4. **On-boarding 8 million MSMEs into E-commerce platform by 2020** is a program to empower MSMEs to greatly extend their visibility and reachability to new customers at previously unreachable areas. Indonesian Postal Service and Nurbaya Initiatives have collaborated in developing an E-commerce “on-boarding” with the aim to rapidly embed MSMEs in rural areas into compatible and beneficial Digital Economy business models.

Indonesian Postal Service or better known as PT POS is an organization that was first formed in 1746 during the Dutch colonial era in Indonesia. Given its conventional postal delivery mandate, it is almost inconceivable that such an archaic organization can be revitalized to partake in the rapid improvement of the digital economy framework of the nation. As a state-owned company, PT POS has partnered with a start-up called Nurbaya Initiative to begin a national “onboarding” of the underserved and unbanked MSMEs in rural area directly into e-commerce space.

The competitive advantage of PT POS is the unrivaled geographical reach and coverage of its 30,000 postal workers across the 17,000 islands far-flung across the Indonesian archipelago. It is certainly reflective of their reach, albeit anecdotal, that there are still postal service workers riding horses to send mails and packages in Indonesia due to poor road access and lacking in logistics infrastructures.

Today, these postal service workers are being trained and equipped by application created by the Nurbaya Initiative, equipping them with familiarity with digital applications, and enabling them create online stores for MSMEs clients within less than 10 minutes. The objective is for these postal service workers to begin “onboarding” MSMEs’ products and services in their respective areas directly into leading marketplaces like Tokopedia and Bukalapak, thus, empowering the rural MSMEs to actively trade and transact on the digital platforms. This model even allows MSMEs with no digital connectivity to be involved, since all online operation will be managed on turnkey format by Nurbaya Initiative and PT POS.

By the end of February 2017, 8,000 of the postal service workers are estimated to already be equipped with the Nurbaya’s apps, and efforts are currently underway by both parties to inject more than 8 million MSMEs into this digital ecosystem within the next four years. It is expected that by March 2017, over 100,000 MSMEs will enter digital space for the first time, with most of them achieving this milestone even before they ever touch their first personal computer. The implementation of this digital economy accessibility model for these MSMEs will certainly improve Financial Inclusion, through the adoption of digital payment capability into the platform. Others similar efforts are currently underway involving both the public and private sector in cultivating and incubating the development of other robust and effective Digital Economy business models for the uplifting of the welfare and wellbeing of the underserved and disenfranchised, hence, the increasing of economic and financial equality.

The World Bank estimates that, by engaging its SMEs digitally, Indonesia potentially can increase its GDP by 2%. That would represent a massive migration of the traditional and offline SMEs into the digital space with equally massive financial inclusion benefits.

The onboarding MSMEs into E-Commerce platform has impact to attract and create new entrepreneurs and businesses, including those operating from rural areas, which proved to be beneficial for the improvement of people regardless of their socio-economic background. The government does movement to facilitate intermediation and matchmaking between platforms and their stakeholders with aim to accelerate the adoption of innovative business models. And this case study to foster the adoption of various digital economy business models as enablers for sharing economy for addressing the need for reducing wealth and income disparity (Roadmap point 1.5).

5. **Opening and Creating More Jobs from Transportation on Demand Services** by adopting innovative business models to allow their customers to attain greater productivity, empower the Indonesian informal sector and expand the business and market capacity of SMEs.

GO-JEK is often referred to as the Indonesian version of Uber, utilizing motorcycle drivers to complete a variety of services. Originally started in 2010 as a ride-hailing app that has since expanded to different verticals including: food and grocery delivery, goods delivery, payment, ticket sales, lifestyle (massage, clean, automotive services, and cosmetics). Armed with a mobile application and a smartphone, GO-JEK drivers now have the opportunity to respond to real-time orders at various originating and enroute locations by transporting not only passengers, but also goods courier, shopping transactions, food and services delivery.

Ojek is Indonesia’s popular motorcycle-based transportation service. Ojek is an informal form of transportation service and traditionally Ojek drivers would wait for passenger at an Ojek station in a fixed location. More often, an Ojek driver would deliver a passenger to the intended destination and then return to the station in strong possibility without any passenger, thus the prospect for 1-way fare for each trip. The allocation of Ojek drivers to their passengers was highly inefficient and the motorcycles were underutilized.

The basic solution to move the way to order Ojek from offline to online is a simple business model, yet it generates a significant impact for riders and customers. Armed with a mobile application and a smartphone, Ojek drivers can respond to real-time orders at various originating and enroute locations. One of the good examples of how transportation on demand service is able to create a remarkable impact and drive the shifting value of an Ojek driver is GO-JEK. Ojek drivers are now transporting not only passengers, but also delivering packages,

take-away food and shopping for groceries. Go-Food, GO-JEK's food delivery service is now the largest food delivery service in Asia outside China.

In 2016, GO-JEK has fully transformed their business from a pure ride-hailing to full on-demand services provider ecosystem. The transformation allows their customers to attain greater productivity, empowers the Indonesian informal sector and expands the business and market captive of SMEs. By July 2017, the GO-JEK application has been downloaded for more than 50 million times and the service now operates in 50 cities throughout Indonesia.

The big ecosystem of GO-JEK now involves more than 400,000 driver partners, 30,000 talent partners for lifestyle services, and 100,000 partners for food services. With 530,000 workers relying their livelihood on the platform and assuming three dependents on average for each to be factored in, this innovative business model has affected more than 1.5 million of the Indonesian population.

GO-JEK has evolved to become an integral part of the daily activities and lifestyles of the ever-growing customer base. At the other end, the function of the platform is even more critical for the hundreds of thousands of Ojek drivers, restaurant and shop owners as well as skilled professionals whose respective market captive have now expanded from a single location to the entire city.

A survey conducted by Center of Communication Studies of the University of Indonesia concluded that 85% of Ojek drivers are junior to senior high school graduates, the education background with the highest unemployment rate in Indonesia. The successful business model of GO-JEK is able to create alternative access for employment for these segments of workers. The survey also concluded that 70% of them have the confidence that GO-JEK will continue helping to improve their economic livelihood.

As an innovative digital business model, GO-JEK demonstrated successful transformation for a significant number of workforce previously lodged in the traditional business model and the informal economy segment to become technologically enabled entrepreneurs through effective digitalisation model. The business model emphasizes on people empowerment through an improvement of digital skills and literacy of the workforce. The increase of income experienced by the partners of GO-JEK also presented evidence how workforce digitalisation could directly help to reduce inequalities in the society.

The transportation on demand on-line services has impact to attract and create new entrepreneurs and businesses, including those operating from rural areas, which proved to be beneficial for the improvement of people regardless of their socio-economic background. The government does movement to facilitate intermediation and matchmaking between platforms and their stakeholders with aim to accelerate the adoption of innovative business models. And this case study to foster the adoption of various digital economy business models as enablers for sharing economy for addressing the need for reducing wealth and income disparity (Roadmap point 1.5).

6. **Enabling Branchless Banking with Agent "Laku Pandai"** is a program to simplify the KYC requirements for saving account opening from 17 to 5 data points and optimizing the use digital platform to provide the easiness of banking transaction for society in rural areas.

In 2014, access to financial services in Indonesia is considered low compared to other Asian countries; the number of the Indonesian adult population with access to formal financial services is only 36%. (World Bank, 2014). The percentage means 64% of adults in Indonesia do not have any bank account – banks called them the unbanked. Most of them are farmers, fishermen, micro traders, blue-collar workers, informal workers, students and housewives. Based on various researches, we also know that if Indonesia mobile phone penetration is 92%, only 53% of the population own a smartphone, and 65% have broadband connection and only 31% of more than the 60,000 villages in Indonesia have a strong cellular signal.

To foster financial inclusion, in 2015 the government introduced two new critical rules which had made financial inclusion program possible. First, it simplified the KYC requirements for savings account opening from 17 to 5 data points. It also allowed other proofs of identification (driving license, family card, or other form of ID). Secondly,

it allowed banks to recruit agents. These agents, known as “Laku Pandai”, are selected people from local communities who have a high reputation of being credible and trustworthy to act as middlemen bridging the people from rural areas with the bank. This model is very suitable to be implemented in Indonesia, especially with the geographical conditions of archipelago with thousands of islands.

The policy adopted and improved by utilizing the digital technology. One of the banks in Indonesia released a product which is called “**BTPN Wow!**”. It is a mobile USSD-based initiative that works with basic phone and one-bar cellular signal. Currently “BTPN Wow!” customers are able to save money and withdraw cash via agents. Using their own mobile phones, they can transfer money to any bank account or mobile phone number, pay utilities bills, buy train ticket, buy prepaid electricity, airtime. Soon they would also be able to apply for loan, buy insurance, access to capacity building information.

BTPN also works with an e-commerce aggregator start-up, to enable BTPN “LakuPandai” agents to become real ecommerce agents. This would provide an additional income opportunity for the agent, on top of the commission they get from “BTPN wow! LakuPandai” product. BTPN Wow! has acquired around 3.2 million customers and around 180,000 agents. For this on-going initiative, BTPN has been ranked amount the top 50 of Fortune’s Magazine’s list of companies that are changing the world.

By creating and adopting innovative business model for banking process, government can be more optimistic to reach the goal of financial inclusion as one of the key for economic development. Financial Inclusion is also widely recognized not only to help low-income people manage risk and absorb financial shocks, but also to create a foundation for sustained and inclusive economic growth by developing more job creation and opening more access to deliver government programs in reducing the wealth disparity.

This program proves to be beneficial for the improvement of people regardless of their socio-economic background and to foster the adoption of various digital economy business models as enablers for sharing economy for addressing the need for reducing wealth and income disparity (Roadmap point 1.5).

Country: Italy

Responsibility: Ministry of Economic Development

Initiatives:

1. WiFi°Italia°It project
2. 5G in 5 Cities Initiative

1. In July 2017, a nationwide project, the **WiFi°Italia°It** project, has been launched aiming at allowing citizens and tourists, both Italian and foreign, to connect in an easy way to a free-of-charge and widespread WiFi networks throughout the country. This is possible by using an app for mobile devices that allows each user to transparently and promptly access to the federated WiFi networks present on the territory and to enjoy connectivity as well as the contents and services of the tourism ecosystem. The project consists of two different phases. Phase 1 has already started and now the network consists of more than 500 APs located in 8 different regions. The number of APs federated to the central management systems is continuously growing thanks to ad hoc agreements with local and regional administrations. Phase 2 will start at the end of 2017, characterized by the development of the digital services for citizens and tourists.
2. In June 2017, Italy assigned the use of frequencies in the 3.7-3.8 GHz band to begin deploying **5G infrastructures and services in 5 cities in 2018**, in particular in the metropolitan areas of Milan, Prato, L’Aquila, Bari and Matera. These cities were selected on the basis of the following criteria: geographic distribution, capillary action of ultra-fast connectivity, availability of sufficient frequency band in the 3.7 to 3.8 GHz interval, proximity to the European corridors. In addition to the cities selected on the basis of these criteria, L’Aquila and Matera have also been identified: the first one because of its post-earthquake reconstruction phase, the latter thanks to being the 2019 European Capital of Culture. Following the established road map, experimental 5G networks where to test enhanced services will be available by the end of 2017/beginning of 2018. The total number of citizens that will be affected amounts to around 1.8M.

Country: [Japan](#)
Responsibility: Ministry of Internal Affairs and Communications
Initiative: Playbook for Investment in “Quality ICT Infrastructure”

ICT has become an indispensable tool for social and economic activities, and it is also an infrastructure that promotes sustainable and inclusive economic and social growth. Various stakeholders are making efforts toward ICT infrastructure improvements so that all people throughout the world will be able to enjoy the benefits of ICT infrastructure. Among them, the idea that it is necessary to consider the quality of ICT infrastructure (in addition to the quantity) is widespread in order for the ICT infrastructure to contribute to the resolution of social problems of the nation or region and to lead to the sustainable development of the economy and society.

“Quality ICT Infrastructure” may first appear costly. However, since it is easy to use and durable, “Quality ICT Infrastructure” is indeed cost-effective in the long run, contributing to economic development and social problem solving.

At the G7 ICT Ministers’ Meeting in Takamatsu, Kagawa in April, 2016, it was included in the Opportunities for collaboration that “Japan welcomes collaboration on initiatives to promote quality ICT infrastructure and share information on its development and deployment”. In response to this, “International symposium on ‘Quality ICT Infrastructure’” was held in March, 2017. In that symposium, the Ministry of Internal Affairs and Communications (MIC), Japan announced that it was formulating a playbook regarding investment in “Quality ICT Infrastructure”.

The playbook seeks to provide the basic concept of “Quality ICT Infrastructure”, useful suggestions and best practices to develop “Quality ICT Infrastructure” for ICT policy makers, procurement managers, and personnel in charge of ICT infrastructure.

We hope this playbook will accelerate various efforts of stakeholders around the world to develop “Quality ICT Infrastructure” which contributes to sustainable and inclusive economic and social growth. The playbook will be reviewed in the future on a timely basis.

Country: [Korea, Republic of](#)
Responsibility: Ministry of Science and ICT
Initiative: Mid- to Long-Term Master Plan in Preparation for the Intelligent Information Society*

Under its national informatization plan and programs, Korea has established world-class ICT infrastructure and successfully enhanced the competitiveness of its national economy through the convergence of industries and ICT. Intelligent Information Technology (Intelligent IT), however, is expected to transform the economic and social structures of the country profoundly. [Mid- to Long-Term Master Plan in Preparation for the Intelligent Information Society: Managing the Fourth Industrial Revolution](#), announced in December 2016, is to make forecasts regarding the innovations that will be made in the next generation, and tailor the country’s strategic responses accordingly. (preface and p.3)

National vision through the Master Plan is “Realizing a Human-Centered Intelligent Information Society” with corresponding roles and responsibilities of major stakeholders such as business, citizens, government, and research community. More specifically, there are three policy aims for Intelligent Information Society. (p.26)

First, Establishment of world-class infrastructure of Intelligent IT. It is to develop and foster data and network infrastructure with which Korean businesses can develop their own innovative technologies, thereby enabling them to secure leading positions in the global market. All objects should be designed to generate and transmit data through a nationwide connected network so that data can be gathered, stored, and utilized effectively. (p.30)

Second, Promotion of the application of Intelligent IT to all industries. It is to apply Intelligent IT to public services and the entire private sector to enhance productivity, efficiency, and national competitiveness. As a partner in private-sector innovation, the government should encourage greater private-sector investment by first setting an example for the application of Intelligent IT to public service, reforming regulations, and providing related test beds and ecosystem. (p.31)

Third, Proactive steps toward reforming and strengthening the social support system. Intelligent IT has the potential to significantly increase the convenience and safety of people’s everyday lives; however, it could also threaten job security, intensify socioeconomic polarization, and increase the risk of hacking and cyber-crimes. It is to reform and tailor education, employment, and welfare services in response to changes in order to ensure that all citizens are able to enjoy the benefits of the intelligent information society. (p.32)

* An intelligent information society is a society in which new value is generated and progress is achieved through the application of intelligent information technology (Intelligent IT) – backed by the generation, collection, and analysis of massive volume of data by cutting edge ICTs – to every aspect of economy, society and human life

Country: Mexico

Responsibility: Coordination of the National Digital Strategy/Ministry of Communications and Transports

Initiatives:

1. The National Digital Strategy
2. Mexico Conectado

1. On June 10, 2013, the President of Mexico enacted the Decree to amend the Mexican Constitution concerning Telecommunications and Economic Competition. This reform encourages competition and investment in the sector and stipulates that the state have the obligation to guarantee Mexicans’ right of access to Information and Communication Technologies (ICTs). In order to enforce this right, it was present in the **National Digital Strategy**, a document that guides the actions and policies required to bring ICTs to the population. The goal is to incorporate these technologies into the everyday lives of people, businesses and government.

The Strategy sets out the challenges Mexico faces in the digital context and the way it will cope with them through five major objectives: 1) Government Transformation, 2) Digital Economy, 3) Quality Education, 4) Universal, Effective Health, and 5) Public Safety. The main purpose of the Strategy is to achieve a Digital Mexico in which the adoption and use of ICTs will maximize the economic, social and political impact on the quality of life. Furthermore and derived from the established right of access to information and communication technologies.

2. **“Mexico Conectado”** is a project of the Government of the Republic that helps to ensure the constitutional right of access to broadband Internet service (article 6 of the Constitution). The Ministry of Communications and Transports and the Coordination for the Information and Knowledge Society has deployed telecommunications networks that provide connectivity in public spaces such as schools, health centers, libraries, community centers and parks, in the three government levels: federal, state and municipal.

The México Conectado programme could involve local levels of government to increase the take-up and use of the connected sites and to create co-funding options where municipalities pay a share of the costs. The shares of municipalities’ contributions could be defined based on income levels. Although such an approach was ineffective in the initial year of México Conectado because the municipalities did not always have long-term resources available, mechanisms could be designed to enhance their involvement in infrastructure projects. This would enable the government to use federal resources in a more efficient manner and concentrate efforts in poorer areas to overcome significant regional disparities in the country.

In addition, effective mechanisms should be put in place to monitor and optimise the performance of devices and installed Internet connections in a more expeditious manner. This is critical to ensure that operators deliver the quality of service levels specified in the contracts. Performance measures should be made public on the website of the México Conectado programme. Furthermore, enhanced consultation with communities would improve the location of the points of presence, and should be a requirement for suppliers when installing sites.

Through “Mexico Conectado”, increasingly more students and teachers have access to broadband at their schools or universities; even more doctors and health officials have connectivity at their clinics or health centers. In order to do so, each state of the Mexican republic follows a 5-stage process that consists of:

- I. *Establishment of a state coordination Board*: This Board defines the universe of sites and public spaces to be connected within its territory and their specific needs. In addition, the Board is responsible to coordinate the different entities and actors involved.
- II. *Planning*: Complete the inventory of public sites to be connected; define the minimum field of broadband required and validation of the information in the field.
- III. *Bidding process*: Design and execution of the bidding process
- IV. *Implementation*: Deployment of networks to provide connectivity
- V. *Operation*: Monitoring of the use and leverage of connectivity

The project benefits aim to diminish the digital breach, in order to avoid the deepening of social inequities in the country, economize public resources and leverage established infrastructure of other sectors, existing technological resources and investments previously granted.

Country: **Russian Federation**

Responsibility: The Government of the Russian Federation

Initiatives: The Concept of long-term socio-economic development of the Russian Federation for the period up to 2020 (amended by decree of the Government of the Russian Federation dated 10.02.2017 No. 172) (hereinafter – the Concept) was approved by the order of the Government of the Russian Federation dated 17.11.2008 Nr. 1662-p.

The **Strategy of information society development in Russian Federation to 2017 – 2030**, approved by Decree of the President of the Russian Federation dated 09.05.2017 No. 203.

- <http://base.garant.ru/194365/>
- http://economy.gov.ru/minec/activity/sections/fcp/rasp_2008_N1662_red_08.08.2009
- <http://government.ru/info/6217/>
- <http://www.kremlin.ru/acts/bank/41919>
- <http://www.garant.ru/products/ipo/prime/doc/71570570/>

The concept is a strategic document of the Russian Federation, defining the goals of sustainable development, as well as ways and means of ensuring sustainable improvement of the welfare of Russian citizens, national security, dynamic development of economy, strengthening Russia's position in the world community.

The concept determines the strategic reference points of long-term socio-economic development, including:

- high standards of human well-being;
- social wellbeing and harmony;
- the economy of leadership and innovations;
- balanced spatial development;
- economy, competitive at the global level;

- institutions of economic freedom and justice;
- security of citizens and society.

The concept sets stages of the innovation development and the main directions of development, objectives and implementation in tune with the SDGs.

Country: [South Africa, Republic of](#)
Responsibility: Department of Telecommunications and Postal Services
Initiative: 1. National Development Plan, 2030
 2. National Integrated ICT White Paper Policy

1. The **National Development Plan** affirms that a “single cohesive National e-Strategy is essential to ensure that diffusion of Information, Communication and Technology (ICTs) in all areas of society and economy” must be realized by 2030. The vision of the National Development Plan is “by 2030, ICTs will underpin the development of a dynamic and connected information society and a vibrant knowledge economy that is more inclusive and prosperous. A seamless information infrastructure will be universally available and accessible and will meet the needs of citizens, business and the public sector, providing access to the creation and consumption of wide range of converged services required for effective economic and social participation – at a cost and quality at least equal to RSA’s main peers and competitors.” The main purpose is to reduce spatial exclusion, enabling seamless participation by the majority in the global ICT system, not simply as users but as content developers and application innovators.”
2. **The National Integrated ICT White Paper Policy objectives** further emphasizes the need for digital transformation of public services, increase digital access, and special provision for digital inclusiveness.

Country: [United Kingdom](#)
Responsibility: Digital, Culture, Media & Sport/Government Digital Service
Initiatives: 1. Digitalisation and support for business
 2. Digital Civil Service

1. The UK’s global competitiveness will increasingly depend on not just a flourishing digital sector, but on all our businesses using the best digital technology and data to drive innovation and productivity. We need to help all businesses become as productive and competitive as those who are in the vanguard: adopting digital technologies will be crucial to this. To make sure businesses have the knowledge and means to access this technology, we will work to focus existing initiatives, and plug gaps where there are specific challenges. On top of the skills and infrastructure improvements already outlined, at Autumn Statement 2016 we announced £13 million funding to create a private sector-led Productivity Council. The Council will drive engagement to improve productivity across the economy, including through appropriate use of digital technologies. We want to help more UK businesses export, including by negotiating preferential rates with a number of e-marketplaces that are exclusive to government-referred clients.
2. From personalised services in health, to safer care for the elderly at home, to tailored learning in education and access to culture – digital tools, techniques and technologies give us more opportunities than ever before to improve the vital public services on which we all rely.

The UK is already a world leader in digital government, but we want to go further and faster. The new **Government Transformation Strategy** published on 9 February 2017 sets out our intention to serve the citizens and businesses of the UK with a better, more coherent experience when using government services online – one that meets the raised expectations set by the many other digital services and tools they use every day. So, we will continue to develop single cross-government platform services, including by working towards 25 million [GOV.UK](#) Verify users by 2020 and adopting new services onto the government’s GOV.UK Pay and GOV.UK Notify platforms.

We will build on the ‘Government as a Platform’ concept, ensuring we make greater reuse of platforms and components across government. We will also continue to move towards common technology, ensuring that where it is right we are consuming commodity hardware or cloud-based software instead of building something that is needlessly government specific.

We will also continue to work, across government and the public sector, to harness the potential of digital to radically improve the efficiency of our public services – enabling us to provide a better service to citizens and service users at a lower cost. In education, for example, we will address the barriers faced by schools in regions not connected to appropriate digital infrastructure and we will invest in the Network of Teaching Excellence in Computer Science to help teachers and school leaders build their knowledge and understanding of technology. In transport, we will make our infrastructure smarter, more accessible and more convenient for passengers. At Autumn Statement 2016 we announced that the National Productivity Investment Fund would allocate £450 million from 2018–19 to 2020–21 to trial digital signaling technology on the rail network. And in policing, we will enable police officers to use biometric applications to match fingerprint and DNA from scenes of crime and return results including records and alerts to officers over mobile devices at the crime scene.

Country: [The Netherlands](#)

Responsibility: Ministry for Economic Affairs

Initiative: Digital Agenda for The Netherlands. Innovation, trust, acceleration.

The Digital Agenda for The Netherlands is an intergovernmental Agenda in order to coordinate the efforts of the government in the area of digitalisation. In the Netherlands, ICT makes a relatively large contribution to economic growth as it is being applied within all economic and social sectors at an increasingly faster rate. Statistics Netherlands (CBS) has calculated that the increase in ICT capital in the period from 1996 to 2009 was responsible for a quarter of all economic growth.

The focus of the Digital Agenda is on the following lines of action:

1. Education, knowledge and innovation
2. Open and high-speed infrastructure
3. Security and trust
4. More scope for entrepreneurs
5. Digitisation of sectors (industry, healthcare, energy and mobility)

The Netherlands is internationally seen as an interesting place of business for countless ICT-related enterprises, such as data centres, cyber security companies, cloud providers, new media providers and telecom companies. In this regard, our excellent digital infrastructure plays a major role, including the AMS-IX Internet exchange. This digital infrastructure is of increasing societal and economic importance. With its high-speed telecom networks and the largest Internet exchange in the world, the digital infrastructure in the Netherlands can be rightfully referred to as the country’s third mainport.

Country: [Norway](#)

Responsibility: Ministry of Local Government and Modernisation

Initiatives:

1. Digidel 2017 and Digihjelpen
2. Universal design legislation

1. **Digidel 2017** was a national programme run by the Ministry of Local Government and Modernisation. Digidel 2017 worked to strengthen cooperation and increase the efforts made by the public sector and ICT sector as well

as voluntary enterprises in the areas of digital competence and inclusion in Norway. The programme aided in the training of groups that do not use ICT as part of their everyday life, and helped them acquire the skills needed to master these technologies. Special focus groups include elderly people and immigrants. An NGO called LIN and the Norwegian Red Cross have dedicated introduction courses aimed at female immigrants. Seniornett is a NGO with over 200 local clubs around Norway that give training in basic digital skills for elderly people. Digidel 2017 provided teaching tools and arenas for sharing of experiences and acquiring knowledge for instructors and trainers on the [website](#). Skills Norway (Norwegian Agency for Lifelong Learning) has taken over the responsibility for developing new teaching tools and national collaborative efforts on digital inclusion for all.

Digihjelpen- digital help-desks in all municipalities. The Norwegian Ministry of Local Government and Modernisation (KMD) and KS, The Norwegian Association of Local and Regional Authorities (all the 426 municipalities and 19 counties in Norway are members), have joined forces to develop local help-desks to increase digital literacy around the country. The goal is to create a help-desk on digital skills and competencies in all municipalities where citizens with little or no digital experience can get help and guidance.

The collaborative project started in 2017 and some of its milestones include developing guidelines for establishing local training services and to share best practices among municipalities. All municipalities in Norway have library services and many give different kinds of digital guidance and training to their citizens already. The project aims to help establish local digital training services in those municipalities that don't offer these services today. The intention is that these local training services will help to close the digital divide and help all citizens, including elderly and immigrants, to get better digital skills and competencies.

2. Norway adopted a regulation on **universal design of information and communication technology (ICT) solutions** in June 2013. The scope of this regulation includes both public and private enterprises. In this regard, Norway has the most comprehensive regulation in Europe, as also private entities must comply with the regulation. By comparison, the newly adopted EU directive on accessibility of websites and mobile applications is limited to the public sector.

The purpose of the Norwegian regulation is to ensure universal design of ICT, without causing an undue burden on businesses. The regulation covers enterprises that inform and offer their services to the general public through the use of ICT solutions. Universal design can be understood as principles and techniques to be observed when designing, constructing and maintaining ICT-solutions (like websites and mobile applications), in order to make them more accessible to users. Through universal design, as many people as possible can use the technology. The scope of the regulation will be extended to cover ICT in schools and education from January 2019.

Country: Singapore
Initiative: Infocomm Media 2025

Singapore had embarked on a series of 5-year plans from the early 1980s when they had identified ICT as a key driver of growth for Singapore. Now in the 7th Masterplan which is the **Infocomm Media 2025 Masterplan (IMM)**. However, instead of a 5-year plan, the IMM is a 10-year masterplan to guide the development of infocomm and media sectors from 2015-2025. In addition to focusing on ICT like we had in the past, we have also now included the media sector. The plan is a direct reflection of how the ICT and media sectors have been converging with the rapid technological advances.

In essence, the IMM is a national digital strategy for infocomm media sector that builds on Intelligent Nation 2015 (iN2015) and Singapore Media Fusion Plan (SMFP), with the aim to create an infocomm media ecosystem that (i) enables and complements the Smart Nation vision, (ii) effects economic and social transformation, and (iii) creates enriching and compelling content. While it is a standalone strategy, the Infocomm Media 2025 was also drafted to ensure close alignment with the directions set out in other plans for Smart Nation, like the Research, Innovation and Enterprise 2020 national R&D plan, the National Cyber Security Masterplan 2018 and other masterplans like the Sectoral Manpower Plan under SkillsFuture Singapore.

The three strategic thrusts of the IMM are:

Infocomm Media Masterplan Strategic Thrust 1:

To bring about a quantum leap in our economic competitiveness, dynamism and vibrancy through conducive policies and close private-public collaboration in tapping on data, machines and future technologies.

- I. Collect and harness data to create new products and services, enhance key sector competitiveness and provide better public services as well as formulate better informed policy making;
- II. Put in place pervasive and trusted ICM infrastructure that is supported by standards and platforms, and strengthen Singapore's position as a regional connectivity hub;
- III. Develop and deploy autonomous systems to improve productivity and augment industry capabilities; and,
- IV. Develop policies to encourage the sharing of resources to alleviate resource constraints in labour, land and natural resources and provide affordable options.

Infocomm Media Masterplan Strategic Thrust 2:

To champion "Singapore-Made" content, products and services by a future-ready ICM workforce and innovative companies with deep understanding of changing enterprise and consumer trends.

- I. Enable a sustainable support network for aspiring start-ups and growth companies that build innovative products, services and content;
- II. Catalyse world class ICM R&D with market emphasis to resolve big challenges and capture global opportunities;
- III. Nurture a highly skilled and competent ICM workforce and support the creation of high value quality ICM jobs for Singaporeans; and,
- IV. Use Singapore as a living lab to harbour innovation and collaboration for cutting-edge ICM solutions.

Infocomm Media Masterplan Strategic Thrust 3:

To facilitate a connected society, and improve quality of life for citizens, by tapping on ICM infrastructure, capabilities and services

- I. Augment human care in looking after the healthcare needs and wellness of our citizens, especially the elderly, by tapping on big data and future technology;
- II. Promote active citizenry and engaged communities by supporting digital inclusion programmes, online platforms, and translation technologies;
- III. Promote a national identity through compelling content based on Singapore stories; and,
- IV. Keep our nation, communities and homes connected by investing ahead of demand in available, pervasive and trusted ICM infrastructure.

Besides the IMM, Singapore has embarked on Industry Transformation Maps for 23 industries including the ICT and Media sector to promote growth and competitiveness for these industries. To be implemented in tandem with the IMM, the ITM will focus on pushing innovation, encouraging internationalisation of our companies, increasing productivity and equipping our workforce with relevant jobs and skills to thrive in the digital economy.

Country: Spain

Responsibility: Ministry of Energy, Tourism and for the Digital Agenda/Ministry of Finance and Public Function

Initiative: Digital Agenda for Spain

Approved on February 15th 2013, the **Digital Agenda for Spain** was the Government's strategy to develop the digital economy and society. This strategy was thought as the umbrella of all Government's actions in terms of Information Society and Digital Agenda. The Agenda, leaded by the Ministry of Energy, Tourism and Digital Agenda and Ministry of Finance and Public Function, sets the ICT and e-Administration roadmap to achieve the goals of the Digital Agenda for Europe in 2015 and 2020.

The objectives, lines of action and plans established in this Digital Agenda are intended to encourage the creation of employment opportunities and economic growth through the smart adoption of digital technologies, thus contributing to the collective effort of promoting the economic recovery of the country. The strategy focuses on 6 different objectives: (1) fostering the roll-out of networks and services to guarantee digital connectivity, (2) developing the digital economy for the growth, competitiveness and internationalization of Spanish companies, (3) improving e-Administration and adopt digital solutions for an efficient rendering of public services, (4) reinforcing confidence in the digital ecosystem, (5) boosting RDI system in Information and Communications Technologies, and (6) promoting digital inclusion and literacy and the training of new ICT professionals.

The Digital Agenda for Spain was designed following the priorities of the Digital Agenda for Europe through an open, transparent and participatory process involving experts, companies, associations, citizens, parliamentary groups, ministerial departments and other territorial administration bodies. At the present time, the Digital Agenda for Spain is in the process of being revised and a new strategy will be available shortly.

Country:	Global
Responsibility:	United Nations Conference on Trade and Development (UNCTAD)
Initiative:	eTrade for all – UNCTAD led initiative composed of 25 partners from the institutional side and more than 30 members from the business sector (through the Business for eTrade Development)

Connecting the dots to foster inclusive e-commerce for development

E-commerce can be a powerful driver of economic growth, inclusive trade and job-creation across the developing world, a market worth \$25.3 trillion in 2015 according to UNCTAD. However, e-commerce can also create challenges, and while some developing countries have made significant inroads into e-commerce, the vast majority are still lagging behind. Meanwhile, current efforts at helping countries to catch up are fragmented and of insufficient scale.

Accelerating the development gains from e-commerce requires a more concerted approach. The **eTrade for all** initiative was launched in July 2016 at the 14th quadrennial UNCTAD Conference. Organized around 7 policy areas of particular relevance to e-commerce development (e-commerce readiness, ICT infrastructure and services, payments, trade logistics, legal and regulatory frameworks, e-commerce skills development and financing for e-commerce), eTrade for all helps developing countries to access more easily the resources and technical assistance offerings of the international community, while providing donors a clear picture of programmes to potentially fund. The overall effect in the longer term will be more transparency, less duplication of efforts and greater aid efficiency.

Its main tool is the [etradeforall.org platform](http://etradeforall.org), a knowledge-sharing and information hub, launched in April 2017, that facilitates developing countries' access to information and resources. Through this platform, partners and beneficiaries can connect with each other, learn about trends and best practices, access up-to-date statistics and indicators pertaining to e-readiness in e-commerce, and be informed about major upcoming events in their area of interest and expertise. In addition, donors can learn about impact-oriented and evidence-informed projects meeting their policy priorities. Currently the technical assistance offerings by partners, labelled Development Solutions on the platform, cover a wide spectrum of assistance and span across the 7 policy areas. Information is available in English, French and Spanish.

A number of collaborations and new project have already been facilitated between the various stakeholders, including the Rapid eTrade Readiness Assessments for least developed countries. The assessments benchmark countries' opportunities and constraints in the 7 key policy areas. A set of eTrade for all indicators for all countries has also been made available on the platform.

eTrade for all is a concrete example of how the international community, in partnership with the private sector and other stakeholders, can come together to make e-commerce work for development. However, the platform maintenance and its further developments, the regular management of a multi-stakeholder partnership, including the coordination with the private sector, the selection and production of relevant content and the multi-language nature of the interface, are challenges that will require a sustained effort from the international donor community to allow eTrade for all to continue to be a relevant channel for developing countries to effectively engage in ecommerce.

Assessing the e-trade readiness of LDCs for the promotion of the sustainable development

In the changing global marketplace, e-commerce presents a powerful driver of economic growth, inclusive trade and job-creation including for the Least Developed Countries (LDCs). However, while there is significant potential for growth through e-commerce, many people and small and medium enterprises (SMEs) there are not in a position to effectively leverage e-commerce to seize economic opportunities. Assessing the readiness of LDCs to engage and benefit from e-commerce is crucial for the formulation of relevant strategies and policies to harness the power of e-commerce for economic growth and sustainable development.

The Rapid e-Trade Readiness Assessment project for LDCs is helping beneficiaries to take stock of their ICT-related and e-commerce development along seven key policy areas (etradeforall.org), to make better sense of the supply of capacity building from the international community and to sequence and prioritize the assistance they require from the donor communities. The assessments also enable LDCs to be better informed for international discussions around e-commerce such as in the context of the WTO.

UNCTAD, in partnership with donors and beneficiary countries, released the first Rapid eTrade Readiness Assessments for Bhutan and Cambodia during the UNCTAD E-Commerce Week 2017. Thanks to the support of the Government of Sweden, the Enhanced Integrated Framework and the German Federal Ministry for Economic Cooperation and Development (BMZ), at least 20 additional LDCs will benefit from the project before the end of 2019.

Bhutan and Cambodia face similar stumbling blocks to e-commerce development, including a relatively small market size, low broadband Internet penetration (especially in rural areas), payment issues and poor logistics networks. The assessments identify the current e-commerce situation, challenges and opportunities. The final action matrix indicates the way forward: actions to take, priority level and potential international partners supporting the activities. “The e-Trade Readiness assessment comes with a set of robust actions to be considered by different stakeholders in Cambodia and outside to support the rapid adoption of the so-called digital revolutions”, said HE Pan Sorasak, Minister of Commerce, Royal Government of Cambodia.

Government officials are invited to UNCTAD meetings and fora (e.g. UNCTAD E-Commerce Week, Intergovernmental Group of Experts on E-Commerce and the Digital Economy etc.) to showcase their experiences, values of the project and the steps to be taken towards the implementation. The action matrix will also help them to make better use of solutions included in the eTrade for all platform.

2. Expand Digital Infrastructure

Country: Germany

Responsibility: Federal Ministry of Transport and Digital Infrastructure/Federal Ministry for Economic Affairs and Energy

Initiative: National broadband strategy as part of the Digital Agenda 2014–2017, Digital Strategy 2015 programme

One objective of the Federal Government, as set out in the **Digital Agenda 2014–2017**, is that, by means of an efficient technology mix, there should be infrastructure providing universal broadband coverage with a download speed of at least 50 Mbit/s by the end of 2018.

In order to achieve this objective, the Federal Ministry of Transport and Digital Infrastructure launched a financial assistance programme for broadband deployment in Germany at the end of 2015 which is now 4 billion euros. The financial assistance programme is for municipalities that initiate funding programmes and are the ones who select the operator. Funds are provided based on the “profitability gap model” and on the “operator model”. Moreover, the Federal Ministry of Transport and Digital Infrastructure supports the municipalities with consultancy services. Appraisal is based on a set of criteria, i.e. all projects submitted enter into competition with one another.

The financial assistance programme has been well received. Already within one year, funding totaling 2.3 billion euros was granted for 336 projects with an overall investment volume of around 5.2 billion euros. A further 220 applications are still being reviewed. The first municipalities have already begun implementing their projects.

It is a particular success of the programme that 94 % of funds will be invested directly in the deployment of additional fibre optic networks. Fibre optic technology is thus moving closer to the customer: 1.3 of a total of 1.8 million funded connections will be directly connected with fibre optics. In addition, the funding programme gives 150,000 companies access to powerful broadband infrastructure.

What is more, there is a special programme for business areas which makes funds for gigabit-ready FTTB/FTTH optical fibre connections and free Wi-Fi available to business areas and ports. 350 million euros have been made available for this special programme as a first step. The procedure was kept deliberately simple; there are no scoring and no individual calls. Funds are awarded on a first-come-first-serve-process.

Beyond that, broadband connections with speeds in the range of several gigabits per second symmetrically are essential, both in download and upload in order to ensure reliable real-time transmission capabilities and high quality Internet service. To achieve this, the present broadband strategy in Germany, largely aimed at providing asymmetric connections for private customers, must already be adjusted now to include optical fibre technology extending beyond the year 2018.

Therefore it is necessary to construct a gigabit optical fibre network in Germany by 2025. Classic telephone lines or metal TV coaxial cable can lead to signal interference if more than one signal is being transmitted at once. Optical transmission of data over glass fibre cables is largely immune to such problems. In addition, glass fibre infrastructure exhibits significantly less energy consumption for transmission to end customers than high performance copper wire networks. With the growing importance of information and communications technology, energy and resource efficiency (Green IT) should be given more consideration. This also applies to the telecommunication network.

A nationwide Fibre to the Home (FTTH) network expansion in Germany will require investments of up to €100 billion. Around three-fourths of the population of the Federal Republic of Germany live in metropolitan areas, where the German broadband market is very competitive and where we can expect the market to drive an expansion of gigabit networks. Even in rural areas there are certainly investment activities that take advantage of cost savings possibilities and cross-sectoral synergies. In some regions, however, networks are not being expanded because it is not economical.

Country: [Argentina](#)
Responsibility: Ministry of Modernization/National Communications Agency (ENACOM)
Initiatives: 1. Digital Country Initiative (País Digital)
2. National Broadband Strategy and Digital Strategy
3. Connectivity Program

Aiming at making digital infrastructure reachable in the entire territory, Argentina has launched 3 main initiatives focused on bridging the adoption gap at a subnational public sector level, strengthening the national fiber optic backbone, and expanding digital access to citizens.

1. **Digital Country Initiative** is a comprehensive program to bridge the digital tools adoption gap of municipalities. Concretely, this program provides IAS (Infrastructure as a service)/PAS (Platform as a service) and SAS (Software as a service) at no cost for the first 2 years, as well as connectivity and Free Wi-Fi. Since its design in 2016, it has been rolled out to 900 municipalities, out of a total of 2171. Current solutions package includes Customer Relationship management system, web page, and collaboration tools, among others. This program is also complemented with “Digital Point”, an initiative that provides computer labs and oriented-to-the-digitally-excluded training programs in municipalities throughout the country.
2. **National Broadband Strategy and Digital Strategy** program aims at strengthening the national fiber optic backbone in 1,200 towns, reducing the wholesale price of Internet content at flat rates and having impact on 85% of the population. This program also aims at improving domestic broadband access and connection speed that today is 6.5 Mbps and will reach 20 Mbps by 2020. This requires upgrading half of the current fixed broadband plant, +3.5 MM of access, to a new generation of technology. This initiative will be implemented through public, public-private or private funding, according to each market’s condition.
3. **Connectivity Program.** In order to expand digital access to every citizen, this program has two main components: broadband improvement, through non-refundable contributions, and tablets delivery for senior citizens.

The **broadband improvement** consists of network deployment, improvement of existing access networks, and provision of financial incentives for future developments in network access. The program is implemented in two phases: during the first one, towns and settlements with less than 2,500 inhabitants receive funding for broadband improvement, whereas towns and settlements with more than 5,000 inhabitants receive the funding in a second stage.

The **‘a tablet for seniors’** program consists of delivering free tablets to senior citizens and partially subsidize Internet service fees. This program seeks to improve Internet penetration in this population group and it is focused on the urban areas of the provinces.

Country: [Australia](#)
Responsibility: The Treasury/Department of Communications and the Arts; Geoscience Australia
Initiatives: 1. The National Broadband Network
2. The Mobile Black Spot Program
3. Digital Earth Australia
4. Cloud-Based Elevation Data Delivery

1. The **National Broadband Network (NBN)** is being rolled out across Australia and will provide every Australian household and business with access to high speed broadband over a range of technologies, including fibre, fixed wireless and satellite. The NBN reached the half-way point of construction in mid-2017, and is scheduled for completion by 2020. As at 30 June 2017, the NBN was available to over 5.7 million premises – 313,000 premises ahead of target. More than 2.4 million Australian homes and businesses had access to an active NBN service –

100,000 premises ahead of target. NBN Co Limited is an Australian Government-owned company set up to roll out the National Broadband Network. Retail service providers offer services to customers over the NBN infrastructure.

2. The **Mobile Black Spot Program** works to expand reliable mobile phone coverage and competition in outer metropolitan, regional and remote communities. It provides social and economic benefits by expanding mobile coverage and increasing competition along major regional transport routes and in small communities. Australian Government funding has been supplemented with funding from state and local governments, businesses and community groups, and telecommunications providers. Almost \$600 million in new investment is being applied towards improving mobile coverage in regional and remote Australia, and is enabling the delivery of:
 - 765 new and upgraded mobile base stations.
 - 86,300 square kilometres of new and upgraded handheld coverage.
 - 202,300 square kilometres of new external antenna coverage.
 - over 7,600 kilometres of new coverage to major transport routes.
3. Spatial information from Earth observations from space (EOS) contributes around \$5.3 billion annually to the Australian economy through various industry programmes, and is projected to generate over 15,000 jobs by 2025. However, there is significant unrealised potential for satellite data to be more broadly applied in addressing challenges on both national and international scales. **Digital Earth Australia (DEA)** is an analysis platform for satellite imagery and other Earth observations. DEA will benefit government departments and agencies that need accurate and timely spatial information on the health and productivity of Australia's landscape. DEA will provide Australian industry with access to stable, standardised data from which it can innovate to produce new products and services. DEA will also create opportunities for small to medium enterprise, particularly in the development of applications that can improve agricultural productivity, and provide more efficient tools for environmental accounting and monitoring. The products created by Australian businesses and researchers using DEA will be transferrable to international markets as they evolve.
4. In 2017 Geoscience Australia moved its elevation data delivery to a [cloud based solution](#) provided by Amazon Web Services. The new delivery mechanism increased supplied of data by 1000 per cent to users (1200 orders in 2016 to 17000 the following year) and the reduced the time of delivery by 98 per cent (4 day turn around reduced to 5 minutes) improving accessibility. The infrastructure is extendable and available to other jurisdictions.

Country: [Brazil](#)

Responsibility: Ministry of Science, Technology, Innovation and Communications (MCTIC)

Initiative: Expand Digital Infrastructure: National Connectivity Plan

Brazil first launched the **National Broadband Plan** in 2010. Since then, broadband penetration and Internet access have increased significantly in the country. With an aim to set forth goals that are more ambitious and to expand digital inclusion, a new draft **National Connectivity Plan** is currently under public consultation. Its objective is to expand broadband connectivity to up to 75 % of Brazilian households, mainly through public-private partnerships.

Country: **Canada**

Responsibility: 1. Canadian Radio-television and Telecommunications Commission,
2. Innovation, Science and Economic Development Canada

Initiatives: 1. CRTC's broadband fund to ensure access to basic telecommunications services
2. Connect to Innovate (CTI)

1. In December 2016, Canada's telecommunications regulator, the Canadian Radio-television and Telecommunications Commission (CRTC) classified broadband Internet as a basic telecommunications service for all Canadians. The decision established broadband targets at speeds of at least 50 Mbps download and 10 Mbps upload across the country and access to the latest mobile wireless technologies where Canadians live and along major roads. In order to achieve these objectives, the CRTC announced a new CAD\$750 million **broadband fund**, sourced from a levy on telecommunications service provider revenues. The Commission has launched follow-up proceedings to work out the exact details of this fund and a decision is anticipated in spring 2018.
2. **Connect to Innovate (CTI)** is the latest broadband initiative from the Government of Canada to help expand broadband access in underserved rural and remote areas. The program will invest up to CAD\$500 million by 2021, with a focus on building high-capacity backbone into rural and remote communities – connections that will support faster speeds to public institutions, such as schools, hospitals, and First Nation band offices. A portion of funding is also available for backbone infrastructure upgrades and last-mile infrastructure projects connecting underserved households and businesses. CTI is designed to leverage private sector investment, and work in conjunction with other federal initiatives such as the new CAD\$750 million universal service fund administered by the CRTC.

Country: **China**

Responsibility: Ministry of Industry and Information Technology

Initiatives: 1. Promotion of the Coverage of Digital Infrastructure
2. Cross-Border Cable Construction

1. In recent years, China has adopted a series of **measures to enhance the coverage of digital infrastructure**. The first one is to set up and improve the mechanism of universal telecommunications service, including carrying out universal telecommunications service pilot and supporting the upgrading of optical fiber and network construction for villages. Secondly, to continue to move forward the construction of newly planned backbone access points, and complete the historically largest network restructuring, indicating a leapfrog development for the overall network system. Thirdly, to keep on expanding the cross-Internet bandwidth by annually drafting and implementing bandwidth expansion plan.
2. To strengthen the international interconnection of infrastructure, China has been actively engaged in the construction of **cross-border ground cable system**, including the work of a newly built system as well as the upgrading projects to enhance the capacity of international communications facilities. At present, China has built ground cables with 12 neighboring countries and over 10 international submarine cables with access to Asia Pacific, the Middle East, Africa, Europe, North America and so on.

Country: **European Union**

Responsibility: European Union

Initiatives: 1. Strategy on Connectivity for a European Gigabit Society
2. Communication – 5G for Europe
3. Complementary initiatives: European Communications Code, 5G Action Plan, Free WIFI for Europeans

Broadband Europe works on promoting and realising the European Commission's vision and policy actions to turn Europe into a Gigabit Society by 2025.

1. The Commission's **Strategy on [Connectivity for a European Gigabit Society](#)**, adopted in September 2016, sets a vision of Europe where availability and take-up of very high capacity networks enable the widespread use of products, services and applications in the DSM.

The vision relies on three main strategic objectives for 2025:

- Gigabit connectivity for all main of socio-economic drivers,
- uninterrupted 5G coverage for all urban areas and major terrestrial transport paths, and,
- access to connectivity offering at least 100 Mbps for all European households.

It confirms and builds upon the previous broadband objectives set by 2020 giving every European access to 30 Mbps connectivity and half of the households a subscription at 100 Mbps.

2. It further **calls for [5G connectivity](#)** to be available in at least one major city in each Member State by 2020 at the latest.
3. The Commission has also launched a series of complementary initiatives to help reach these objectives. A major legislative proposal for a **[European Electronic Communications Code which aims at fostering infrastructure investments and facilitating cross-border provision of communications services](#)**, a **[5G Action Plan](#)**, and an **[initiative to bring free access to Wi-Fi connectivity](#)** in public spaces like parks, libraries and squares are all part of this effort.

Country: [France](#)

Responsibility: DGE (Direction générale des entreprises)/Agence du Numérique

Initiative: Plan France Très Haut Débit

The **[Broadband Plan](#)**, launched in February 2013, involves an investment of nearly € 20 billion, including € 3.3 billion from the State, to deploy high-speed Internet (8 Mbit/s) in the entire territory by 2020 and very high-speed Internet (30 Mbit/s) in the entire territory by 2022. This Plan, aims to:

- strengthen the competitiveness of the French economy,
- make possible the modernization of public services throughout the territory,
- give access to digital uses to all citizens.

The progress of this work is presented on a cartographic tool: [l'Observatoire France Très Haut Débit](#).

The Plan was conceived as a decentralized project, forming part of a national strategy, and mobilizing all private and public sector actors for the deployment of the new very high-speed networks on the territory. To achieve this goal, it mobilizes an investment of 20 billion euros in ten years, shared between private operators, local authorities and the State:

- Private operators deploy private fiber-to-the-home (FttH) networks in major metropolitan areas and departmental capitals,
- Local and regional authorities deploy public FttH networks and also use complementary technologies outside large urban areas.

The State provides financial support to projects of local and regional authorities:

- by mobilizing a subsidy of € 3.3 billion,
- by providing an envelope of long maturity loans (up to 40 years) and at a very low rate (A + 1 %) by mobilizing regulated savings funds.

Fixed broadband

To deploy the very high throughput on the territory, several networks are used:

- Fiber to the subscriber, called FttH for “Fiber to the Home”,
- the cable network, initially used for television, modernized by mobilizing optical fiber to the foot of the building or at the entrance to the street,
- the copper wire telephone network, from which the “ADSL” technology was deployed and which now serves as support for VDSL2,
- “Long Term Evolution” radio technologies.

Mobile coverage

The Plan also pilots two programs to support mobile coverage:

- The “white zones city centers” program to provide minimum telephony and mobile Internet coverage in the town centers of some municipalities,
- The “1,300 strategic sites” program to ensure the mobile coverage of 1,300 strategic sites defined and selected at the local level (economic and tourist zones, hamlets, etc.).

Country: India

Responsibility: Ministry of Electronics and IT (MeitY)/Department of Telecommunications (DoT)

Initiatives:

1. BharatNet
2. AADHAR
3. National Knowledge Network
4. Rural Wire Line Broadband Scheme

1. Large parts of the developing and under developed economies still do not have effective access to Internet. This is due to the limitation in the reach of broadband in the remotest areas. India is trying to address the problem through a mega project namely “**BharatNet**”, where a Giga Byte connectivity is proposed to be operationalized on all 2,500,000 Gram Panchayats (lowest administrative rural block). However, for this there is additional need for developing low cost effective last mile connectivity solutions. Various initiatives for effective implementation with BharatNet project is progressing well with over 230,000 optical fibre laid and over 50,000 village level local bodies (Gram Panchayats) already connected through a Gigabyte network. The Common Service Center (CSC) Choupal is to provide last mile connectivity leveraging BharatNet infrastructure for providing broadband services in Gram Panchayats (GPs) and villages. Various efforts are being directed to extend mobile coverage and connectivity to all the unconnected villages and remote islands.
2. Also, Unique Identification Authority of India (UIDAI) was created with the objective to issue **Unique Identification numbers (UID), named as “AADHAAR”**, a Digital Identity to all residents of India that is robust enough to eliminate duplicate and fake identities, and can be verified and authenticated in an easy, cost-effective way. The vision is to empower residents of India with a unique identity and a digital platform to authenticate anytime,

anywhere. It the world's largest biometric database having 1.15 billion and covering 99% of the adult population. Presently, most of the Government seeded schemes in financial, utility, employment, healthcare etc. sectors use the digital identity to benefit the common citizens of the country.

3. India has also adopted **National Knowledge Network (NKN)** to interconnect all institutions of higher learning and research with a high speed data communication network to facilitate knowledge sharing and collaborative research. NKN will facilitate advanced distance education in specialized fields like engineering, science, medicine etc. as well as enable an ultra-high speed e-Governance backbone. The application areas envisaged under the National Knowledge Network cover Agriculture, Education, Health, e-Governance and Grid Computing (High Performance Computing).
4. **Rural Wire Line Broadband Scheme** has been implemented for providing broadband connectivity to rural and remote areas at pan-India level by leveraging the existing rural exchanges infrastructure and copper wire-line network with the capability to deliver data, voice and video services in the fixed mode. The rural broadband connectivity will cover Institutional Users, such as Gram Panchayats, Higher Secondary Schools and Public Health Centres, as well as Individual Users, located in the villages. Under the WI-FI Hotspots in rural areas scheme, the Government is to set up 25,000 public Wi-Fi hotspots at rural telephone exchanges.

Country: [Indonesia](#)
Responsibility: Ministry of Communication and Information Technology
Initiative: Digital divide utilizing USO funds with PPP scheme

Through affirmative policy bridging the digital divide and utilizing USO funds to enable to **fast track the telecommunication Infrastructure development and availability in those undeserved non-viable areas**, to enable leapfrog of our millions of MSMEs there to enter the digital economy through the adoption of disruptive digital business models. Universal access is the essential first step for creation of opportunity and wealth for undeserved low income areas. Reducing the digital divide can help mitigate many wider social, equality, health and well-being issues. The USO fund is taken from the revenue of commercial telecommunication operators (1.25% of gross revenue). It gives more flexibility for the Government to arrange strategic programs and initiatives such as providing broadband network (backbone and access) to promote the growth of broadband services, focusing in non-lucrative areas (mostly rural).

Palapa Ring is the example of the fast tract telecommunication infrastructure in underdeveloped and rural under-served areas. This project aims to provide nationwide fiber optic backbone in all 514 municipals counties. While 5,000 Last miles for underserved villages is a program to provide those non-commercially and financially viable villages identified having no telecommunications coverage to be covered either with BTS or other technology. High Through Put Satellite, will close all ends, especially any remote unreachable areas as well as seas, as Indonesia is an archipelago country, will all land and oceans covered by telecommunications and data connection.

All of the aforementioned USO infrastructure programs are using Public Private Partnership scheme, to ensure high quality output as developed and run by highly qualified private sectors in Telecommunications, while protected by Government guarantee to ensure the viability of the projects.

This means, Indonesia, a wide archipelago country with almost 16,000 islands spread widely, within 4 years' time, or by 2019 will have its land and ocean fully covered by Telecommunications access. Which, given the massive portion of the country area are financially and commercially non-viable, would have been impossible if USO funds have not been available to do this fast track development. The above affirmative strategies would have similar applicability, and would offer tremendous potential for other emerging markets and developing nations. Hence, harnessing improvement in the levels of economical and functional productivity leads to the overall uplift of standard of living of the intended beneficiaries.

This affirmative policy bridging the digital divide utilizing USO funds with PPP scheme – A fast-track development of telecommunication infrastructures in non-commercially viable under-served regions through the use of USO funds – Palapa Ring, 5,000 Last miles for underserved villages and High Through Put Satelite. (To extend coverage to under-served communities or individuals Roadmap 2.2).

Country: Italy
Responsibility: Ministry of Economic Development
Initiative: Ultra Broadband National Plan

Italy launched in 2015 an **Ultra broadband National Plan** to address the targets of the European Union, i.e. 30Mbps network access speed available to all the citizens and 50% of 100Mbps services activated by 2020. Within the plan, in its first phase, 3B€ have been assigned to build up a public passive ultra-broadband network connecting citizens, public administrations and firms opened to all the interested operators in the market failure areas of the Italian territory. This will affect more than 13M people and more than 7,000 local communities. Additional 1.3B€ of new national funds have been assigned to complete the second phase, where ad hoc instruments will be put in place to sustain the demand of citizens and firms.

Country: Japan
Responsibility: Ministry of Internal Affairs and Communications
Initiative: Deployment of 5G Network

The Ministry of Internal Affairs and Communications (MIC) is aiming to realize the **5th generation mobile communication systems (5G) in 2020**. With the assistance of stakeholders in various fields, including transportation, medicine, and logistics, MIC started 5G trials. In the first fiscal year, 2017, the project has a budget of MIC. The project has the aim of creating new 5G markets.

Country: Korea, Republic of
Responsibility: Ministry of Science and ICT (MSIT)
Initiatives: Pilot project for Giga Internet Facilitation & Giga Internet Site Project

The “**Giga Internet era**” in Korea began in 2014. Major telecommunication companies commercialized the services offering both 1Gbps and 500Mbps Internet access. KT, the dominant player in fixed-line market, commercialized the nation’s first giga Internet, followed by other players. All the companies offer fixed rate plans. The share of Giga Internet users had rapidly increased. As of the end of year 2016, the coverage reached 91.82% in urban area and the number of subscribers recorded 4.4 million (National Informatization Annual Report 2017). At the early stage of giga Internet service, the lack of applications requiring bandwidth of 1Gbps was a main obstacle in wide spread of the service. However, the proliferation of UHD-based pay TV and smart devices stimulated the demand for high-quality and high-capacity contents. Also, the popularity of cloud based data transmission contributed to the wide usage of the giga Internet service.

‘**Giga Internet Plan**’ was the first initiative to aid the development of Giga Internet. This initiative planned a road map for equipment development, testing and verification. This initiative was followed by two additional projects, ‘**Pilot project for Giga Internet Facilitation**’ and ‘**Giga Internet Site Project**’, which are mainly focusing on the diffusion of the service (National Informatization White Paper 2016). In 2015, pilot networks were constructed in 15 cities, and consortium provided pilot services for residents in the cities. Those pilot services were: Augmented reality and virtual reality application service, Smart Home Experience, Giga Holo Cube and Next-generation Giga WiFi (National Informatization White Paper 2016).

In 2016, the Giga Internet test sites were launched to draw public attention and stimulate the demand for the service. This project consisted of three programs. First, the project established a special district for Giga Internet and offered Giga Wi-Fi service. Secondly, the project operated Giga Internet showrooms. The showrooms exhibit new Giga Internet technology and provided the quality wired and wireless infrastructure. Also a laboratory environment was built for SME’s Giga Internet service testing. The last program aimed to raise public awareness of Giga Internet. Various efforts included: establishing digital signature scheme, measuring and comparing the speed of Giga Internet, and producing and advertising contents on Giga Internet.

The Korean government plans to expand Giga Internet coverage in cities and rural area, and develop new application services. To cope with increasing Internet traffic, it will focus on proactive introduction of the next generation 10Gbps-level Giga Internet service and development of 40Gbps-level subscriber network technologies (National Informatization White Paper 2016).

[Minimum speed quality for Giga Internet (download speed)]

Type	500Mbps Service	1Gbps Service
Minimum Speed	75Mbps	150Mbps

* Source: Terms and conditions for service providers

Country: Mexico
Responsibility: Ministry of Communications and Transport
Initiative: Red Compartida

In order to cope with the increasing user’s demand in telecommunications, Mexico requires a broader infrastructure such as towers, antennas and optical fiber. In this regard, **Red Compartida**, a 4G Network Project promoted by the Presidential Office and the Ministry of Communications and Transport, will allow the operators and companies the shared use of existing telecom infrastructure.

The Red Compartida, a wholesale wireless network with a target to cover 92.2% of the population and one of the cornerstones of the reform, is a significant development in the Mexican telecommunications market. A key objective of the project is to expand accessibility in underserved areas, thereby addressing entrenched inequalities derived from decades of deficiencies in policy and regulatory approaches (i.e. leading to insufficient availability of access, choice and investment in rural and remote areas. The Red Compartida will offer data capacity to operators, mobile network operators (MNOs) and MVNOs, and has the potential to enable new business models that can take advantage of a nationwide 4G infrastructure. Red Compartida will not act as a retail operator in the market, but as a wholesale supplier.

The project will permit to avoid the high costs of companies deploying their own infrastructure and will enable them to reach those areas that in principle were not considered as a good business for telecom companies. Red Compartida will also encourage competition through the increasing involvement of operators and telecom companies, given that in order to be able to offer their services; they will not have to deploy their own telecommunications network. As a result, it will conduce to lower prices for users.

The Government of the Republic promotes a more dynamic telecommunications sector with greater domestic and foreign investment, in order to have a more prosperous, inclusive and global Mexico.

Benefits:

- *It will reach where there is no coverage:* Red Compartida will allow the offer of broadband services in areas that currently do not have access to them or where there is a sole provider
- *It will improve the quality of telecommunication services:* Current and future operators will have better coverage and capacity to offer more and better services to the public.
- *Prices will drop even more:* Between 2014 and 2015, telephone and mobile broadband prices have decreased. Red Compartida will contribute to prices of mobile services going further down.

- *It will promote productivity and competitiveness:* A more dynamic telecommunications sector promotes higher national and foreign investment and strengthens the productivity and competitiveness of the country's economy.
- *It will encourage innovation in digital services:* Red Compartida will allow the creation and access to technologies and applications that the public may use to generate entrepreneur projects, new production techniques and business ideas.

The objectives are to increase the telecommunications services coverage, promote competitive prices and enhance the quality of services according to international standards.

Country: [Russian Federation](#)
Responsibility: The Ministry of Telecom and Mass Communications of the Russian Federation
Initiative: Broadband access to the Internet

One of the strategically important telecom constructing projects in order to accelerate the penetration of broadband Internet access and to eliminate the digital gap on the national level. The project includes the **construction of 215 thousand kilometers of fiber-optic communication bands covering small-inhabited localities with population from 250 to 500 people and enabling high-speed Internet access for 97% of the population.**

Country: [South Africa, Republic of](#)
Responsibility: Department of Telecommunications and Postal Services
Initiative: National broadband Policy, 2013 (SA Connect)

The vision of the **SA Connect** is that by “2020, 100% of South Africans will have access to broadband services at 2.5% or less of the population's average monthly income.” The objectives of the SA Connect are:

- Affordable broadband availability nationally;
 - Policy and regulatory conditions to allow for private sector participation in investing;
 - All public institutions should benefit from the broadband connectivity;
 - To establish a framework for innovation and all-inclusive participation;
 - Creation of a vibrant creative and software industry; and,
 - Development of a literate and ICT skilled society.
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Country: [United Kingdom](#)
Responsibility: Digital, Culture, Media & Sport/Transport
Initiative: Effective regulation, better connectivity for all and the networks of the future; full fibre and 5G

For businesses to thrive and grow, government needs to **create the conditions and set the framework** for investment in widespread and up-to-date infrastructure. Digital infrastructure is a critical component of this: digital connectivity is now a utility, and modern life is increasingly impossible without it. Connectivity drives productivity and innovation, and is the physical underpinning of a digital nation.

We are determined that no part of the country or group in society should be without adequate connectivity. We will continue our work to complete the roll-out of 4G and superfast broadband by 2020, but we will also implement a **Universal Service Obligation**, giving every individual, business and public premise across the country the right to request an affordable high speed broadband connection.

And we are ambitious for the opportunities afforded by the next stage of **broadband and mobile rollout**, so we will invest over £1 billion to accelerate the development and uptake of next generation digital infrastructure – including full fibre and 5G.

We will also support consumers in getting the **best deal in digital connectivity**. We will ensure adverts for broadband accurately reflect the speeds and technology actually on offer for the majority of customers, so that people know what they are getting and can better find the most competitive deal. And we know that real-world, day-to-day connectivity in the places we live, work and travel matters, so we will roll out free Wi-Fi on trains, and in more public places.

Country: [The Netherlands](#)

Responsibility: Ministry for Economic Affairs

Initiatives: Digital Connectivity study, policy on frequencies for mobile broadband, policy for broadband in rural and remote areas.

The Netherlands conducted a broad future oriented study to guarantee that future demand for broadband connectivity can be met and that by 2025 every user could have a connection of at least 100Mbps. The study was conducted by independent consultants TNO and Dialogic. The conclusion was that almost everybody has sufficient choice between competing operators and sufficient bandwidth, but that in some rural or remote places this is not guaranteed for the future. At the moment 99% have connection to 4G mobile services. In order to have mobile connectivity for all, the Minister of Economic Affairs has announced that in the coming auction of 700-Mhz frequencies there will be a coverage requirement of 100%.

With regard to fixed broadband, the Netherlands is working on a generic subsidy scheme for support to local communities that install broadband networks in rural and remote areas. Access regulations for fixed networks must provide incentives for investment in connectivity and guarantee competition. This is also one of the themes in the review of the European regulatory framework for electronic communications networks and services, known as the Telecom framework. In Brussels, the Netherlands is advocating an adjustment to the regulatory framework for both of the fixed network parties in order to maintain competition and establish more symmetrical regulations between them in the Netherlands.

To increase innovation in relation to 5G, businesses and government bodies in the Netherlands have initiated a **5G Field Lab**. Parties contributing to this initiative include telecom companies (KPN, Vodafone, Ericsson, Huawei), knowledge institutes (University of Groningen, TNO), Hanze University of Applied Sciences, SURF, the Ministry of Economic Affairs and the Groningen Economic Board. Over the next few years, the 5G Field Lab will enable businesses to gain experience with innovative applications for agriculture, healthcare, energy, the living environment, traffic and logistics. The first demo set-up is now in operation.

Country: [Norway](#)

Responsibility: Ministry of Transport and Communications

Initiative: National plan for electronic communication as part of the Digital Agenda for Norway

As part of the Digital Agenda for Norway, the Government in 2016 presented a national plan for electronic communications that will create favourable conditions for competition and innovation and that will also ensure that people throughout the country receive secure and high-quality services. The electronic communications policy must be flexible to tackle rapid changes. At the same time it must ensure secure electronic communication services for all users

and stable market conditions for electronic communication service providers who annually invest heavily in faster mobile and broadband networks throughout the country.

The broadband policy is important for the Government in order to achieve the objectives that have been set in several other areas of society. Access to and use of broadband in both the private and corporate market continues to grow. The Government will facilitate the continued rollout of mobile and fixed broadband services. Mobile broadband and use of electronic communication services on public transport will become an increasingly important element of broadband policy, and mobile broadband providers are currently rolling out better coverage along roads and rail lines.

The Government has set the following goals for future broadband access:

- 90 per cent of all households shall have access to at least 100 Mbit/s by 2020, based on commercial rollout in the market.
- The long-term goal is that all households shall have access to high-speed broadband.

Norway is not an easy country in which to deploy broadband networks due to its unevenly distributed population, long distances, and challenging natural environment. Rolling out broadband in sparsely populated areas costs more per subscriber than in densely populated areas, hence, broadband service providers may not consider all areas commercially viable. In certain areas (mainly rural and scarcely populated areas), broadband capacities will therefore not be deployed or increased until long after capacity has been increased in other parts of the country, if at all.

In order to avoid the broadening of the digital divide, the Norwegian authorities consider it important to support the deployment of broadband networks in scarcely populated areas where private investments from market players are unlikely to occur. It has therefore been established a broadband state aid scheme that will help all users in Norway to access basic broadband of good quality and help increase the supply of high-speed broadband in densely populated areas. Public support will finance broadband rollout in areas where commercial operators do not find it profitable to build broadband.

The total amount of public funding available for the state aid scheme 2014–2017 is limited to 2 billion NOK (i.e. 500 million NOK annually) and includes both funding from the Norwegian Central Government, and funding from local authorities. The aid intensity will depend on the outcome of the open tender process and thus vary from project to project.

Country: Spain
Responsibility: Ministry of Energy, Tourism and for the Digital Agenda
Initiative: Plan for Telecommunications and ultra-fast speed networks

Spain currently has a large high-speed digital network, which contains the most extensive fiber optic network in Europe. Most relevant figures related to broadband telecommunications deployment in Spain are the following:

- By June 2016, 70 % population coverage of 100 Mbps networks.
- As of December 2016, 42.1 million ultra-fast network accesses installed (31.1 million fiber accesses).
- In May 2017, 13.9 million broadband lines on service (8 million ultra-fast networks).

The above figures show that the goals established for 2015 within the Digital Agenda for Spain were broadly overcome. Furthermore, Spain is on the right path to achieve by 2020 the goals set in the Digital Agenda for Europe.

The current situation is the result of implementing a series of harmonized legislative and non-legislative measures promoted in the last years by the Spanish Government. Among these measures, we should highlight:

Legislative actions

- **Law 9/2104, of May 9, General Act for Telecommunications**, which guarantees the regulatory certainty needed for the strong investments to be made in the renewal of the networks. The main measures introduced in the law were the recovery of the market unit, simplification of administrative procedures and providing operators with access to tangible and intangible resources (spectrum, ducts, pipelines ...). In addition, the law has made possible to reinforce the universalization of broadband and improve users' rights.
- **Royal Decree 330/2016 of 9 September** on measures to reduce the cost of deploying high-speed electronic communications networks, which encourages the deployment of communications networks by reducing the costs of the related civil works. It includes, among other measures, the establishment of access rights, the coordination of civil works and the improvement of access to information on existing infrastructures.
- **Royal Decree 123/2017 of 24 February**, approving the Regulation on the use of the radio spectrum, which establishes a new regulatory framework that allows the use of frequencies in a more efficient and flexible manner. It establishes measures such as the improvement of the secondary spectrum market or by allowing the mutualisation of frequencies.

Non legislative actions

- **National Program for Extension of Next Generation Broadband (PEBA-NGA)**, which has given a strong impetus to the deployment of high-speed networks in areas without current or planned coverage (white areas). From 2013 to 2016 € 119.4 million were granted to 305 projects implemented by 74 operators, with a total investment of € 343.6 million. With these projects, ultra-fast broadband coverage has been provided to 3 million homes and business premises in 1,392 municipalities that did not have access to these services.
- In order to reach 100% coverage of 30Mbps speed for fixed broadband networks, the government is currently developing a program to support the demand for broadband connectivity. Through this program, direct grants will be awarded to the final users for subscribing high-speed fixed broadband access services at 30 Mbps on locations without adequate services, such as rural areas or very small villages. The program will enable any citizen, any entrepreneur or small business located in these areas to access grants to request high-speed connectivity.

3. Adapting policies in an increasingly digital and information and knowledge driven global economy

Country: Germany
Responsibility: Federal Ministry for Economic Affairs and Energy
Initiative: New curriculum for management assistants for E-Commerce as part of the dual vocational training system

The **German dual vocational training system** is based upon a combination of practical on-the-job training within a specific company, and classroom based theoretical training provided by a vocational school. The various curricula are continuously updated to ensure that they keep up with state of the art technology and with new developments. In order to keep the contents of training courses up-to-date, especially with the technological progress caused by the digitalisation, it is necessary to recognize the need for change in existing curricula as well as the need for creating new professions just in time.

A good example for the development of vocational training in the field of digitalisation is the creation of a new curriculum for “**Management Assistants for E-Commerce**” that will come into effect in August 2018. The increasing importance of e-commerce leads to the development of new work fields, processes and business models with their own specific methods and practices. These include, for example, hosting and further of development of online sales channels, management of online shops or booking portals. Also, apprentices need to be trained in contractual procedures related to e-commerce and online marketing. These developments require new training contents that have not yet been covered by existing professions and curricula.

Thus, the employers’ association pushed to introduce the new profession “Management Assistants for E-Commerce” and the trade unions agreed on the proposal. Once all the parties involved had been heard, the Federal Minister for Economic Affairs and Energy will coordinate the process with the Länder (region/state), which have jurisdiction over the vocational schools. In the future, companies benefit from being able to recruit employees that have been trained to the latest state of the art and can therefore help foster innovation and competitiveness.

Country: Argentina
Responsibility: Ministry of Production
Initiative: Entrepreneurs Act

The **Entrepreneurs Act (Law 27349)** approved in March 2017, represents Argentina’s strong commitment to support entrepreneurs and create an environment where Argentine ideas, talent, and creativity can flourish. This Act established a new and agile type of business entity, the Venture Capital Institutions Registry, and became the first regulation for Crowdfunding platforms in a Latin American country.

The Entrepreneurs Act establishes a new type of business entity, the “**Simplified Joint-Stock Companies**” (SAS by its Spanish acronym). Under this legal framework, it takes 24 hours to create a new company online, open a bank account, and register it before the Tax Collector Office.

The Entrepreneurs Act also creates the **Venture Capital Institutions Registry** that allows investors, managers, and organizations to benefit from tax deductions from investments. This incentive will contribute to federalize Venture Capital investments in Argentina by giving more benefits to less developed Argentinian regions.

Capital investment contributions made by venture capital investors may be deducted from income tax, under certain conditions and in the amounts set forth in relevant regulations, which shall exceed neither seventy-five percent (75 %) of such contributions nor ten percent (10 %) of the net taxable income for the fiscal year or its proportional amount based on the number of months in operation.

Additionally, it establishes a Fiduciary Fund for Venture Capital Development (FONDCE by its Spanish acronym). This Fund offers different financing programs for entrepreneurs and startups, such as Seed Fund Program, Accelerator Fund Program, and Expansion Fund Program.

Seed Fund Program promotes the development of ideas or early-stage startups (less than 1 year for startups, less than 4 years for those with social impact). To accomplish this objective the FONDCE gives them a zero interest loan with 5 years repayment term.

Also, since this program may have impact across Argentina, it is supported by a large number of Argentinian registered Incubators. Each Incubator receives a non-refundable contribution to help startups to transform their ideas and projects into national and/or global competitive businesses by giving them mentorship, resources, knowledge, access to business networks, and support to elaborate their Business Plan and a pitch video.

Accelerator Fund Program promotes the development of early stage (less than 5 years) technology or science based startups, the Accelerator Fund Program selects and supports Accelerators. The Accelerators are selected by a Jury of experts in Venture Capital. Once selected, they assist startups in transforming their projects into globally competitive businesses by giving them mentorship, funding, resources, knowledge and access to business networks. The Accelerators receive non-refundable contributions and the FONDCE co-invest in the selected startups for a period of 4 years.

Expansion Fund Program promotes the development of technology or science based startups that are in an early stage (less than 7 years).

To reach its purpose, the program selects Venture Capital Trusts by constituting a Jury of experts in Venture Capital. Once those Trusts are selected, the FONDCE gives them 40% of the required total amount (up to 30 million USD each) to complete the investment.

In addition, each Trust will receive a non-refundable contribution to help startups to transform their projects into globally competitive businesses by giving them mentorship, funding, resources, knowledge and access to business networks.

Finally, the Entrepreneurs Act also creates the **Crowdfunding System Regulation**, the first regulation of this kind in Latin America. The Crowdfunding System encompasses crowdfunding projects submitted to crowdfunding platforms. These platforms are authorized by the Argentine Securities and Exchange Commission.

Country: **Australia**
Responsibility: Department of Industry, Innovation and Science (DIIS)
Initiative: Digital Economy Strategy

The Australian Government is developing a **Digital Economy Strategy** to maximise the potential of digital technology to improve the nation's productivity and competitiveness, while minimising its negative effects. The strategy will set out how government, the private sector and the community can work together to:

- build on our competitive strengths and develop new ones by:
- driving productivity within existing industries;
- taking advantage of the changes in our economy; and
- opening up new sources of growth to sustain Australia into the future.
- develop world-leading digital business capability for globally engaged, innovative, high-growth businesses of all sizes;

- drive a culture and mindset that supports lifelong learning, a global outlook, and helps us respond positively to change; and,
- address the 'digital divide' in skills and confidence to help all Australians succeed in a digital economy.

Country: Brazil

Responsibility: Ministry of Education

Initiatives:

1. The National Education Plan (PNE, Law n. 13.005/2014)
2. The National Curricular National Base (BNCC)
3. Brazilian Internet Steering Committee (CGI.br)
4. Civil Rights Framework for the Internet in Brazil ("Marco Civil da Internet")

There are currently two reference documents regarding Brazil's strategic vision for the use of technology in Brazilian education, which are to be further developed in line with the goals set out in **the Brazilian Digital Strategy**.

1. **The National Education Plan (PNE, Law n. 13.005/2014)** stipulates the following strategies regarding the use of technology for education:
 - Strategy 5.3: "Select, certify and disseminate educational technologies for children's literacy (...)"
 - Strategy 5.4: "Encourage the development of innovative educational technologies and pedagogical practices that ensure literacy (...)"
 - Strategy 5.6: "Promote and stimulate initial and continuing teacher education for children's literacy, with knowledge of new educational technologies and innovative pedagogical practices"
 - Strategy 7.12: "Encourage the development, selection, certification and dissemination of educational technologies for early childhood education, elementary education and secondary education and encourage innovative pedagogical practices"
 - Strategy 7.15: "Universalize, until the fifth year of effectiveness of this PNE, access to the world wide high-speed broadband computer network and to triple, by the end of the decade, the computer / student relationship in public schools Basic (...)"
2. **The National Curricular National Base (BNCC)**, a normative document guiding the curricula of all public and private schools in Brazil, stipulates that one of the 10 general competences to be developed by all Brazilian students is the "use of digital communication and information technologies in a critical, meaningful, reflective and ethical way in the various practices (including schoolchildren)" with the aim of communicating, accessing and disseminating information, as well as producing knowledge and solving problems. The use of technology is also a strategy deployed to reach the other competences foreseen in the BNCC, being cited in the document several times, especially in thematic units and as objects of knowledge.
3. In Brazil, the role of coordinating and integrating all Internet service initiatives rests with the **Brazilian Internet Steering Committee (CGI.br)**. Set up in May 1995, its main objective is that of promoting technical excellence and innovation and disseminating services provided on the Internet. One of its main characteristics from the outset lies in its multi-representativeness. CGI.br is made up of 21 members from different segments of society: government, business sector, third sector, and the academic community. Thus, it applies in practice a governance model with society's participation in decisions involving the deployment, management, and use of the network. Since 2004, it has been electing representatives of civil society democratically to take part in deliberations and to discuss priorities for the Internet with government representatives. The decisions of the CGI.br are based on the ten Principles for Governance and Use of the Internet in Brazil approved and published in 2009.

4. **The Civil Rights Framework for the Internet in Brazil (“Marco Civil”)** provides principles, guarantees, rights and duties, and does not exhaust the treatment of the subject, leaving space for future developments in important topics related to the Internet, such as personal data protection, e-commerce, cybercrimes, Internet governance, digital citizenship, among others. The bill makes clear in its first two chapters the commitment of the Brazilian legal system to the protection of human rights on the Internet. In particular, it contains an important set of provisions on privacy and personal data, especially on the need for consent to collect, treat and supply their personal data to third parties, unless otherwise provided in law.
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Country: **Canada**

Responsibility: 1. Treasury Board Secretariat (TBS)
2. Innovation, Science and Economic Development Canada

Initiatives: 1. Canadian Digital Service (CDS)
2. Pan-Canadian Artificial Intelligence Strategy

1. The Government of Canada has recently launched the **Canadian Digital Service (CDS)**. Based out of the Treasury Board Secretariat, CDS will directly support the government’s Budget 2017 commitment to adopt new ways of serving Canadians based on the experiences of other jurisdictions such as the United States and the United Kingdom. CDS will draw world-class digital talent into government and leverage existing talent to build high quality digital solutions for common service delivery problems, increase internal capacity, and help government make more informed decisions when purchasing information technology products and services.
 2. The **Pan-Canadian Artificial Intelligence Strategy**, which received CAD\$125 million investment in Budget 2017, aims to promote collaboration among Canada’s main centres of expertise in Montreal, Toronto-Waterloo, and Edmonton. This investment is intended to position Canada as a world-leading destination for companies seeking to innovate through the application of artificial intelligence technologies by helping to retain and attract top academic talent in the field of AI and increase the number of post-graduate trainees and researchers in this area. In addition, the Strategy highlights that artificial intelligence is expected to have profound implications for the economy, government and society. As such, the Strategy includes an investment to support the engagement of eminent researchers in policy-relevant working groups to examine the breadth of implications of AI and publish their findings to inform the public and policy-makers. It is expected that this investment will help Canada develop global thought leadership on the economic, ethical, policy and legal implications of advances in AI.
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Country: **China**

Responsibility: Cyberspace Administration of China/National Development and Reform Commission/
Ministry of Industry and Information Technology

Initiative: Guidance on Promoting the Development of Sharing Economy

Guidance on Promoting the Development of Sharing Economy, jointly drafted by eight central government agencies including the National Development and Reform Commission, Cyberspace Administration of China and the Ministry of Industry and Information Technology, has been released in July this year. According to “China’s Sharing Economy Development Report 2017”, China’s sharing economy enjoys rapid development in recent years: the market transactions in 2016 amounted to RMB 3,452 billion, 103% increase over the previous year, and is expected to account for more than 10% of GDP in 2020. Sharing economy has become the most dynamic area of innovation, penetrating traveling, short-term rent, healthcare and other fields. Around 600 million Chinese people were involved in sharing economy in 2016. The number of service providers in sharing economy has reached 60 million, and employers in the relevant platforms about 5.85 million, both of which saw rapid growth. The same surge goes to paid knowledge, live web casting and share bicycles. Meanwhile, mass entrepreneurship platforms with sharing services are burgeoning and the number of government-acknowledged “Mass Entrepreneurship Space” exceeded 4,000.

Country: [European Union](#)
Responsibility: European Union
Initiatives: 1. Rules to make cross-border e-Commerce easier
2. VAT proposal on e-Commerce

1. The **e-Commerce Directive 2000/31/EC** has created the basic legal framework for online services, including electronic commerce in the Internal Market. The purpose of the Directive is to remove obstacles to cross-border online services in the European Union and provide legal certainty to business and citizens in cross-border online transactions. The e-Commerce Directive adopted in 2000 sets up an Internal Market framework for electronic commerce, which provides legal certainty for business and consumers alike. The Directive establishes harmonised rules on issues such as the transparency and information requirements for online service providers, commercial communications, electronic contracts and limitations of liability of intermediary service providers. It also enhances administrative cooperation between the Member States and the role of self-regulation.

Many people in Europe remain reticent about engaging in the range of online activities that could improve their daily lives. While $\frac{3}{4}$ of Europeans used the Internet on a regular basis in 2014, only 15% shop online from another country. Moreover, only 7% of SMEs online sell cross-border. To help cross-border e-commerce to flourish, the Commission updated EU rules (the e-Commerce Directive) clarified contractual rights, and develop enforcement (cross border enforcement cooperation).

The Digital Single Market and the e-Commerce Directive

One of the 16 initiatives of the Digital Single Market Strategy, adopted on 6 May 2015, aims to define an appropriate e-Commerce framework and preventing unfair discrimination against consumers and businesses when they try to access content or buy goods and services online within the EU.

The Commission launched two Public Consultations on 24 September 2015 as part of the review of the e-Commerce Directive:

- Public consultation on the regulatory environment for platforms, online intermediaries, data and cloud computing and the collaborative economy
 - Public consultation on Geo-Blocking and Other geographically based restrictions when shopping and accessing information in the EU
2. On 1 December 2016 the European Commission has unveiled a series of measures to improve the Value Added Tax (VAT) environment for e-commerce businesses in the EU. The EC proposals will allow consumers and companies, in particular start-ups and SMEs, to buy and sell goods and services more easily online. In particular, the EC proposes:
 - New rules allowing companies that sell goods online to deal easily with all their EU VAT obligations in one place;
 - To simplify VAT rules for start-ups and micro-businesses selling online, VAT on cross-border sales under €10,000 will be handled domestically. SMEs will benefit from simpler procedures for cross-border sales of up to €100,000 to make life easier;
 - Action against VAT fraud from outside the EU, which can distort the market and create unfair competition;
 - To enable Member States to reduce VAT rates for e-publications such as e-books and online newspapers.

Country: France
Responsibility: DGE (Direction générale des entreprises)
Initiative: Loi République Numérique (Digital Act or Digital Republic Act).

The [Digital Republic Act](#) was adopted in 2016. It focuses on the following:

Opening by default of public and general interest data

The #DigitalAct creates the obligation for public organizations to publish their databases on the Internet, subject in particular to the anonymization and protection of intellectual property and industrial and commercial secrecy. This data can thus be exploited and reused easily by each individual, as an enterprise. Some private actors (companies holding public procurement contracts, beneficiaries of public subsidies, etc.) will also be required to provide data of general interest, which may concern the operation of public energy or water services, real estate transactions, and the management and recycling of waste.

Secure access to data for public researchers and statisticians

The data produced by the public sphere are often very rich, but just as often, very confidential because of the level of each individual. Their access was so far practically impossible, even for the purposes of research. Thanks to the Digital Act, a secure access system will enable only researchers and public statisticians, within the framework of a given project, to be able to study these data in order to better understand the effectiveness of our public policies and to evaluate the effect future reforms. Thus, the fine understanding of the impact of the introduction of a universal income is now made possible.

Open access to the results of public research and authorization for the search of texts and data

The results of research financed more than 50% by public funds may be put online by their authors, after an embargo period of 6 to 12 months. This measure will facilitate the free dissemination of research findings, the dissemination of which was often restricted and concentrated by publishers. The law also permits searches of texts and data online, an essential practice in the context of social and human sciences research.

Portability of data

The DigitalAct creates the obligation for online services to allow the retrieval of user data from a user in order to facilitate the change of provider, whether it is a user account of a bank online, an e-commerce service or even preferences on an online music listening site. This data should be provided in an open and easily reusable format.

Digital death

As with a will, a person will have the right to enforce his/her will on the future of his personal information published online after his death, from

Official recognition of e-sport as a competitive professional video game practice

The #DigitalAct provides for the recognition of e-sport, in particular by legalizing the physical competitions of video games and endowing the professional players with a social status.

Country: **India**
Responsibility: Ministry of Electronics and IT (MeitY)
Initiative: Digital India Programme

India is well set to become US\$ 1 Trillion Digital Economy in the next 7 years which will be based on the parameters of social inclusion and cost effective delivery of services. For this, **Digital India** is enabling technological empowerment that is bridging the gap between the haves and have nots. Various Policy initiatives such as **Cloud First, GEM, Direct Benefit Transfer (DBT), National Cyber Security, BharatNet, CSC Choupal** have been taken in this endeavor.

To accelerate delivery of e-services provided by the government and to optimise ICT spending of the government, **MeghRaj**, a Cloud initiative has been taken by the Government. MeghRaj is a set of discrete Cloud computing environments (National and State Clouds) built on existing or new (augmented) infrastructure, following a set of common protocols, guidelines and standards issued by the Government of India. It is a paradigm shift in the way Government procures the infrastructure and deploys the e-Gov applications. Government departments at the centre and states to first evaluate the option of using the GI Cloud for implementation of all new projects funded by the government. Existing applications, services and projects will be evaluated to assess whether they should migrate to the GI Cloud. Three deployment models i.e. Public Cloud, Virtual Private Cloud, Govt. community cloud and various service models i.e. Infrastructure as a Service, Platform as a Service, Virtual Desktop as a Service, Disasters Recovery as a Service are available under MeghRaj. So far, 630 User Accounts with over 520 Applications and 11,000 Virtual Servers have been deployed.

The Government has also decided to create a one stop Government **eMarketplace (GeM)** to facilitate online procurement of common use Goods & Services required by various Government Departments/Organizations. GeM aims to enhance transparency, efficiency and speed in public procurement. It provides the tools of e-bidding, reverse e-auction and demand aggregation to facilitate the government users achieve the best value for their money. So far, 113,489 Products, 8,458 Buyers, 25,558 Sellers, 5,685 Service Provides have been registered with GeM and products & services worth 171 USD million have been procured through the Government E-Marketplace.

Promotion and nurturing innovation is one of the prime thrusts of Digital India. The Programme is envisaged to free our citizens from the burden of excessive paper documents in every office and promote paperless transactions. Digital India will transform governance, making it more transparent, accountable, accessible and participative. Digital India would build holistic capabilities across IT infrastructure, electronic manufacturing, software services, delivery platforms, IT skill sets and job creation that cut across education, skills, healthcare, livelihood, financial inclusion, small and village enterprises, opportunities for women, conservation of natural resources, distributed clean energy, etc. The Programme encompasses the implementation of new ideas and innovative solutions to ensure unprecedented level of transparency and accessibility in government. The focus is on making the government responsive to ensure better and comfortable life to all citizens, and facilitate entrepreneurs, e-commerce and other professional services. The multiplier effect of these initiatives would be enormous, leading to enhanced economic activities.

Country: **Indonesia**
Responsibility: Ministry of Communication and Information Technology/Financial Service Authority
Initiatives:

1. Safe Harbor Policy
2. Policy of Negative Investment List
3. Policy for enabling Transportation on Demand Services (Go-jek, Uber, Grab)
4. Policy for Financial Technology Services
5. Implementing USO Framework
6. Roadmap E-Commerce

1. **Safe Harbor Policy** is a pro-innovation policy to solve the uncertainty of digital platform providers in doing their business and improving the innovation when facing the scope of content responsibility between platform providers and users. This case is coming when the platform content is also provided and created by users. More cases showed up in light of rapid developments in the e-commerce industry in Indonesia.

The Ministry of Communication and Informatics (“MCIT”) issued Circular Letter No. 5 of 2016 on the Limitations and Responsibilities of Platform Providers and Merchants in E-Commerce Using User-Generated Content Platforms (the “Circular”) on 30 December 2016. The Circular is a further step towards implementing the National Roadmap for E-Commerce. The circular was issued in order to provide legal protection for e-commerce platform providers by defining their legal boundaries and responsibilities in doing e-commerce transaction in the form of user generated content (UGC). The Circular prohibits certain types of content from being posted on user-generated content e-commerce (marketplace) platforms. It also defines the obligations and responsibilities, and as a safe harbor policy limits the scope of liability, of the parties involved in such platforms.

The Ministerial Circulated Letter is provided to be the safeguard and boost the innovation of digital business model in respect of intellectual property ownership. Every stakeholder on a digital platform process is responsible of creating content and respect to the policy of using intellectual property.

And this policy to enable the various digital economy business models as enablers for sharing economy for addressing the need for reducing wealth and income disparity (Roadmap point 3.3).

2. **Policy of Negative Investment List** is a response of the government to enable and grow the scale up of the digital platform companies or digital start-ups by opening the foreign investment in respect of valuation. Before the new Policy of Negative Investment List was released, foreign investment to digital start-ups was closed. The impact is the digital start-ups’ competitiveness becoming low and difficult to scale up their business model. The lack of funding to boost innovation and distribute the services identified as the main factor to head to head the foreign digital platform which services already covered the Indonesian market through the Internet.

A number of digital start-ups have been significantly growing in Indonesia and need investment access to scale up their business. Previously, there is an absence of the policy to categorize and classify the investment level for digital start-ups with various digital business models. An urgency policy was needed to open investment for digital start-ups by measuring the ownership cap to keep the early and middle e-commerce start-ups growing but eligible to invest.

As researches have proven, the impact of digitalisation on our economies and lives are inevitable and vast. Forbes estimated that in 2011, digitization added \$193 billion to world economic output and created not to mention jobs created, whereas Accenture calculated that more than a fifth (22%) of global GDP can be attributed to some form of digital skills, capital, goods or services. Digitalisation has become a driver of economic growth and the digital economy is increasingly becoming “the economy”.

The Indonesian government provides regulation as relaxation of investment restriction and the opening of investment opportunities in digital platforms whose primary business is within the e-commerce industry (e.g. marketplace, price grabber, daily deals, online advertising) with the following asset value thresholds:

- Reserved for Small and Medium Businesses
- 49% ownership cap for investments < IDR 100bn
- 100% ownership for investments > IDR1 100bn

This regulation is being implemented and creating certainty investment guideline for e-commerce start-ups. By growing and scaling up the e-commerce start-ups, the impact is providing continuity and enhancing the e-commerce business which has economy value chain with the people. As well how the e-commerce business model has been affecting the distribution of income wider.

And this policy to enable the various digital economy business models as enablers for sharing economy for addressing the need for reducing wealth and income disparity (Roadmap point 3.3).

3. **Policy for enabling Transportation on Demand Services** is an anticipation of new business model is called ride-sharing, which are applications in which it becomes easier and more convenient to get rides in an untraditional manner. While the yellow taxi cab has been integrated into many societies, there now exists an extension of the traditional taxi that seeks to revolutionize the industry. In this business model, people could provide a service like a rent car or taxi using their private cars by joining the platform. Consumers can hail a ride using its mobile app through the platform.

In many countries, where ride-sharing services such as Uber, Grab, Didi, and Go-Jek are already released, usually facing the challenges of acknowledgment as public transportation and being competitors of taxicab. Some cities in countries such as Brazil, Canada, China, France, Germany, India, Spain and even some states in the United States have reacted to the ride-sharing phenomenon by banning (or partially banning) the operation. Banning the operation will stifle the innovation and chances for creating new entrepreneurs as partners of the ride-sharing platform company.

Indonesia responded to this issue by releasing a regulation to adopt the ride-sharing business model but has the equal playing field treatment with other services such as taxicab. Under the regulation, ride-hailing apps need to work in partnership with rental car cooperatives or companies, or the registered taxi companies. This means they will no longer run their businesses with individual drivers. To adopt this regulation, for example, Grab drivers will be represented by the Indonesian Car Rental Cooperative (PPRI). This kind of cooperative is a membership organization which operated by its members for their mutual benefit. The drivers who join the partnership with PPRI, also register their cars to PRRI but the ownership still belongs to the drivers.

The transportation on demand services are still growing and the users increasing every year. The taxicab companies also overcome the competition by co-operating with the ride-sharing apps companies. The taxicab services is able to be ordered through the transportation on demand services apps.

The idea is government constructs policy to develop a conducive business ecosystem but enables the incoming disrupting digital business model as long it aligns with the government objective to create more jobs, opportunities, and income more thoroughly. The policy overcomes the concerns of the digital era by increase the level of workforce digitalisation, hence, harnessing the much-desired improvement in the levels of economical and functional productivity, leading to the overall uplift of income and wealth generations and the betterment of the standard of living of the intended beneficiaries.

And this policy to enable the various digital economy business models as enablers for sharing economy for addressing the need for reducing wealth and income disparity (Roadmap point 3.3).

4. **Policy for Financial Technology Services** is the requirement to improve access to financial technology services and enable more financial technology business models for unbanked people to have more financial access. In 2014, access to financial services in Indonesia is considered low compared to other Asian countries; the number of the Indonesian adult population with access to formal financial services is only 36%. (World Bank, 2014).

In light of the evidence for the benefits of expanded access to financial services, financial inclusion is high on the policy agenda of a number of developing countries worldwide. This is often particularly necessary in such countries, where banking and financial systems are often underdeveloped and often cater only to large firms in the formal sector and/or high-income individuals. Improving access requires actions on both the supply and demand side, by both the public and private sectors. It also requires changes in the institutional environment. Recent experiences in several countries show that with the right information on that lacks access and for what reasons, policies can be adjusted and products can be designed to scale up access, especially with new technology. (World Bank, 2010)

The Indonesian Government already established The National Strategy for Financial Inclusion (NSFI). NSFI is intended as a strategic guideline for ministries/institutions, governments, and other related agencies to improve access to financial services through their respective collective and integrated efforts. One of the NSFI objectives is enhancing sound and robust payment system in facilitating people in conducting all non-cash transactions through banks and non-bank financial institutions (e.g. Telco and Financial Technology Company). (Hendar, BI, 2016)

One of the Financial Technology products already regulated by Financial Services Authority is Peer-to-Peer Lending (P2P Lending). The business model of P2P lending is to allow borrowers to get access to money from a personal lender. The peer-lender may charge higher interest rate for the risk lender is taking to give money to borrower who may not be able to access the banking financial services.

The technology enables the finance and tech geeks to setup P2P lending platforms. The focused nature of their activities ensures that the administrative and overhead costs required for setting up a P2P platform are relatively low. Platforms are also able to match borrowers and lenders (because they are not holding any of the loans themselves) without any interest margin. While lenders on P2P lenders are exposed to greater risk (there is no deposit insurance and no promise of returns), these risks have at least to date been substantially compensated by much higher rates of return. (ECRI,2016)

P2P Lending target market in Indonesia is mostly the MSMEs, low income society, and untapped society in rural area. Most of the customers could be not an eligible customer for banks. The presence of Financial Technology is a very helpful financial service for them to increase their capability, overcome the deficiency of production cost, and another business cost.

At some point, the P2P Lending customers can produce and gain more income, and increase their eligibility to access banking financial product or services. In this case, if the rate of P2P Lending is still higher than the bank rate, then there is a very good chance to banks become participant in lending. They can tie up with P2P platforms and lend at impressive rates, or the banks can learn from the borrowers' history to evaluate their eligibility to get the banking financial services.

Within financial inclusion mindset, the speed and agility of financial technology may be able to become the needed bridge for the financially excluded, on the road toward a bigger and more stable conventional banking. This is evidence and a chance to show how the financial technology presence could be not as bank competitors, but become the bridge or gate to people being bankable.

Strategic policies that closely coupled these two aspects – people empowerment and digitalisation – could contribute to social prosperity on the one hand through improvement of digital literacy, access and economic value proposition. Therefore, the expansion of digital technologies applied for financial inclusion here goes beyond digital payment. But rather, to enable a rapid absorption of digital technologies specifically designed as non-traditional solution for the underserved and the unbanked within the realm of a digital economy framework. Traditional banking has an important role to play within this process together with fintech solution. Policies must be inserted where fintech speed of growth can be synergized with banks.

And this policy to enable the various digital economy business models as enablers for sharing economy for addressing the need for reducing wealth and income disparity (Roadmap point 3.3).

5. **Implementing USO Framework** to provide access infrastructure in order to enable the distribution of digital platform services in underserved areas. Universal Service Obligation (USO) in telecommunications industry is generally focused on promoting or maintaining “universal” availability of connections by individual households to public telecommunications networks. However it is not economically feasible in most developing countries, where universal access is a more practical objective, (Telecommunication Regulation Handbook, 2000).

Based on the Telecommunication Regulation Handbook, the adoption and implementation of USO is different in some countries. The USO models such as mandatory service obligations where the operators have to provide access infrastructure in certain area to get a license in competitive areas. The other model is cross subsidies to enable the access infrastructure to certain beneficiaries.

Indonesia deploys the university funds with spirit that providing universal services aims to leave nobody behind. All the strategic initiatives on the digital economy must be available for ALL of our people. As explained above in key are 2.1, The Government of Indonesia established the scheme of Public Private Partnership to provide broadband backbone (Palapa Ring Project) and access network in non-viable areas with the usage of USO Funds collected

from the revenues of telecommunication operators. The program is expected to be fully finalized by 2019 with existing network built by commercial telco operators, connecting all capitals of cities and regencies all over Indonesia, including the very rural untapped ones. Existing telco operators would then be able to use the network to provide broadband services to people with more affordable tariffs and better quality. In the future, once all the required networks are available, the Government can optimize the usage of USO Fund to further programs such as e-Government, Internet gateway, payment gateway, and other initiatives to support the ecosystem and the growth of digital economy.

This affirmative policy is the bottom line; the acceleration of providing the broadband infrastructure is needed to accelerate the development of telecommunication infrastructures that enable MSMEs all over Indonesia to have access to the sharing economy, workforce digitalisation, and financial inclusion initiatives to reduce wealth and income disparity. Advancing USO framework is necessary to provide sustainable support for minimizing unequal distribution of digital economy growth and reducing wealth and income disparity.

And this policy to enable the various digital economy business models as enablers for sharing economy for addressing the need .for reducing wealth and income disparity (Roadmap point 3.3)

6. **Roadmap E-Commerce** is a comprehensive strategic plan that contains of 7 strategic issues has been identified as issues hindering the E-Commerce industry development in Indonesia that needs to be tackled strategically. The roadmap developed as a National collaboration with more than 8 ministries and related government institutions which aim to reach above US\$ 130 Billion value of E-Commerce transaction by 2020. The strategic issues hindering Indonesia's E-Commerce industry in Indonesia have been discussed with key agencies and stakeholders resulted in action-oriented and high-level initiatives to tackle each issue. The 7 strategic issues are Education & Human Resources, Funding, Taxation, Consumer Protection, Cyber Security, Logistic, and Communication Infrastructure. And this policy to enable the various digital economy business models as enablers for sharing economy for addressing the need for reducing wealth and income disparity (Roadmap point 3.3). All the initiatives are the best practices to improve the world-wide access, adoption, and effective use of digital technologies for all. And also, how the governments and organizations need to share the implemented and incoming innovative business models and best practices to each country, so we bring the effective and proven solution to reduce the wealth disparity.

Country: Italy

Responsibility: Italian Ministry of Economic Development

Initiatives:

1. A new digital, free platform to set up start-ups quicker
2. Italia Startup Visa programme

1. **A new digital, free platform to set up start-ups:** Since mid-2016 Italian innovative start-ups can be established online, with no cost and in a shorter time. Specifically, they can choose to draw up their deed of incorporation by means of a typified standard model – which guarantees conformity to the law without need for a notary –, using a dedicated, public and free-of-charge digital platform.

As mentioned above, the new procedure of incorporation presents several advantages. First of all, its usage is free-of-charge, implying a huge saving for innovative entrepreneurs as opposed to the standard procedure by notarial deed. Second, the process is characterised by a marked disintermediation: the entire procedure takes place online, through a dedicated platform, and the validation of the identity of the subscribers is guaranteed by the digital signature. Finally, the deed of incorporation is drawn up in a uniform format (XML) which allows rigorous checks without hindering customisation. Last but not the least, the described procedure remains voluntary: it is still possible to establish an s.r.l. (limited liability company) by notarial deed, registering it in the special section of the Register dedicated to innovative start-ups afterwards.

2. **Italia Startup Visa programme:** A few countries, from Europe in particular, have recently experimented with a new type of public policy: the introduction of simplified, fast-track procedures to issue entry visas in favour to innovative entrepreneurs from abroad. This new policy is generally called “startup visa”. The Italia Startup Visa

programme introduces a brand new procedure that is bilingual, centralised, digital, and fast-track. The procedure takes place completely online, submission can be also in English, it is completely centralised in a single administration (the Ministry of Economic Development) which acts as a single contact point for the applicants, it takes place in a short time (30 days from application submission).

Country: **Japan**

Responsibility: 1. Ministry of Internal Affairs and Communications
2. Ministry of Economy, Trade and Industry

Initiatives: 1. IoT Comprehensive Strategy
2. Connected Industries

1. The Ministry of Internal Affairs and Communications (MIC) made basic strategy forecasting IoT-based society named **“IoT Comprehensive Strategy”** in January 2017. The concept of the strategy is that big-data collected by IoT devices would bring accurate solutions against social challenges by analyzing them through AI. MIC has been encouraging to make reference models of IoT-used services in the fields such as sharing economy, agriculture, medical and care, and spread these models all over Japan. Also MIC is trying to implement AI into the society and develop more intelligent AI. MIC and Ministry of Economy, Trade and Industry of Japan arranged “collaboration team” in March 2017, which discusses on IoT-related themes to conduct strategy and policy of both ministries most effectively.
2. Ministry of Economy, Trade and Industry of Japan (METI) is promoting its basic policy called **“Connected Industries”**. The concept of the policy is connecting everything, such as things, machines, people, organizations, etc. by data to generate new value added for providing solutions against social challenges. As sharing and re-use of data are foundation to realize the idea of “Connected Industries”, METI, through consultations with multi-stakeholders, had formulated a guiding document for businesses to contract rights to data usage among concerned businesses. The aim of the document is defining the rights to data usage since some of data are not fully utilized because the rights or ownership of the data are not defined.

In order to realize “Connected Industries”, METI also facilitates multi stakeholder discussions in five priority working areas, such as 1 autonomous driving and mobility service, 2 manufacturing and robotics, 3 bio technology and material, 4 industrial plant and infrastructure safety, and 5 smart life. In each working areas, discussions on what kind of data can be shared and re-used and how such data can be re-used are ongoing.

Country: **Mexico**

Responsibility: Ministry of Public Education

Initiative: Modelo Mexicano de Formación Dual

The Ministry of Public Education, through the Undersecretary of Middle Education in coordination with the Mexican Confederation of Business Owners (COPARMEX), and the German – Mexico Chamber of Industry and Trade (CAMEXA); developed in 2013 the **Mexican Model of Dual Training (MMFD)**, which incorporates the essential elements of the German dual model and adapts them to the national reality.

The MMFD raises the in-company/school training of the technological baccalaureate students of Public Institutions of Higher Education (IPEMS). Starting from 3rd semester, the student joins the company in accordance with an individualized training plan, alternating its learning process from classroom to workplace for a minimum of 1-2 years, according to the type of career.

In this regard, the student develops in the company, activities or tasks that correspond to the company’s field and applying the principle of “learning by doing” within a real working environment. The learning process in the company it is alternated and complemented with theoretical formation at school.

Elements of the Mexican Model of Dual Formation:

1. Development of standards under a consensus between the productive and educational sector
2. Active participation of the productive sector through agencies or entrepreneurial associations that act as a unit of operation (operators), to provide advice and professionalized accompaniment, follow-up and support to the companies that participate in the dual formation.
3. Comprehensive formation of the student, in enterprises and within the educational institution
4. There are two formation modalities: the first with a minimum of two years formation in the company and the second with a one-year minimum of training in the company, starting from third semester (second year).
5. The company develops an alternation plan of apprenticeships, which structures the implementation of the learning contents in a modality of sequences and a range of time within the company
6. Students prepare weekly reports that reflect the learning acquired
7. The rating of the staff responsible for the learning processes in the company and in the educational institution
8. To achieve a successful implementation of the dual formation program in companies, it should be considered and where appropriate, adapt work places in the company in order to be effective learning stations in the framework of the alternation plan.
9. The model also includes additional training schemes to complement learning posts, such as educational institutions, supra national business centers or forming alliances between companies
10. When the dual formation program concludes the student acquires the corresponding academic certificate, but it also has the right to a final assessment process to evaluate his/her competences, in order to obtain a certification of labor competence in the framework of the National Council for Standardization and Certification of Labor Competencies – CONOCER.

Country: **Russian Federation**

Responsibility: The Government of the Russian Federation

Initiative: The program «Digital economy of the Russian Federation» approved by the decree of the Russian Federation government dated 28.07.2017 No. 1632-R.

The program «**Digital economy of the Russian Federation**» defines mission, goals, objectives, directions, scope and implementation period of the main measures in order to create necessary conditions for the development of digital economy of the Russian Federation. The data in digital form is the key factor of production in all spheres of social economic activity, which increases the country's competitiveness, quality of life of citizens, ensures economic growth and national sovereignty.

In general, the program is aimed at creating a favorable regulatory environment for the use of digital technologies in the Russian economy, building up competencies in the field of digital technologies of national enterprises, developing data processing infrastructure, ensuring cyber security, preparing enough quality personnel, and ensuring digital transformation of public administration, health and urban management.

There are three levels of digital economy, which in their close interaction affect the lives of citizens and society:

- Markets and sectors of the economy (areas of activity), where specific subjects (suppliers and consumers of goods, works and services) interact

- Platforms and technologies, where competence is formed for the development of markets and industries (spheres of activity);
- Environment that creates the conditions for platforms' development and technologies and effective interaction between the subjects of markets and industries (spheres of activity) and covers regulation, information infrastructure, labor and information security.

Effective development of markets and industries (spheres of activity) in the digital economy requires the availability of developed platforms, technologies, institutional and infrastructural environments.

The program is focused on the two lower levels of the digital economy – the basic directions, defining the goals and objectives of development:

- Key institutions that create conditions for the development of the digital economy (normative regulation, personnel and education, the formation of research competences and technological reserves);
- Basic infrastructure elements of the digital economy (information infrastructure, information security).

Country: South Africa, Republic of

Responsibility: Department of Telecommunications and Postal Services

Initiatives:

1. Draft National e-Strategy
2. Draft National e-Government Strategy
3. Draft National ICT SMME Strategy

1. In implementing the approved National ICT Integrated Policy White Paper, South Africa is in the process of finalizing the digital economy plan for the country through the **National e-Strategy** which will have a focused digital and technology infusion within the economic, social and security sectors to enhance delivery.
2. The need espoused by the National ICT Integrated Policy White Paper and the realization that government must play a key role in the driving of digital opportunities adoption, South Africa is in a process of finalization of the **National e-Government**.
3. The chapter in the National ICT Integrated Policy White Paper has also identified that the ICT sector has a challenge of high concentration, which prevents a need for industry competition opened for SMMEs, which could emerge as a result of digital opportunities and technological advancement. South Africa is in the process of finalizing the **National ICT SMME support strategy**, which will unlock the various opportunities that will make the ICT sector competitive edge.

The Fourth Industrial Revolution strategy and policy for the manufacturing industry is under development by the department of Trade & Industry (the dti). The dti is also building human resource capacity to support this developmental work. The dti is also participating in a number of research initiatives and case studies in the context of Industry 4.0 including the World Economic Forum “Shaping the Future of Production”; OECD studies; Research and Think tanks at local academic institutions etc. A Technology & Industry Discussion Forum was established by the dti to improve policy coordination between the dti, Department of Science & Technology and the Council for Scientific & Industrial Research as well as implement joint Industry 4.0 projects.

Country: **United Kingdom**
Responsibility: Digital, Culture, Media & Sport
Initiative: Supporting innovation, supporting digital business, widening procurement and spreading growth across the whole country

Our industrial strategy involves identifying our strengths and building on them. The digital economy is a vital part of that: as we build a great, global trading nation, we will **remain a world leader in innovation**, building and using the most advanced technology that delivers incredible content and services. We have some of the most exciting start-ups in the world, and some of the strongest technology clusters. We want to build on that: we want the UK to be the best place to start and grow a digital business.

To achieve this we need flourishing ecosystems and strong technology sectors, spread across the UK. In 2014 there were almost 200,000 digital businesses in the UK. They supported 1.4 million jobs across whole country – the fastest growing digital hubs from 2010–14 were Southampton, West Cornwall and Dundee. Tech City UK’s Tech North programme is helping to catalyse the development of the tech ecosystem around the seven northern cities of Hull, Leeds, Liverpool, Manchester, Newcastle, Sheffield and Sunderland – while the Northern Powerhouse’s tech businesses produce £9.9 billion GVA, with Manchester identified as the biggest cluster outside of the South East. There are similar programmes underway in other parts of the country, such as Tech East, and Croydon Tech City.

We already have globally leading sectors in **artificial intelligence, cyber security, FinTech, gaming, virtual reality and GovTech**. And our fusion of digital and creative expertise also gives us the leading edge in many other sectors including design and advertising. Government programmes are supporting the **UK’s development of the Internet of Things (IoT) and Autonomous Vehicle technologies. HealthTech and EdTech** both provide major underexploited economic opportunities to the UK, as well as helping to create the world-class public services that our people deserve.

To create the right conditions for growth, we will work with independent regulators to encourage innovation-friendly regulation that creates a positive context for the adoption of new technologies as well as giving them democratic legitimacy and a world-leading framework in which to operate, from drones to data. At Autumn Statement 2016 we announced that we would invest an additional £4.7 billion by 2020–21 in R&D funding, the biggest increase in public R&D investment of any parliament since 1979, to ensure British business remains at the cutting edge of scientific and technological discovery. Our Industrial Strategy green paper began a consultation on the priority challenges for a new Industrial Strategy Challenge Fund, which will help the UK capitalise on its strengths in science and innovation such as robotics, clean energy and biotechnology. We welcome the work of Professor Dame Wendy Hall, Regius Professor of Computer Science at the University of Southampton, and Jerome Pesenti, Chief Executive of BenevolentTech, who will undertake a review of how we can create the conditions for the artificial intelligence industry to thrive and grow in the UK.

The UK is already a world centre for finance, and home to a great deal of investment finance. Overall, investment in UK technology businesses is buoyant. A record £1.57 billion of equity finance was invested in the digital sectors in 2015, more than four times the level of investment in 2011. We want to see this continue, and we have announced a number of steps to help businesses to secure the finance they need to grow throughout their life. In addition to these actions, we will work to establish a network of UK Tech Hubs in five developing countries. Working alongside the existing hub in Israel, these hubs will boost our impact in emerging digital economies around the world.

Country: **The Netherlands**
Responsibility: Ministry for Economic Affairs/Ministry of Education, Culture and Science
Initiatives: 1. Better connection between education and the labour market
2. Investments in the ICT research infrastructure.

1. To **improve the connection between supply (education) and demand (the business sector)** and to encourage lifelong learning (retraining and further training), a **Human Capital Agenda for ICT (HCA ICT)** has been set up under the leadership of Team ICT. This team’s job is to initiate and encourage public-private partnerships with

regard to ICT innovation. The goal of the agenda is to increase the supply of highly qualified ICT professionals, including cyber security specialists and data experts. Actions taken by the HCA ICT include providing scholarships, internships and graduation places for excellent students in senior secondary vocational education (MBO), higher professional education (HBO) and academic higher education (WO), and organising guest lessons on ICT within secondary schools. In addition, five centres will be established focusing on ICT for higher professional education (Centres of Expertise) and senior secondary vocational education (Centres for Innovative Workmanship).

An example of initiatives of the Human Capital Agenda for ICT is the regional collaboration in training more big data scientists. In the southeast of Brabant, 300 additional big-data scientists are needed every year. For this reason, Tilburg University, Eindhoven University of Technology, the Province of Noord-Brabant and the Municipality of 's-Hertogenbosch have made agreements to coordinate the supply of regional education with the business sector's demand for talent, knowledge (ICT, entrepreneurship) and innovation (technical, organisational). In September 2016, the Jheronimus Academy of Data Science (JADS) started a Bachelor's programme in Data Science (maximum capacity of 80 students) and a Master's programme in Data Science Entrepreneurship (maximum capacity of 40 students). This academy was inspired by the painter Jheronimus Bosch, who inventively built upon existing motifs with new compositions. This kind of approach is also a source of inspiration for other regions. In the Utrecht region, which has a strong service sector, a collaboration including Utrecht University, HU University of Applied Sciences Utrecht, ROC Midden Nederland, the Netherlands Organisation for Applied Scientific Research (TNO) and the regional business sector is working on the establishment of an IT Competence Centre. This contributes to one of the lines of action of Team ICT's Human Capital Agenda for ICT.

2. One of the initiatives the Netherlands is undertaking to **support the infrastructure for ICT research concerns Quantum technology**. Quantum technology is an important development for the computing power, capacity and security of ICT. Quantum computers are the next generation of computers and possess exponentially more computing power than existing computers. The use of quantum bits, which can simultaneously be both 0 and 1 thanks to the laws of quantum mechanics, will enable calculations that would be beyond the capabilities of even the most powerful supercomputers. One example is calculating properties of molecules and materials, which has applications in energy provision, healthcare (personalised medicine) or agri-food (enzymes and artificial fertiliser). Quantum technology also provides new solutions for data protection. Using quantum entanglement, it is possible to establish a connection that cannot be hacked, as the secure connection is broken as soon as a third party is on the line. This enables new types of encryption and data transfer.

In the Netherlands, Delft University of Technology (TUD) and TNO, united in the institution QuTech, are conducting groundbreaking research in the field of quantum technology, together with a number of other partners. QuTech made a scientific breakthrough by performing a Bell test (quantum entanglement) over a distance of 1.3 km. Within the scope of its national icon status, the public funding of QuTech is managed by the Ministry of Economic Affairs. An agreement has been made in which the partners (the Ministry of Economic Affairs, the Ministry of Education, Culture and Science, NWO, TUD, TNO and Holland High Tech (HTSM)) commit €146 million over the course of 10 years. Microsoft and Intel are the most important private financiers of QuTech: in 2015, Intel pledged a total investment of \$50 million over a 10 year period.

Country: Norway

Responsibility: 1. Ministry of Trade, Industry and Fisheries
2. Norwegian Ministry of Local Government and Modernisation

Initiative: 1. Altinn: Streamlining tax returns and other financial data reporting
2. Digital Agenda for Norway

1. **Altinn** is a web portal for electronic dialogue between the business/industry sector, citizens and government agencies. Altinn is also a technical platform which the public sector can use to produce digital services. Altinn is developed, run and administered by the Altinn collaboration, which consists of several government agencies. The Brønnøysund Register Centre administers the technical solution in Altinn on behalf of this collaboration and determines further development of the solution.

Altinn was started as collaboration between the Tax Administration, Statistics Norway and the Brønnøysund Register Centre in 2002, and was supposed to be a channel to report financial data. Altinn was officially opened on 4 December 2003. Since the portal was launched it has constantly increased its activities. Today, Altinn is an established and comprehensive platform and has evolved when it comes to data volume, associated government agencies and the number of digital end user services. The Altinn-solution is continuously being further developed with improvements on the existing and new functionality. Altinn also contains a lot of useful information for entrepreneurs, small and medium-sized businesses which you will find under “Start and run business” on altinn.no. You will also find an overview of all support schemes for the private sector.

There are 536 digital forms and services available as of 25 January 2016.

The use of Altinn: More than 4 million citizens have a message box and an “archive” in Altinn through their national identity number. And more than 1 million entities are registered as users through an organization number. From Altinn first started in 2003 and up to August 2015 about 112 million sets of forms have been sent in through Altinn and about 83 million documents and decisions from government agencies have been sent out to the users. This has led to the fact that both the private and the public sector have saved large amounts of money. The use of the services in Altinn is constantly increasing. 2014 had an increase of 23 percent and with the introduction of the A-ordningen, a further increase is expected. The number of messages sent from government agencies and local government to the users’ message box in Altinn had an increase of 30 percent in 2014, while messages from local government increased with 146 percent.

2. In 2016, Norway launched a **new Digital Agenda for Norway** in form of a white paper to the Parliament. The purpose of this white paper is to present the Government’s policy on how Norway can exploit ICT in the best interests of society. An English summary of the document is available [here](#).

The ICT policy must be based on the major, real challenges the public and private sectors are facing with respect to productivity, restructuring and rationalisation. In light of this, the Government’s ICT policy has two main objectives:

- A user-centric and efficient public administration
- Value creation and inclusion

Digital Agenda for Norway has set five key priorities that give the policy direction and highlight which areas should be focused on going forward:

I. A user-centric focus

The users (inhabitants, public and private enterprises and the voluntary sector) and their needs shall be the starting point. Users shall perceive public services as seamless and integrated, regardless of which public agency provides them. Public administration shall reuse information instead of repeatedly asking users for information they have already provided.

II. ICT constitutes a significant input factor for innovation and productivity

Efficient use of ICT strengthens industry’s competitive ability and increases society’s overall productivity. This is a precondition for financing future welfare services. The Government wants to make it easier for business and industry and wider society to exploit the opportunities that digitisation offers. The authorities shall accommodate increased digital innovation by adapting regulations, creating favourable framework conditions, removing obstacles to digitisation, and facilitating a world-class infrastructure providing high-quality electronic communication networks and services. Norway shall participate in Europe’s digital single market.

III. Strengthened digital competence and inclusion

From primary education up through all life phases, digital competence shall be improved to ensure inclusion to and confidence in digital solutions. Digital services shall be easy to understand and to use. Advanced ICT competence and ICT research constitute fundamental preconditions for the digitisation of Norway.

IV. Effective digitisation of the public sector

Public digitisation projects shall be planned and implemented professionally and in a way that reduces complexity and risk so that benefits are realised. The market shall be used where appropriate. Central and local government and the different sectors shall use common solutions to meet common needs. Common solutions shall be used to create effective, user-friendly digital services for the whole of the public sector. Interoperability with European solutions shall be facilitated.

V. Sound data protection and information security

Data protection and information security shall be integrated elements of the development and use of ICT. Citizens shall, as far as possible, have control over their own data. Processing of personal data shall be based on sound proportionality considerations according to purpose. Information security and ICT security are preconditions for maintaining confidence in digital solutions. Information security shall be maintained using a risk-based approach based on updated threat and vulnerability assessments, and shall be monitored by a sound system of internal controls.

Country: Singapore
Initiative: Committee of Future Economy

Singapore set up the Committee of Future Economy (CFE), co-chaired by Minister (Finance) Heng Swee Keat and Minister (Industry) S Iswaran, in January 2016 to develop economic strategies to position Singapore for the future. The CFE report, which was released in February 2017, has identified building strong digital capabilities in Singapore's workforce and companies, amongst others, as key focus areas to help prepare Singapore for the digital future.

The report outlined 7 strategies to realise the vision for us to be the pioneers of the next generation where people in Singapore should have deep skills and be inspired to learn throughout their lives; our businesses should be innovative and nimble; our city vibrant, connected to the world, and continually renewing itself; our Government coordinated, inclusive and responsive:

1. Deepen and diversify our international connections
2. Acquire and utilise deep skills
3. Strengthen enterprise capabilities to innovate and scale up
4. Build strong digital capabilities
5. Develop a vibrant and connected city of opportunity
6. Develop and Implement Industry Transformation Maps (ITMs)
7. Partner each other to enable innovation and growth

4. Foster competition in the digital economy

Country: [Germany](#)
Responsibility: Federal Ministry for Economic Affairs and Energy
Initiative: Review of German Act against Restraints of Competition

The Federal Ministry for Economic Affairs and Energy has developed a sound set of rules and values that underpin our economic policy. Special emphasis deserves the ninth amendment of the **German Act against Restraints of Competition** (Gesetz gegen Wettbewerbsbeschränkungen, “GWB”) entered into force 9 June 2017. It enables the German Federal Cartel Office (“FCO”) to explicitly take into account the specificities of the digital economy when examining market power in merger reviews and antitrust investigations. Competition law should reflect economic realities.

The amendment contains changes to merger thresholds, adjustments to market definition and criteria for assessment of market dominance, two new sections in the provision regarding “Market power” to establish that offering goods and services without charge can constitute a market activity that is subject to the competition law. This provision creates significantly more legal certainty on this point.

New assessment criteria of market power of a company are (1) direct and indirect network effects, (2) parallel use of multiple services and switching costs for users, (3) the undertaking’s economies of linked to network effects, (4) its access to data relevant for competition, and (5) innovation driven competitive pressure.

The principles guiding our work are transformation instead of disruption, innovation and competition as well as growth dynamism and participation. The digital regulatory policy we propose in our White Paper Digital Platforms is not only focused on Germany. We are strongly committed to realising the European Digital Single Market in a social European Union.

Country: [Argentina](#)
Responsibility: Ministry of Science and Technology
Initiative: Argentine Innovative Market (MIA)

The [Argentine Innovative Market](#) (MIA, by its Spanish acronym) is a web platform to promote and support scientific and technological projects in a participatory manner. Developed by the National Government, it is the first collective financing platform and its objectives are: to strengthen the technological scientific system, articulate public and private sector, and provide an innovative tool to boost not only their projects, but also the entrepreneurial culture.

MIA is proposed as a linking and funding space for projects of researchers or research groups, entrepreneurs, science and technology agencies, universities, technological linking units (UVTs), companies, and the general public.

Country: [Australia](#)
Responsibility: The Treasury
Initiative: Competition laws

The Australian Government is making sure Australia’s competition laws are fit for purpose in an increasingly digital world. **The Competition and Consumer Amendment (Competition Policy Review) Bill 2017**, currently before the Parliament, makes a number of amendments to Australia’s competition laws including introducing a new prohibition on concerted practices that have the purpose or effect of substantially lessening competition. In addition, amendments to Australia’s misuse of market power provision received Royal Assent on 23 August 2017. The amended law will better ensure dominant firms cannot use their market power to harm competition. Australia continues to ensure that the Australian Competition and Consumer Commission (ACCC) has the tools necessary to prevent practices that could harm competition in the digital economy, such as algorithmic coordination.

Country: Brazil

Responsibility: Ministry of Industry, Foreign Trade and Services (MDIC)/Ministry of Planning, Development and Management (MPDG)/Brazilian Trade and Investment Promotion Agency (Apex-Brasil)

Initiatives:

1. E-commerce
2. E-government

1. **The Brazilian Trade and Investment Promotion Agency (Apex-Brasil)** has been developing several initiatives which aim at promoting Brazilian companies in the international market through e-commerce tools. The goals include partnership with marketplaces, training of companies and insertion of companies in marketplaces.
2. The continuous digitalisation of public services can represent an economy for the Brazilian government of around R\$ 663 million per year, and for society of around R\$ 5.6 billion per year, reaching a total economy of R\$ 6.3 billion per year. To take advantage of these benefits, the federal government has implemented several initiatives to achieve greater efficiency and intelligence in public services, both within the internal administration of public agencies and in services provided to citizens.

The most recent of these is the **Digital Governance Strategy (EGD)**, instituted by Decree 8.638/2016. The main objective of the EGD is to modernize, strengthen and simplify the State's relationship with society through the use of ICTs. Its principles include openness and transparency, prioritization of public services available in digital media, sharing of service capacity, focus on citizen needs, security and privacy, simplicity, participation and social control, and innovation. The strategy has three main lines of action: access to information, service delivery and social participation. Another very important front of EGD is open data policy, which is crucial for the construction of experimental spaces in which citizens can interact closely with public agents, allowing for transparency and accountability to citizens, as well as an environment in which new business models can emerge.

There are two other initiatives under the auspices of the Ministry of Planning aimed at improving the use of data by the government: the **Federal Government's Data Analysis Platform (GovData)** and the **ConectaGov Platform**. GovData is a technological platform for analysis, access and integration of governmental data, containing the main database of government in a single place. It is made up of tools that allow the cross-checking of data and the analysis of strategic information for decision-making, fraud identification and policy failures. It also aims at reducing costs and simplifying access to government data in an integrated way. ConectaGov, in turn, consists of a government data interoperability tool that aims to facilitate the integration and recovery of data for the provision of services to citizens. An example of a service modernized by ConectaGov is the issuance of passport, dispensing with the need for documents certifying information that the government itself already owns.

Finally, the Federal Government published, on December 20, 2016, Decree No. 8.936, which established the **Platform for Digital Citizenship**. The goal is to expand and simplify access to digital public services, including through mobile devices. The Federal Government Services Portal becomes, then, the single and integrated channel for the provision of information, electronic request and monitoring of public services. The Services Portal is evolving and will soon allow citizens a single authenticated access to the whole plethora of digital public services, using among other authentication mechanisms the biometric base of the Higher Electoral Court (TSE) when the public services in question require the use of biometrics.

Country: Canada

Responsibility: Innovation, Science and Economic Development Canada

Initiatives:

1. Competition Bureau Intervention at the Canadian Radio-Television Telecommunications Commission (CRTC), "Telecom Notice of Consultation CRTC 2016-192 (2016)"
2. Competition Bureau White Paper, "Modernizing Regulation in the Canadian Taxi Industry" (2015)

1. The Competition Bureau's intervention concerned Internet service providers (ISPs) and differential pricing. The purpose of the Bureau's intervention was to provide insight and assistance with respect to the competition issues, as well as general recommendations concerning an appropriate regulatory framework. In 2017, the Canadian

Radio-television and Telecommunications Commission established a **framework for assessing the differential pricing practices of ISPs**.

2. The **Competition Bureau White Paper, “Modernizing Regulation in the Canadian Taxi Industry”** called on regulators to modernize taxi industry regulations. The taxi industry is regulated at the municipal and provincial levels in Canada. While taxi companies are subject to these regulations, ride sharing services are not. This creates an uneven playing field in the industry.

Country: **China**
Responsibility: Ministry of Industry and Information Technology
Initiative: Review of Fair Competition

First of all, rules and regulations on fair competition review, including **Fair Competition Review System and Review Procedures of Fair Competition (Trial)**, have been formulated by MIIT.

Secondly, fair competition review was carried out accordingly. MIIT conducted several rounds of fair competition review on policy papers regarding market access and exit, the free flow of commodities and factors, behaviors affecting costs and other aspects of production and operation formulated by local communications administrations.

Country: **European Union**
Responsibility: European Union
Initiatives:
1. Launching an antitrust competition inquiry into e-Commerce
2. A modern, more European copyright framework

1. The **Commission launched an antitrust competition inquiry into the e-Commerce** on 6 May 2015, as part of the Digital Single Market Strategy. As part of the sector inquiry, the Commission requested information from a variety of actors in e-commerce markets throughout the EU both in relation to the online sales of consumer goods (such as electronics, clothing, shoes and sports equipment) as well as in relation to the online distribution of digital content. During the inquiry, the Commission has gathered evidence from nearly 1900 companies operating in e-commerce of consumer goods and digital content and has analysed around 8000 distribution contracts.

On 15 September 2016 the Commission published a Preliminary Report on the e-commerce sector inquiry setting out its initial findings. The Preliminary Report provides an overview of the main competition-relevant market trends identified in the e-commerce sector inquiry and points to possible competition concerns.

On 10 May 2017, the Commission adopted the Final Report on the e-commerce sector inquiry and published the accompanying Staff Working Document which set out the main findings of the e-commerce sector inquiry taking into account the views and comments submitted by stakeholders during the public consultation.

2. Delivering on its DSM Strategy, the Commission is rolling out an ambitious **modernisation of the EU copyright framework**. The objective is to make EU copyright rules fit for the digital age. The Communication on a modern and more European copyright framework adopted on 9 December 2015 sets out the main political objectives and areas of action as well as the timeline, based on a step-by-step approach.

A first legislative proposal was adopted on 14 June 2017, the regulation on cross-border portability of online content services, which aims at ensuring that consumers who buy or subscribe to films, sport broadcasts, music, e-books and games can access them when they travel in other EU countries.

A second set of legislative proposals aims at modernising the copyright framework, focusing on allowing for wider online availability of content across the EU, adapting exceptions and limitations to the digital world, and achieving a well-functioning copyright market place.

Country: France
Responsibility: Ministère de l'économie et des finances (DGE, DGCCRF).
Initiative: French contributions to Digital Single Market and Telecommunications Single Market negotiations.

The following is an excerpt of the [French contributions](#) to Digital Single Market negotiations at the European level:

Powerful global players are structuring a growing share of the supply and demand of digital services: digital platforms, characterized by an essential function of matching supply and demand, and which benefit from important network and audience effects, now dominate large areas of activity: e-commerce, transport, tourism, culture, etc. These include: online market places, including the sale or dissemination of cultural content; social networks; search engines on the Internet; application stores and operating systems for terminal equipment or even the terminals themselves.

The emergence of these new players call for new competition rules including:

- monitoring the impact of proprietary logic on the functioning of the market and, if necessary, to remedy the malfunctions observed;
- preventing the predatory effects of excessive intermediation strategies in industrial sectors.

Especially for businesses that rely on these platforms to operate, the conditions for dereferencing must be identified in advance, established on legitimate grounds and verifiable by third parties.

- Modifications to the algorithm must be subject to a reasonable period of notice and be accompanied by sufficient information from the partners on the impacts of such a modification on their references, in order to allow them, if necessary, to adapt their models accordingly.
- The technical conditions of referencing must make it possible to limit or even reject the automatic crawling engine and deep links without losing the benefit of referencing.
- The platform must respect a rule of balance between sponsored referrals and organic referencing.
- The platform should duly inform its partners, as well as the competent national authorities, about the treatment of its own services or services which would be affiliated to it, and which would enter into competitive rivalry with those of its partners; in such cases it is also subject to an obligation of treatment neutrality and must provide sufficient graphic clarity to make it easy to distinguish third party offers from its own offers.
- The platform must provide transparency on the graphical conditions of exposure and referencing of offers from its partners. In this regard, information on the existence of links between them, or even a remuneration of the platform by the offerors as well as its impact on the classification of tenders is necessary.
- The platform must offer sufficient conditions in terms of portability and the possibility of cross-platform referencing.

Country: India
Responsibility: Telecom Regulatory Authority of India (TRAI)/Competition Commission of India (CCI)/Department of Industrial Policy and Promotion (DIPP)/Ministry of Micro, Small and Medium Enterprises (MSME)
Initiative: Start-up India

The rapid emergence of digital business models in India promises an unprecedented transition in the economy and offers new prospects for the country in the form of innovation driven growth, creation of new kinds of jobs and new opportunities to increase consumer choices. Such business models, though, bring benefits to the economy, consumers,

entrepreneurs and businesses but at the same time flags a number of new challenges for regulators to navigate smoothly. One of such challenges is to keep the digital markets competitive and provide level playing fields to innovate and contribute to the competitiveness and growth of the economy. The **Competition Commission of India (CCI)** is taking necessary steps to ensure that efficiency and innovation are not stifled by unnecessary intervention, while at the same time; digital markets are free from anti-competitive practices. The Commission is also taking up the issues arising due to Mergers/Acquisitions/Amalgamations transactions, as they may have significant effect on future competition in markets.

Realising the importance of efficiencies offered by digital infrastructure in governance, the Commission has also taken various steps in relation to e-Governance, such as “**DO it Yourself**” – Toolkit for Combination transactions, “Diagnostic Tool” for detection of Cartels/Bid Rigging in tenders, Facility for e-filing of Combination transactions/Anti-trust information, Request for pre-filing consultation through emails, Communicating orders/letters of the Commission with the parties through emails, etc.

There are variations in the requirements of one country to another, including in terms of their level of development, adoption of the Internet, state of content business and the regulatory, licensing and legal framework within which they operate. The level of market competition among Telecom Service Providers (TSPs) providing Internet access services is also a key aspect. The proliferation of a vast variety of applications, websites, and other forms of content on the Internet, has enhanced user choice and paved the way for greater innovation and competition. However, a fundamental feature of the Internet is that it operates on a best efforts basis. Practices such as TSPs interfering with the networks by using Traffic Management Practices (TMPs) to carry out service blocking, prioritising affiliated content provider services or throttling competing ones, can also distort competition in the content provider business, thereby discouraging present and future innovation. Telecom Regulatory Authority of India (TRAI) is trying to evolve a road-map to ensure there is no discriminatory treatment on Internet traffic by access providers.

India has initiated Start-up India for promoting Start-up ecosystem in the country. As a result of this India is now evolving as a major Start-up hub and is now the third largest Start-up destination. To provide a level playing field to Start-ups vis-à-vis the experienced entrepreneurs/companies in public procurement, relaxed norms of public procurement for micro and small enterprises have been provisioned in the Government Procurement Policy for Micro, Small and Medium Enterprises (MSME).

The **General Financial Rules (GFR) 2017** has incorporated rules which provide for relaxation of conditions of prior turnover, prior experience and exemption from submission of Earnest Money Deposit (EMD) for Start-ups. With the intent to provide a level playing field to SMEs and foster competition, the Government has issued a Public Procurement Order 2017. Accordingly, the General Financial Rules (GFR) for procurement of goods and services for the Government has also been amended to bring efficiency, economy, and transparency in matters relating to public procurement and for fair and equitable treatment of suppliers and promotion of competition in public procurement.

Country: [Japan](#)
Responsibility: Japan Fair Trade Commission
Initiative: Report of Study Group on Data and Competition Policy

Japan Fair Trade Commission established “**Study Group on Data and Competition Policy**” in Competition Policy Research Center (CPRC) and Study Group held six meetings to clarify the issues of competition policy and the Antimonopoly Act (competition law in Japan) relating to accumulation and utilization of data. CPRC compiled a report of Study Group based on the discussions and published it on June 6, 2017.

The report mentions that, while accumulation and utilization of data in itself promotes competition and creates innovation, unjust data collection from consumers or unjust data “hoarding” may raise concerns for the Antimonopoly Act as exceptional cases. The report also describes points to be taken into account in defining relevant markets in relation to trade involving the collection and utilization of data (e.g. geographical scope, assessment of multi-sided markets and free-of-charge markets) and factors to be considered in reviewing data-related mergers (e.g. level of privacy protection, concentration of data).

Country: Russian Federation
Responsibility: Ministry of Communications and Mass Media/Ministry of Economic Development
Initiative: The state program Information Society for 2011–2020

The **state program Information Society for 2011–2020** is aimed at giving individuals and companies' opportunities to use the benefits of information and communication technology through providing equal access to information sources, development of digital content, introduction of innovative technology and dramatic improvement of the government regulation of information security.

The state program includes six sub-programs:

1. The quality of life and conditions for doing business;
2. E-government and effective state governance;
3. The Russian market for information and communication technology;
4. The basic infrastructure of the information society;
5. Security in the information society;
6. Digital content and cultural heritage.

Goals and objectives:

1. Improving the quality of life and the conditions for doing business:

- developing services to simplify the procedures between citizens and the government through the use of IT;
- converting to online delivery of all state and municipal services;
- developing the digital government services access infrastructure;
- developing innovative high-tech services;
- increasing transparency in the government and court operation;
- creating a digital data management system for the healthcare industry and introducing individual digital patient records;
- developing innovative ICT solutions for improving the quality of research and education services;
- developing innovative high-tech services in the area of digital content and cultural heritage.

2. E-government and effective state governance:

- shaping a common legally significant space for digital interaction;
- developing interdepartmental data management systems and creating a single system of data elements, reference databases and classifiers used by state and municipal information systems;
- more effective use of ICT solutions by regional and municipal governments (e-regions and e-municipalities);
- creating a spatial data infrastructure in Russia;

- providing a regulated access to R&D materials;
- supporting the conversion of the government's accounting work into digital format;
- developing special information and IT systems to support the operation of state government and management bodies, including protected network segments on the Internet and protected inter-agency e-document flow.

3. Development of the Russian market for information and communication technology, and measures to go over to a digital economy:

- creating stimuli for domestic ICT development projects;
- developing science and technology, and training qualified personnel for the ICT industry, to give Russia a competitive edge in this area; economic and financial development through the use of ICT tools;
- generating socioeconomic statistics required by various members of the information society;
- developing a network of high-tech industry parks.

4. Bridging the digital gap and building the basic infrastructure of the information society:

- developing TV and radio;
- developing the basic information society infrastructure;
- raising the awareness of the public and business community of the opportunities offered by the information society;
- training people in using ICT,
- popularizing the opportunities and advantages of the information society.

5. Security in the information society:

- fighting the use of ICT potential for the purpose of damaging Russia's national interests;
- ensuring technological independence of the ICT industry;
- developing information protection technology to protect people's privacy and family, as well as to protect limited access data;
- upholding Russia's sovereign rights in the information society.

6. Development of digital content and preservation of Russia's cultural heritage:

- preserving Russia's multi-ethnic cultural heritage;
- safeguarding cultural heritage monuments and ensuring greater penetration of scientific, cultural and artistic phenomena in everyday life by digitizing such materials, improving data processing methods and remote access to digital content;
- developing digital content processing tools.

The state program will lead to the emergence of a broad scope of opportunities for using ICT for industrial, research, educational and social purposes. These opportunities are to be available to every citizen regardless of their age, health condition, and place of residence or other factors. ICT will be made available to users through building a correspondent infrastructure, creating digital content and training the users.

Country: [South Africa, Republic of](#)

Responsibility: Department of Telecommunications and Postal Services/Department of Economic Development

Initiative: Regulate the anti-competitive nature within the Telecommunication sector

South Africa has in place a **Competition Act, 1999** which seeks to provide for the establishment of a Competition Commission responsible for the investigation, control and evaluation of restrictive practices, abuse of dominant position, and mergers; and for the establishment of a Competition Tribunal responsible to adjudicate such matters; and for the establishment of a Competition Appeal Court; and related matters. The Competition Commission is currently tasked to undertake the assessment of the ICT Broadband Market and Costs in terms of fostering competition within the sector.

Country: [The Netherlands](#)

Responsibility: Ministry for Economic Affairs

Initiative: Future proof regulation

It is important to the government that legislation provides enough room for modernisation and innovation. For this reason, the future-proof legislation approach has been initiated. This approach examines both how legislation can stimulate innovation in practice and how the legislative process can be made more responsive to increasingly rapid developments. At the same time, we must ensure that public interests remain sufficiently safeguarded.

Based on research into the impact of digital platforms and the sharing economy, the Netherlands concluded that we should not be too quick to formulate general rules and that we should first carefully examine how public interests are affected in practice. Often, legal and other instruments already exist that can resolve issues relating to digital platforms. For example, competition laws and inspection offer sufficient starting points for tackling abuse of economic dominance. This topic is also high on the agenda of both national competition authorities and the European Commission (both as creator and regulator of the policy). During its EU presidency in 2016, the Netherlands proposed and discussed a paper with this policy approach regarding platforms.

In this regard, when specific problems occur, any intervention by the government should focus on the specific sector, region or management level affected by this problem rather than just implementing a generic platform approach. After all, there is no such thing as 'the platform', nor generic platform regulations. Another conclusion is that digitisation also creates opportunities to better safeguard public interests. Digitisation and the use of the Internet usually result in markets functioning more effectively due to factors such as greater transparency regarding quality and prices, and better functioning reputation mechanisms. This can create opportunities to design future legislation differently and with fewer burdens.

5. Support MSMEs in reaping the benefits of digitalisation and addressing the challenges

Country: Germany
Responsibility: Federal Ministry for Economic Affairs and Energy
Initiative: Mittelstand 4.0 – Competence Centres

Although digitalisation is considered to be one of the most important drivers for innovation and competitiveness, most SMEs in Germany still don't have a real business strategy on digitalisation. German SMEs are also lacking in investments in digital infrastructure and knowledge and the use of Industrie 4.0.

Since end of 2015, the Ministry for Economic Affairs and Energy initiated a new funding initiative called “**Mittelstand 4.0 – Digital Production and Work Processes**” by establishing so-called “Mittelstand 4.0 – Competence Centres” for small and mid-sized companies.

Since then, ten Competence Centres for SMEs have been established with the aim of helping SMEs with digitalisation and networking and the application of Industrie 4.0. In addition, a Centre has been set up for the digitalisation of the crafts sector with four branches in the North, South, East and West of Germany. The Competence Centres gather and pool practical knowledge for the application and economic use of digital technologies and of Industrie 4.0 in SMEs. They draw SME's attention to the opportunities of digitalisation (i.e. new value and supply chains and new business models) and the application of Industrie 4.0, they train and qualify them and encourage them to embark on the digitalisation and networking of their own enterprises. They also offer advice to SMEs on the economic impact of using Industrie 4.0 technologies as well as on security matters and bring them together with innovative start-ups.

In addition, the Mittelstand 4.0 Competence centres will provide the opportunity to experience digitalisation first hand (by demonstrators). SMEs and crafts businesses will be able to test technical solutions of their own and interfaces with products or customers under professional guidance. Solutions that are easy to copy will be presented, and SMEs will be shown what benefits they can offer for their own business models. For this purpose, the Competence Centres also have the necessary infrastructure including showrooms and mobile facilities for demonstration purposes, and sort of “testbeds”. In order to address all regions and topics, further Mittelstand 4.0 centres will be established. Some of the new Centres will focus on specific subjects (smart building, usability, smart textile).

Country: Argentina
Responsibility: Ministry of Production
Initiative:

1. MEs Digital Innovation Program (Innovation 4.0)
2. Argentina Entrepreneurs Academy
3. PotenciAR – Benefits for medium-sized companies that export and invest in Research

1. SMEs Digital Innovation Program

The program has 4 main areas: Financial Assistance, Computer Equipment Updating, Training, and E-commerce Sites Development.

Created to improve connectivity, technological development and digital infrastructure, this program enables SMEs to purchase and update Software and Hardware through provision of credit and differential pricing tools, such as Custom Duty reductions. This program also includes training and development of digital leadership and management for owners, managers, middle managers, and workers. [Digital Innovation plan for SMEs](#)

2. Argentine Academy of Entrepreneurs

The Argentine Academy of Entrepreneurs attempts to strengthen and foster entrepreneurial skills among Argentinean entrepreneurs. To achieve its goals, the Academy works with different local agents coordinating onsite and online training activities.

Onsite activities take the shape of either awareness oriented activities, workshops, or roundtables for trainers. These activities seek to achieve a first contact with local entrepreneurs, provide them with basic tools, and offer them motivational and inspirational conferences. The workshops aim to strengthen competences through specific content tools such as CANVAS, Pitch, Networking, and Digital communication. The Roundtables for Trainers are designed to foster the creation of highly trained teachers and instructors teams for the local ecosystems. The roundtables are directed to ONGs, universities, local development centers, and professionals interested in delivering contents related to entrepreneurial skills.

Besides onsite activities, and using an online platform, the Academy delivers courses, workshops, conferences, and seminars related to entrepreneurial subjects and skills development. These contents are organized according to business stages and remain in the Academy's website. [Argentine Academy of Entrepreneurs](#)

3. POTENCIAR

This Program pursue the development and internationalization of local leading companies that produce high added value goods and services, have an outstanding innovative capacity, and a remarkable export trajectory. Strengthening these companies generates positive externalities upstream and downstream in the supply chain, boosting the competitiveness of the economy as a whole.

The Program features financial and non-financial instruments that allow the consolidation of the Development and Internationalization Plans (IDPs). Concretely, the instruments are: subsidized rate funding, non-refundable contributions, and technical assistance.

The Program also defines specific objectives: increase medium and high technology exports, diversify and recovery export markets, develop local suppliers and human capital, access to technology transfer, and improvement of international positioning of Argentinean production and technologies. [POTENCIAR](#)

Country: [Australia](#)

Responsibility: Department of Industry, Innovation and Science/the Treasury

Initiatives:

1. Blockchain
2. METS Ignited
3. SME Digital Capability user-centred design project
4. Business Registration System

1. **Distributed Ledger Technologies (DLT)** provide far-reaching opportunities for Australian firms. The transformative technology makes efficient and secure, real-time transactions possible across a range of sectors. DLTs (of which Blockchain is an example) could particularly benefit SMEs, because they promise to significantly lower business costs, and to create new markets. Two key government Blockchain initiatives are:

International Blockchain Standards: In 2016 the International Organization for Standardization (ISO) tasked Standards Australia (SA) with developing new international Blockchain standards. SA is Chair of the new ISO Blockchain committee and has developed a Blockchain Standards and Industry Roadmap. The Australian Government is supporting SA to:

- develop an Industry Roadmap to improve the understanding, awareness and business benefits of Blockchain;
- establish an Australian technical committee for Blockchain standards with stakeholders from government, industry, research and other relevant organisations; and,
- lead the ISO Blockchain Committee to develop international standards.

Data61 Blockchain reports: In June 2017 Data61, part of the Commonwealth Scientific and Industrial Research Organisation (CSIRO), released two Blockchain reports that provide a comprehensive review of how Blockchain

technology could be adopted across government and industry in Australia to deliver productivity benefits and drive local innovation. The reports are: Distributed Ledgers: Scenarios for the Australian economy over the coming decades, and Risks and opportunities for systems using Blockchain and smart contracts. The reports explore four Blockchain adoption scenarios (centred on 2030), and highlights three cases to examine how Blockchain systems can support new markets and business models. Those cases include agricultural supply chains, government registries and remittance payments.

2. The Skilled for 2026 work stream of the Sector Competitiveness Plan, **Mining Equipment, Technology and Services Growth Centre (METS)** Ignited envisages:
 - Partnering with the ICT industry to develop a program of seminars that demystify big data and digitisation, explaining IoT and interoperability.
 - Partnering with mining companies and universities to develop programs for METS SMEs in concepts like value chain management, the theory of constraints and systems thinking.
 - Raising the profile of METS as a hub for smart solutions and a natural home for entrepreneurial talent.
3. The effective use of digital technologies can unlock both revenue and productivity benefits for SMEs yet many of Australia's 2.1 million businesses have been slow to fully embrace the potential that digital technologies can bring. A **user-centred design approach** involves in-depth interviews with business owners to better understand their 'pain points' in adopting digital technologies. Cultural, social, educational, economic and technological factors all play a part in 'holding back' SMEs from reaching their potential. This discovery project will help better target policies and programs which may help address the challenges that SMEs face.
4. The digitisation of business to business (B2B) and business to government (B2G) interactions is a significant push factor for small businesses engaging with the digital economy. Improvements in B2B and B2G interactions are creating opportunity costs for businesses that do not engage in the digital economy which should influence more businesses to digitalise. The Australian Government is taking steps to simplify its interactions with businesses, generating significant ongoing benefits for businesses for a small outlay. The Australian Government's streamlined **business registration system (BRS)**, funded in the 2015 16 Budget, is estimated to be reducing the regulatory burden on businesses by \$20 million each year by provides a one-stop-shop for businesses to register, reducing the amount of time businesses spend interacting with the Government.

Country: Brazil
Responsibility: Ministry of Science, Technology, Innovation and Communications (MCTIC)
Initiative: Start-Up Brasil

Start-Up Brasil is a program that aims at the mobilization of the entrepreneurial ecosystem in the field of IT software and services. This program finances development projects of technology-based nascent companies (start-ups). The program is structured in calls for projects, and involves three phases: (1) accreditation of accelerators, which provide support and access to mentors and investors; (2) start-up selection, which takes place twice a year; and (3) acceleration, during which each selected start-up has access to funding, infrastructure, mentoring and training, as well as opportunities to meet potential clients and investors.

The Program has supported an initial set of start-ups. The seed funding provided by the federal government is matched by three times as much funding by the private sector, demonstrating the integration of the public and the private sectors in fostering the digital business environment in Brazil.

Country: [Canada](#)
Responsibility: Innovation, Science and Economic Development Canada
Initiative: Accelerating Innovation through Superclusters

Under Canada's Innovation and Skills Plan, as proposed in Budget 2017, the Government of Canada will invest up to CAD\$950 million over five years, starting in 2017–18, to be provided on a competitive basis in support of a small number of **business-led innovation superclusters** that have the greatest potential to accelerate economic growth. The competition will launch in 2017 and focus on superclusters that enhance Canada's global competitiveness by focusing on highly innovative industries such as clean technology, advanced manufacturing, digital technology, health/bio-sciences, clean resources and agri-food, as well as infrastructure and transportation.

Country: [China](#)
Responsibility: Ministry of Industry and Information Technology
Initiative: Demonstration Zones of Innovation and Entrepreneurship

Two batches of altogether 120 **Demonstration Zones of Innovation and Entrepreneurship** have been singled out. These demo zones are encouraged to become the pioneer, and leverage the concerted wisdom and strength brought by "Entrepreneurship & Innovation" and "Internet +" initiative to develop new technologies, new products, innovative industry patterns and business models, shaping a number of clusters for innovation and entrepreneurship. Ministry of Industry and Information Technology has selected 511 national public service demonstration platforms for SMEs and 194 national demonstration zones of innovation and entrepreneurship for small and micro enterprises.

Country: [European Union](#)
Responsibility: European Union
Initiative: Digitising European Industry (DEI)

The DSM Strategy, especially the pillar on "maximising the growth potential of the digital economy", contains all the major levers for improving industry digitisation with actions in areas such as the data economy, IoT, cloud computing, standards, skills and e-government. It is part of a coherent strategic framework of Commission initiatives aimed at strengthening the overall competitiveness of industry, especially SMEs.

On 19 April 2016 the European Commission launched the **Digitising European Industry** initiative, which is the first industry-related initiative of the Digital Single Market (DSM) package.

Building on and complementing the various national initiatives for digitising industry, such as Industrie 4.0, Smart Industry, l'industrie du futur, etc. the Commission will use its policy instruments, financial support, coordination and legislative powers to trigger further public and private investments in all industrial sectors and create the framework conditions for the digital industrial transformation. The measures to Digitise European Industry will help companies large and small, researchers and public authorities to make the most of new technologies by upgrading EU digital innovation capacity in key sectors of the economy. This consists of critical mass investments in:

- a. digital innovation hubs and competence centres to support mid-caps, SMEs and low-tech industries and focussed support to research and innovation including large scale experimentation in key areas;
- b. digital industrial platforms across value chains in relevant sectors of the economy to provide the necessary support through test beds, experimentation facilities and pilot lines; to integrate research, development and innovation across all relevant digital technologies and sectors; as well as to assist in standardisation activities.

Check out the Communication on *Digitising European Industry – Reaping the full benefits of a Digital Single Market*.

Country: France
Responsibility: DGE (Direction générale des entreprises)
Initiatives: 1. French Tech
2. Transition Numérique

1. **French Tech:** The development of digital ecosystems is one of the main issues at stake for entrepreneurs and SMEs, which potential in terms of job and wealth creation is particularly strong. The French government has set up various measures, notably to support them fiscally (for instance the “Crédit Impôt Recherche”), to ease their access to funding and to help them develop abroad or, on the contrary, to settle in France.

The **French Tech** initiative, a certification granted to the territories which most favorable startup-friendly, symbolizes this willingness to accelerate the development of the different digital stakeholders, notably abroad. It enabled: The appearance of 22 French Tech Hubs, big international cities which galvanize the development of the French start-up locally established. The French Tech Hubs are well-established in G20 countries: Beijing, Cape Town, Sao Paulo, Montréal, Moscow, Milan, Tokyo, etc.

The implementation of the French Tech Ticket, a competition designed for foreign entrepreneurs willing to settle in France, which laureates win an attractive welcome package: a 45 000 € grant, a guidance through the whole settlement process, a residence permit and a place in an start-up incubator. This contest is already a success: for its second round, in 2016, 2,700 projects have been submitted with candidates from over 100 different countries: India, Brazil, the United States and China were some of the most represented countries. 70 laureates were finally selected. And the results are significant: between 2014 and 2016, the money invested in French start-ups grew by 46% according to Ernst & Young, with 2.2 billion € invested in 2016. With 275 companies, France was the third nation of the 2017 Consumer Electronics Show in Las Vegas, after the United States and China, and was even the second nation in terms of start-ups as 233 of them were present. We believe that easing the settlement of French companies abroad on the one hand, and welcoming foreign businesses on the other hand, is the best way for France to enhance the attractiveness of its territory, and the worldwide influence of its economy. This is the reason why international cooperation and exchanges of best practices are of utmost importance to French government notably within the G20, which economic weight makes it one of the best forums to discuss and collaborate on these topics.

2. **Transition numérique:** French companies are particularly well equipped with “basic” digital tools. Thus, by the end of 2013, 99% of them had a high-speed Internet connection (vs. 95% in Finland, 97% in the EU28). However, SMEs remain shy about the uses associated with these basic tools: thus, by the end of 2013, only 64% of them had a website (vs. 95% in Sweden, 74% in the EU28), and only 25% sold electronically (vs. 51% in the UK, 38% in the EU28). This shortfall in usage prevents them from making the most of their core investment, and overall damages their profitability and competitiveness.

That’s why the program “**Transition numérique**” has been launched in 2012 and new actions have been taken since 2015-2016 to amplify the dynamics of the program:

- a revision of the website www.transition-numerique.fr, which should make it possible to increase the visibility of the program by communicating directly to the small and medium-sized enterprises;
- a hundred web conferences will be organized in collaboration with the resource centers to define themes that are in line with the needs of companies;
- of the Regional Digital Transitional Meetings (RRTN) will take place in 11 cities at trade fairs to sensitize and support regional companies in their digital transition, mobilize the local eco-system in the digital sector and involve and mobilize members of the Transition Numérique + association;
- a newsletter and a press communication strategy will make it possible to inform the VSE/SMEs receiving these actions.

In order to carry out these missions in a coordinated and effective way, the program brings together public and para-public networks: Chambers of Commerce, Chambers of Crafts and Crafts, Tourist Offices, Authorized Management Centers and Public Digital Spaces and international private actors, national and local.

Country: India
Responsibility: Ministry of Electronics and IT (MeitY)
Initiatives: Make in India, Digital India, BPO Promotion Scheme

India is well known as a top global IT outsourcing destination and we cater to nearly 56% of global outsourcing. Indian IT provides services to more than 75% of Fortune 500 companies of the world. The Indian IT-ITeS industry with 16,000 firms creates 3.9 million direct and 10 million indirect employment opportunities. With a revenue generation estimated at US \$ 154 billion for FY 2017 and exports at US \$ 108 billion, Indian IT-ITeS industry caters to 80 countries with 200 foreign offices along with housing 650 Global in-house centers of foreign companies in India. We have also realized that innovation is fundamental to the success of Digital India and therefore a high priority area in government policy making. **Start-up Action Plan** has attempted to fuel the innovative spirit of Indians. India today has one of the most vibrant start-up ecosystems with over 4,800 start-ups every year working in emerging technology areas including IoT, data analytics, Block Chains and machine learning fueling the career aspirations of our young citizens. Keeping in mind the tectonic shift in the technological landscape and innovation paradigm in Global ICT ecosystem and also as most of the developing world faces similar challenges it is proposed that a cooperation through Start-up Exchange programme involving entrepreneurs, innovators, mentors and venture capitalist can be initiated for building cooperation and market opportunities.

Today India ranks third among global startup ecosystems. In India, technology-led start-ups are not only disrupting the traditional market place but are also setting new benchmarks in valuations. Several of the new age companies are raising money at valuations which far exceed the market capitalizations of many traditional and well-established players which have been in existence for decades.

Electronics Development Fund (EDF), a Fund of Funds has been created to invest in Venture Funds investing in Electronics, Nano-electronics & IT domain companies. Under the **Technology Incubation and Development of Entrepreneurs (TIDE)** Scheme, 27 TIDE incubation centers have been established, supported 184 start-ups and 63 successful patents registered based on the products have been developed by these start-ups. Total 228 products have been developed (171- S/W & 57 H/W). Sector specific (Consumer Electronics, medical electronics, fabless chip design IoT) Incubation Centres have also been set up.

In the last few years, India has taken some decisive steps to push growth of electronic manufacturing. For this, the Government under the **Digital India** and **Make In India** programmes, has taken various policy and fiscal initiatives for promoting electronic manufacturing. As a result of this, India is fast emerging as a major hub for mobile and LED manufacturing.

The Government has also initiated **BPO Promotion Scheme (BPS)** for promotion of BPO/ITES operations across the country especially Tier2/3 cities, for balanced growth of Information Technology & Information Technology Enabled Services (IT/ITES) sector in each State. About 53,300 seats have been planned with distribution across State(s)/Union Territories (UTs).

Country: Italy
Responsibility: Italian Ministry of Economic Development/Ministry of Economy and Finance
Initiative: Digital Innovation Hubs and Competence Centers within “Industry 4.0” programme

Digital Innovation Hubs (DIHs) are planned to be the point of contact between companies, research centers and public-private investors. Selected DIHs will be located at business associations’ branches (Confindustria’s and

R.E. TE. Imprese Italia). Their main mission is to create awareness on I4.0 opportunities, to support in developing innovative investment plans and in accessing public and private financing solutions/investors. DIHs also deliver training courses specialized on I4.0 items and connect enterprises with digital transformation bodies technological transfer centers and I4.0 Competence Centers. Therefore, they have constant interactions with I4.0 Competence Centers and European DIHs.

I4.0 Competence Centers (CCs) are focus on specific and complementary technology drivers and are meant to advice Italian universities and large private players and to support key stakeholders, such as research centers or start-ups. Their main mission is to spread new technologies and access to I4.0 best practices, to deliver technical advice on I4.0 for SMEs, to facilitate launch and acceleration of technological development and innovative projects and to provide trial support and “on-site” development of new I4.0 technologies. CCs also deliver advanced training courses, develop industrial research and experimental development projects and map the “digital maturity” of IT enterprises. They have constant interactions DIHs and European CCs.

Country: **Japan**

Responsibility: 1. Ministry of Internal Affairs and Communications
2. Ministry of Economy, Trade and Industry

Initiative: 1. I-Challenge!
2. Smart Manufacturing

1. Because ICT is the basis of socioeconomic activity in various fields, it is necessary to create and grow start-ups in the ICT field, in order to maximize the benefits of digitization, grow the economy, and advance social innovation, it is necessary to create and grow start-ups in the ICT field. The Ministry of Internal Affairs and Communications (MIC) has been supporting commercialization of venture companies and other businesses that are developing innovative and original technologies by the **ICT Innovation Creation Challenge Program (I-Challenge!)** since 2014.

In order to overcome the so-called “valley of death” that many venture companies face when they attempt to commercialize their products, in I-Challenge!, MIC matches venture companies holding budding technology seeds with professional organizations that support business and commercialization, such as venture capitals and provides financial support for the development of prototypes for the commercialization and proof of concept.

I-Challenge! started in 2014, and since then, MIC has adopted approximately five projects every year and has supported a total of 16 projects to date. In I-Challenge!, MIC supports not only ICT itself, but also a wide range of technology seeds that could possibly use ICT to make socially beneficial improvements in various fields, including agriculture, medical treatment, transportation, and so on.

2. METI of Japan is promoting establishment of supporting organizations (around 40 organizations within two years) for SMEs to adopt “**Smart Manufacturing**” (active introduction of digital technologies and robotics into manufacturing process) by networking of the chambers of commerce, local banks, business organizations, etc.

Country: **Russian Federation**

Initiative: Skolkovo Foundation

On Sept. 28, 2010 was signed a law “**On the Skolkovo Innovation Center**” giving rise to the project’s managing entity, the not-for-profit Skolkovo Foundation. Charged with providing the catalyst for the diversification of the Russian economy, the Skolkovo Foundation’s overarching goal is to create a sustainable ecosystem of entrepreneurship and innovation, engendering a startup culture and encouraging venture capitalism.

The Skolkovo Foundation identified five key areas of potential growth: energy efficiency, strategic computer technologies, biomedicine, nuclear technologies and space technologies.

To achieve this the Foundation is overseeing the creation of the Skolkovo Innovation Center, composed of companies and startups, developing innovative technologies (currently numbering over 1,000), a Technopark, the Skolkovo Institute of Technology (Skoltech), a new graduate research University established in collaboration with the Massachusetts Institute of Technology, and Skolkovo city, located near Moscow. Together these entities will establish a vibrant ecosystem of technology innovation and entrepreneurship. Thirty of the world's most successful corporations, including Boeing, Cisco Systems, EADS, GE, Johnson & Johnson, IBM, Intel, Microsoft, Siemens, Nokia, Samsung etc. have already recognized the opportunity Skolkovo presents, having signed R&D partnership agreements with the Foundation.

Dozens of innovative projects developed by Skolkovo startups have found success in international markets, in particular, equipment for the dynamic modeling of oil and gas fields, next-generation screen displays and laser systems for soft-tissue surgery. Surveys have showed that Skolkovo startups are three times more likely to attract investment than non-members.

In August 2013, the Skolkovo project was chosen for inclusion in the government's "economic development and innovation economy" program, resulting in the allocation of 3.5 billion rubles for the development of Skolkovo through 2020.

Country: **South Africa, Republic of**
Responsibility: Department of Telecommunications and Postal Services, Department of Small Business Development
Initiative: ICT SMME Support Strategy

The ICT SMME Support strategy is to create an enabling environment for ICT SMMEs in South Africa to be innovative, technology driven, sustainable and internationally competitive, contributing to job creation and economic growth by 2020. The main strategic goal is to unlock the business opportunities and create an enabling business and administrative environment for SMMEs in the ICT sector to thrive and advance into successful and sustainable entities. The three (3) strategic objectives outlined by the strategy are:

- Facilitate the accelerated growth and entry of SMMEs (particularly youth and women owned) in the ICT sector;
- Increase uptake and usage of ICTs by the nation's SMMEs across all sectors of the economy; and,
- Establish coordinated and integrated planning mechanisms for the development of ICT SMME development across all economic and social sectors.

Country: **The Netherlands**
Responsibility: Ministry for Economic Affairs/Ministry of the Interior and Kingdom relations
Initiatives:
1. Support for start-ups and scale-ups
2. Digital government services to reduce administrative burdens for Industry, especially MSME's.

1. **Start-ups and scale-ups** are important innovators within the economy. They create new activity and challenge the established order to modernise. They also contribute to solutions to social challenges such as a future-proof healthcare system, cyber security and sustainable agriculture. They do this with the aid of groundbreaking technologies such as photonic chips, blockchain and 3D printers.

Via the **StartupDelta** initiative, the Netherlands is internationally highly positioned as excellent location for start-ups and scale-ups, and the ecosystem has been improved. The government has provided an annual €50 million for fiscal measures for start-ups and SMEs. In the years to come, StartupDelta 2020 will build upon the success of StartupDelta, with a greater focus on scale-ups and by building further upon existing networks. Constantijn van Oranje-Nassau has been appointed to the position of Special Envoy for StartupDelta.

2. For most entrepreneurs, contact with the government only represents a small proportion of their total business contact. However, it is often crucial to the business's primary process as contact with the government involves issues such as the issuing of permits, personnel, monitoring, tax returns and registration.

The Dutch government promotes **digital service provision to businesses by means of a government-wide Generic Digital Infrastructure (GDI)**. Under the authority of the Digital Commissioner, all government service providers will make use of the facilities and standards within the GDI. This includes facilities for offering government information (overheid.nl, answersforbusiness.nl (ondernemersplein.nl)), identification and authentication (DigiD, Idensys and iDin), message traffic (Message Boxes for citizens and businesses) and standardised data exchange (Standard Business Reporting, e-invoicing, open standards).

Country: [Singapore](#)
Initiatives: 1. [Sccreditation@IMDA](#)
2. [SME Go Digital](#)

1. As a key contributor to the Singapore's Digital Economy strategy, the **Accreditation@IMDA programme** has a vital role in growing and nurturing the local ICM technology ecosystem. The programme was launched in July 2014 to:
 - I. Accredit promising and innovative Singapore-based high-growth ICM product companies to establish credentials and position them as qualified contenders to government and large enterprise buyers.
 - II. Provide potential end users with the assurance of the accredited companies' product core functionalities and ability to deliver.
 - III. Build an innovative technopreneur ecosystem to drive economic growth, inspire the younger generation, and build more innovative products and tech product companies that can scale overseas.

As of 31 May 2017, more than 90 government project opportunities worth over S\$70 million were created for accredited companies.

2. Recognising that SMEs are a significant contributor to the Singapore economy, efforts are underway to ensure that SMEs transform digitally in order to keep pace with increasing sophistication of technology solutions and take advantage of the opportunities available.

SME Go Digital aims to help SMEs to adopt digital technologies to increase revenues, tap new markets and improve workers' productivity. It will provide assistance to SMEs in three ways:

- Guide SMEs on tech deployment through Industry Digital Plans
- Provide specialist advice via the new SME Digital Tech Hub
- Uplift whole sectors by working with influential partners

IMDA will partner sector-lead agencies and industry players, such as Trade Associations and Chambers (TACs), to implement the SMEs Go Digital Programme, focusing on SMEs in sectors where digital technology can significantly improve productivity, such as retail, food services, wholesale trade, logistics, cleaning and security.

Guide SMEs on Tech Deployment through Industry Digital Plans: The Industry Digital Plans for SMEs form the core of the SMEs Go Digital programme. The Plans will help SMEs understand which digital technologies are relevant to their sectors, as well as guide ICT vendors to meet sector-specific digital technology needs. The Plans will be aligned with the Industry Transformation Maps (ITMs) and identify synergies across different sectors, such

as cross-cutting technologies that can be deployed across multiple sectors. IMDA and the sector-lead agencies will jointly develop the plans for the identified sectors. The identified sectors are Retail, Logistics, Food Services, Wholesale Trade, Cleaning and Security.

Uplift Whole Sectors by Working with Influential Partners: To catalyse the use of ICT solutions that can potentially benefit entire sectors, IMDA will collaborate with ICT vendors and progressive SMEs to pilot solutions with the potential to scale. To help more SMEs at one time, IMDA will also work through influential partners, such as large companies with leadership roles within sectors or that have influence over a considerable number of SMEs due to business relations. In addition, IMDA will partner large corporations such as telecommunications companies, banks and professional firms to put together comprehensive digital solution packages for SMEs.

SME Digital Tech Hub: The SME Digital Tech Hub will provide tech advisory to SMEs with more advanced digital needs, such as data analytics, cyber security and Internet-of-things (IOT). The Hub complements the business advisors in SME Centres, which provides basic advice on off-the-shelf technology solutions that are pre-approved for funding support. Besides providing advisory, the SME Digital Tech Hub will also help to connect SMEs to ICT vendors and consultants, as well as conduct workshops and seminars to help SMEs to build their digital capabilities. The Hub is slated to be launched by the end of 2017.

6. Encourage continued development of the IoT and the digitalisation of production

Country: Germany
Responsibility: Federal Ministry for Economic Affairs and Energy
Initiatives: Virtual Map Industrie 4.0 and Allianz Industrie 4.0 Baden-Württemberg

In 2015 the Plattform Industrie 4.0 has launched a **Virtual Map Industrie 4.0**. It comprises around 300 examples of Industrie 4.0 applications across industries. Examples vary from small, medium and large sized enterprises. The scientific board of Plattform Industrie 4.0 established criteria in order to identify and categorise those best practice examples. Certain criteria must be met. Examples can be filtered due to different categories: regions, branches/sectors and company size. All examples do not only contain a description. Also contact data can be found which means that any interested SME can contact a best practice case and make a visit. The virtual map was translated in English recently with currently 150 use cases.

With over 250 participants from more than 100 organisations, **Plattform Industrie 4.0** is the largest and most diverse Industrie 4.0 network worldwide. Companies and their employees, trade unions, associations, science and politics are working together to develop joint recommendations for all stakeholders, that serve as the basis for a consistent and reliable framework.

Allianz Industrie 4.0 Baden-Württemberg is a network founded and sponsored by Germany's federal state of Baden-Württemberg. The aim is to pool technological expertise in production as well as IT and communications to provide support for small and medium-sized industrial companies in their shift towards Industrie 4.0. Together with the network partners from companies, chambers of commerce, associations, institutes of applied research and social partners, the Allianz is striving to make Baden-Württemberg one of the world's leading regions for Industrie 4.0 technologies. The close integration of the various industries involved and fields of technology allows companies to benefit from the Allianz to a particularly high degree.

On the website consolidated Industrie 4.0 activities across the state of Baden-Württemberg and information about professional events, workshops, and current research and conversion projects can be found. Specific examples of how new technologies have changed production and daily business are presented. The competition "100 Places for Industrie 4.0 in Baden-Württemberg", honours innovations which fully take advantage of Industrie 4.0's potential. Moreover, factory tours and company visits together with partner organizations are offered. Scouts support with ideas about which steps are practical in specific cases, and how a transformation path to Industrie 4.0 might look. Up to 50% of the first consultation is funded by the state.

Country: Argentina
Responsibility: Ministry of Production/Ministry of Science and Technology
Initiatives: 1. Open Innovation
2. FONSOFT Financing

1. Open Innovation

This initiative fosters innovation through connecting corporations and SMEs with startups. The program assists start-ups and organizations to work together through training, events, contests and incubation initiatives, and assists chambers and institutions to develop incubators and accelerators.

Corporations innovate by outsourcing complex technical challenges' solutions to communities of start-ups and entrepreneurs. Open Innovation assists corporations to implement hackathons, contests, events, and trainings to attract startups, and supports corporate incubators, accelerators and venture capital funds development to boost innovative startups.

SMEs are grouped with innovative startups to share production challenges and develop innovative solutions. Technology corporations and SMEs build hardware and software platforms and promote innovative start-ups that use those platforms to create solutions for different industries.

2. FONSOFT Financing

FONSOFT is the Software Industry Promotion Trust Fund, by its Spanish acronym. This Trust Fund is responsible for budget management and the distribution of financing instruments, throughout the evolutionary phases in the product's design, life cycle, services, and solutions in technology and telecommunications.

FONSOFT finances degree programs completion, new enterprises generation, and the strengthening of SMEs that produce goods and services in the Information Technology and Telecommunications (ICT) sector.

Country: [Australia](#)

Responsibility: Department of Industry, Innovation and Science

Initiatives:

1. Standards Australia participation in ISO and IEC
2. The Prime Minister's Taskforce on Industry 4.0

1. The Department of Industry, Innovation and Science supports **Standards Australia**, our National Standards Body, participating and leading the development and adoption of international standards relating to the IoT and digitalisation of production.
2. The **Prime Minister's Taskforce on Industry 4.0** was formed following the release of the report of the Australia-Germany Advisory Group in November 2015, which recommended collaboration between government and industry in both countries on Industry 4.0 (including initiating a collaborative approach to the development of global Industry 4.0 standards). The Taskforce supports the objectives of the National Science and Innovation Agenda, including adoption of international standards, and has four working groups on: reference architectures, standards and norms; research and innovation; security of networked systems; and work, education and training.

Country: [Brazil](#)

Responsibility: Ministry of Science, Technology, Innovation and Communications (MCTIC)

Initiative: National Plan for the Internet of Things

Brazil is developing a National Plan for the Internet of Things (IoT), currently in the phase of technical study. This action plan aims at fostering an ecosystem of developers and manufacturers for the provision of devices, platforms, networks, applications and services. The study phase of the plan has identified a number of priority areas (verticals), including smart cities, smart farming, health/medicare, and manufacturing (automotive, mining, oil & gas).

Country: [China](#)

Responsibility: Ministry of Industry and Information Technology/National Development and Reform Commission/Ministry of Science and Technology

Initiatives:

1. China Manufacturing 2025,
2. Guidance on Deepening the Integration of Manufacturing and ICT,
3. New-generation Artificial Intelligence Development Plan,
4. National Demonstration Area of Sensor Network in Wuxi City,
5. Pilot Construction of NB-IoT in Yingtan City.

1. **China Manufacturing 2025 strategy**, launched in 2015, is China's first ten-year master plan to become a world manufacturing power. It aims to promote the integrated development of ICTs and industrialization through, among other actions, drafting smart manufacturing strategies, speeding up the smart production of equipment and products, promoting the intellectualization of manufacturing procedures, deepening the applications of ICTs in manufacturing and improving the construction of ICT infrastructure.
2. **Guidance on Deepening the Integration of Manufacturing and ICT**, issued in 2016, is a new momentum to push forward China Manufacturing 2025 and Internet + initiative. Pilot demonstrations were implemented in line with the integration of ICTs and industrialization. As of August, 2017, over 5,000 companies have joined the campaign of standards implementation, 1,035 out of which were up to the standard.
3. **The New-generation Artificial Intelligence Development Plan**, launched in 2017, clarified six major tasks: (1) develop an open and coordinated system for innovation on artificial intelligence technology; (2) cultivate high-end and efficient smart economy; (3) build up a smart city featuring safety and convenience; (4) enhance army-civilian convergence in the field of artificial intelligence; (5) build a safe and efficient intelligent infrastructure system; (6) plan and launch future-proof projects for next generation AI technology.
4. In 2012, **the National Demonstration Area of Sensor Network** was founded in Wuxi City, Jiangsu Province. It aims to drive the development of IoT by technology innovation, boost the development of industry by sensor network application, and innovative business models.
5. In order to promote the wide applications of IoT, Yingtian City in Jiangxi Province initiated the **first pilot construction of NB-IoT, with a full NB-IoT network coverage** in the city. It also established a series of public platforms, including IoT open laboratory, IoT test and verification platform, alliance of mobile IoT industry, etc., with a purpose of improving and extending the industrial chain of IoT, creating a set of exemplary demonstrative application project for roll-out.

Country: [European Union](#)

Responsibility: European Union

Initiatives:

1. Digitising European Industry (DEI) – “Advancing the IoT in Europe”
2. European Data Economy
3. Alliance for IoT Innovation (AIOTI)
4. Standards

1. To meet the DSM Strategy needs and inform about its upcoming policy, the European Commission published in April 2016 the staff working document “**Advancing the Internet of Things in Europe**”. This document is part of the “**Digitising European Industry (DEI)**” initiative and specifies the EU's IoT vision which is based on three pillars:

- a thriving IoT ecosystem
- a human-centred IoT approach
- a single market for IoT

A potential obstacle for the achievement of a single market for the IoT has to do with issues linked to the capacity to handle a large diversity and very large volumes of connected devices, and the need to securely identify them and be able to discover them so that they can be plugged into IoT systems. In this context it is important to promote an interoperable IoT numbering space for a universal object identification that transcends geographical limits, and an open system for object identification and authentication. Some aspects of numbering are already addressed in the 2016 review of the EU telecoms rules.

2. The recently proposed “**European data economy**” initiative (January 2017) also contributes to the creation of a European single market for IoT. This initiative proposes policy and legal solutions concerning the free flow of data across national borders in the EU, and liability issues in complex environments such as the IoT one. Especially, liability is decisive to enhance legal certainty around the IoT products and services.
3. The European Commission launched in 2015 **The Alliance for Internet of Things Innovation (AIOTI)** in order to develop and support the dialogue and interaction among the IoT various players in Europe to unleash the potentials of the IoT. Today AIOTI is an independent association fostering experimentation, replication, and deployment of IoT and supporting convergence and interoperability of IoT standards; gathering evidence on market obstacles for IoT deployment; and mapping and bridging global, EU, and member states’ IoT innovation activities.
4. The Commission has also adopted on 19th April 2016 a Communication setting up **ICT standardisation priorities** for the Digital Single Market as part of the package on Digitising European Industries. The Commission’s initiative on standards is proposing two lines of action:
 - to focus resources by concentrating standard setting in a set of core technologies will be the building blocks of tomorrows’ technologies – 5G, IoT, Cloud, Cyber security and Data Technologies. These are increasingly part of the traditional industry strengths in Europe – e.g. connected cars, eHealth, smart energy;
 - to propose a series of measures to ensure R&D results are better linked to new standards, as well as for improved collaboration between standard-setting organisations in Europe and internationally.

The results of today’s plan will ensure that European standards are in place quickly enough to allow future devices to connect smoothly across the Digital Single Market.

Country: France
Responsibility: DGE (Direction générale des entreprises)
Initiatives: 1. Feuille de route Internet des objets
 2. industrie du futur

1. **Internet of things:** The [IOT roadmap](#) was developed in December 2016 on the basis of a public consultation organized by the Directorate-General for Enterprise from 4 to 28 April 2016, which gathered more than 100 responses from suppliers and users of IoT solutions, and actors in the ecosystem. Three goals are listed:

GOAL 1: DEVELOPING THE NATIONAL OFFER FOR THE INTERNET OF THINGS

Objectives:

- To put in place experiments, within the framework of France Experimentation, for the elaboration of proofs of concept and the sensitization of the general public. The “France Experimentation” window, launched in the summer of 2016, allows actors to submit to the State their experimental projects whose implementation would be subject to a regulatory obligation, in order to obtain a temporary derogation.
- Ensure the development of adapted and secure infrastructures

GOAL 2: ENSURING THE DIFFUSION OF TECHNOLOGIES TOWARDS BUSINESSES AND THE GENERAL PUBLIC

The Internet of Things has the potential to revolutionize the uses of the general public and businesses. The Alliance for the Future Industry supports the development of IoT within an industrial framework, in order to improve industrial processes.

Objectives:

- Launch of dedicated IoT Digital Challenges
- Raising companies' awareness of IoT opportunities

GOAL 3: CREATING A TRUSTED ENVIRONMENT

Objectives:

- Reassure individual and business users
 - Support the development of secure offers of reference
2. [The Industry of the future program](#) aims at organizing nationwide efforts around the Industry of the Future. Concretely, this will mean investing more and better by encouraging companies to modernise their production base and use digital technologies to transform their business model.

Furthermore, a specific governance has been established: "l'Alliance Industrie du futur", a partnership between industrial and digital stakeholders to oversee the project phases has been created. It is a non-profit association with the participation of key players in research and universities, trade unions, private companies, etc., and an Industry of the Future steering committee chaired by the Minister of the Economy meeting every two months, brings together:

- Representatives of the Alliance for the Industry of the Future
- The National Council for Industry (CNI) and the five trade unions representing employees
- The public authorities, with the Association of French regions (ARF) and State departments and agencies (DGE, CGI, Bpifrance, Business France, DGEFP)
- A number of qualified individuals, heads of French mid-tier firms and foreign companies operating in France

Country: **India**

Responsibility: Ministry of Electronics and IT (MeitY), Department of Telecommunications

Initiatives: Make in India, Smart City project, National e-Governance Plan in Agriculture (NeGP-A)

Adoption of IoT based applications in areas like healthcare, education, smart city, and smart farming etc. have enormous potential to boost the socio-economic development. Apart from direct IoT applications, the IT/Telecom industry also has an opportunity to provide services, analytics and applications related to IoT.

To enable India as the Innovation hub for the emerging technologies like Internet of Things domain through Innovation, Standardization, Realization of prototype/products before deployment, a deep tech IoT start-ups accelerator, **Centre of Excellence (CoE) IoT** has been established by the Government. The CoE is set up to build an IoT ecosystem in India that connects various entities such as start-ups, enterprises, venture capitalists, government, and academia. It facilitates start-ups in areas of IoT, Big Data, AR/VR, AI, and Robotics to reach their maximum potential and acts as an enabler to drive the various initiatives by leveraging the knowledge of industry, academia, government & start-ups to democratize innovation in the IoT industry. Nineteen Start-ups have been incubated in the CoE and more than 200 start-ups are virtually connected.

Government is also providing training on IoT Architecture, ETF IoT Stack/protocols, IoT hardware platforms and sensor technology, IoT system design and applications, academic & research community and industry engineers. ERNET

is also setting up a unique facility for Training and IPv6 Experience to the users and is very actively involved in the Internet of Things (IoT) to reap the benefit of the technology to the community along with an IPv6 Resource and Incubation Center & Test lab. The Indian Government's plan of developing **100 Smart Cities** in the country and Digital India Program will also provide the required impetus for development of the IoT industry in the country.

To nurture the Machine to Machine (M2M) ecosystem in India, the "**National Telecom M2M Roadmap**" has been developed which endeavors to assimilate various M2M standards, outline policy and regulatory approaches and measures for IoT deployment for paving the way for open, scalable and interoperable IoT/M2M network in country and in furthering public welfare and enhanced customer choices through affordable access and efficient service delivery.

In the era of Internet serving billions of users worldwide and emergence of IP based technologies, transition to IPv6 from IPv4 is critical to overcome demand surging demand of IP addresses, enabling platform for IoT/M2M Communications, for growth of Internet, new telecom/ICT technologies, e-commerce etc. for repaid economic and social development of country. For transition from IPv4 to IPv6 all across the country, the Government has developed "**National IPv6 Deployment Roadmap**" for implementation by all telecom and Internet Service providers, central and state Government department, industry, educational institute, equipment manufacturers, content and application providers, cloud computing/data center and all other stakeholders.

The Government is also implementing **National e-Governance Plan in Agriculture (NeGP-A)** for helping farmers to access information related to latest technology. Dissemination of information to the farmers has been aimed through various delivery channels including Common Service Centres, Web Portals, SMSs and Kisan Call Centres, Mobile apps etc. The services include, Information on Pesticides, Fertilizers and Seeds; Soil Health; Information on crops, farm machinery, training and Good Agricultural Practices (GAPs); Weather advisories; Information on prices, arrivals, procurement points, and providing interaction platform; Electronic certification for exports and import; Information on marketing infrastructure; Monitoring implementation/evaluation of schemes and programmes; Information on fishery inputs; Information on irrigation infrastructure; Drought Relief and Management; Livestock Management.

Kisan Call Centre (KCC) has been launched aiming to answer farmers on telephone call in their own dialect. At present, there are 452 Farm Tele Advisors. These Call Centres are working in 14 different locations covering all the States and UTs. A countrywide common eleven digit Toll Free number has been allotted to KCC. **National Agriculture Market (e-nam)** is a pan-India electronic trading portal which creates a unified national market for agricultural commodities. The portal provides a single window service consisting information relating to commodity arrivals, prices, buy and sell trade offers.

Country: Italy

Responsibility: Italian Ministry of Economic Development/Ministry of Economy and Finance

Initiatives:

1. Tax credit on R&D
2. Hyper-depreciation for the purchase of connected 4.0 machinery

1. **Tax credit for Research and Development:** Companies that increase their R&D expenditure in the 2017–2020 period benefit from a 50% tax credit on their additional expenses (incremental credit), up to an annual ceiling of €20M. The measure applies to basic research, industrial research and experimental development, including personnel expenditure, research agreements with other entities, and IP costs. Moreover, the tax credit can be used to offset a wide range of taxes and contributions, even if companies report losses.
2. **Hyper-depreciation:** It consists in a 150% increase of the ordinary depreciation deduction for investments in new industrial machinery, meaning that their acquisition costs are raised by an equivalent share for accounting purposes. As assets are subject to fiscal depreciation over the years, this leads to a substantial, long-lasting reduction in taxable income, and thus of the effective tax rate. This incentive applies to selected industrial equipment with a "4.0" character (e.g. machinery that can exchange information with other systems through the Internet of Things). Its goal is to encourage firms to invest in the digital transformation of their production process and supply chain.

Country: [Japan](#)

Responsibility: Ministry of Internal Affairs and Communications/Ministry of Economy, Trade and Industry

Initiative:

1. IoT Acceleration Consortium
2. IoT use case map

1. In October 2015, Japan established the **IoT Acceleration Consortium (ITAC)**, which consists of various kinds of companies including MSMEs, to promote the digital economy with the Internet of Things (IoT) through public-private collaboration.

ITAC promotes (1) the development, demonstration, and standardization for IoT-related technologies and (2) creation of various IoT-related project and recommendations such as regulatory reform necessary to run those projects. And ITAC has built cooperative relationships with overseas organizations with regard to IoT to create and develop global IoT businesses of member companies. In 2016, ITAC signed MoU with Industrial Internet Consortium (IIC) and OpenFog Consortium of the United States and in 2017 signed MoU with National Association of Software and Services Companies (NASSCOM) of India and Alliance for IoT Innovation (AIOTI) of EU.

ITAC aims to strengthen the cooperation of them, by sharing good practices and exchanging opinions about their challenges, promote overseas expansion of IoT businesses of member companies, and deepen the relationship between them and foreign companies.

2. Japan prepares “**IoT use case map**” which plots Japanese IoT use cases on the map. Furthermore, the map is linked with similar use case map of Germany and France.

Country: [Korea, Republic of](#)

Responsibility: Ministry of Science and ICT (MSIT)

Initiative: Master Plan for Building the Internet of Things (IoT)

In 2014, the Korean Government announced the **Master Plan for Building the Internet of Things (IoT)**. The plan’s main objective is to promote the IoT ecosystem consisting of contents/services, platforms, networks and devices. The plan recognizes the key element of success as the development open/common platforms which service/application developers and manufacturers can harness with cost efficiency and economies of scope. The plan was deepened in the form of the **IoT Diffusion Strategy in 2015**.

The diffusion strategy focuses on six strategic areas which have greatest public interests and diffusion effects – health/medicare, manufacturing, automobile/transportation, energy, home, city/safety. Following to the diffusion strategy, the Korean government designated Busan and Daegu as the pilot test city of smart city and smart healthcare respectively, to provide regulation-free environments to apply newly developed innovative ICT services. IoT has been an important element in the following bigger national plans such as the K-ICT Plan in 2016 and the Master Plan for the Intelligent Information Society in 2017. IoT is one of the general-purpose technologies along with big data, cloud computing and artificial intelligence. Those development plans will be further imbedded in the Master Plan for the Fourth Industrial Revolution in the near future, reflecting the new policy goals of the recently elected President in May 2017.

The government initiatives have supported private SM enterprises too. During 2015–2016, more than 100 start-ups and SME’s were directly supported by the government fund for the development of new/innovative services and applications. Convergence services in traditional areas such as tourism and agriculture were also benefited by the government initiatives. The Korean IoT initiatives take the cyber security issues seriously as IoT devices are very vulnerable to hacking. To overcome those problems, the government tries to internalize the strict cyber-security measurements from the designing stages of IoT device/application development. At the end of 2016, 1,900 firms reported as they are associated with IoT related businesses.

The most notable accomplishments in the area of IoT are reflected in the network development of Mobile Network Operators and their subscribers. Three MNO's deployed national IoT networks, considering the IoT network's characteristics such as low latency, low electric power and wide network coverage. SK Telecom deployed LoRa networks as well as NB-LTE networks which were used by other MNOs.

The number of subscribers is increasing, such that more than 10% of mobile subscribers can be categorized as IoT users. In 2016, IoT revenues comes from Construction/Building Management/Safety/Environments (28%), Manufacturing (15%), Energy (10%), Retail/Logistics (10%), Space/Automobiles/Traffic/Aerospace (9%), SmartHealth Home (9%), Finance (6%), Education (5%), Health (4%), Agriculture/Dairy/Fishery (2%), National Defence (1%), Tourism/Sports (1%).

Country: Mexico
Responsibility: Ministry of Economy
Initiatives: Route Map/Public Policy for the development of Innovation Ecosystems

The country has a series of policies in terms of digitalisation, such as the National Digital Strategy that aims to encourage development and adoption of information and communication technologies (ICT), in order to insert Mexico in the Society of information and knowledge. The Ministry of Economy through the Undersecretary of Industry and Commerce develop and promoted a Route Map entitled “**Crafting the Future: A Route map for Industry 4.0 in Mexico**” Its development counted with the participation of representative members from industry, academy and government. This map reviewed strategies around the world concerning Industry 4.0, the most important trends, the characteristics of the manufacturing sector in Mexico and the pathway of Mexico towards I4.0. Derived of this Route Map, the Ministry of Economy through the General Direction of Innovation, Services and Domestic Trade, carried out a prioritization exercise of technologies that strives to know the impact of each one of these, based on their level of importance. This, in the interest of focusing on public policies and supportive instruments.

Among the technological trends that were identified as a priority for Mexico, are:

- Digital Platforms
- Big Data/data analysis
- IoT

However, the development of other technologies will be supported such as:

- System of vertical and horizontal integration (sensors)
- Additive Manufacturing/Prototyping/3D impression
- Nanotechnology
- Cyber security
- Augmented Reality (Product)

Along with the foregoing, the Ministry of Economy counts with a public policy for the development of the software Industry (PROSOFT) and the Innovation in Mexico. This public policy strives for the generation and development of Industrial Innovative Centers. With the objective to promote digitalisation of the industries and the innovation in Mexico, the PROSOFT encourages the creation of innovation ecosystems focused on providing qualified and specialized human capital in: the use of equipment and advanced equipment for manufacturing, as well as human capital of engineering level, trained in the use of advanced software for design, prototyping and simulation. These ecosystems include the participation of the private initiative, the academy, clusters, chambers, associations and in some cases even the local government.

Those innovation ecosystems will be developed through the creation of semi-public Industrial Innovative Centers that will be built on the following basis:

- Generation of shapers/trainers/instructors on production and manufacturing techniques
- Development of specialized and certified operators in production and manufacturing
- Generation of shapers/trainers/in design
- Generation of specialized engineers in design and prototyping

Moreover, through the centers it will promote the adoption of technological tools that are considered in the Industry 4.0 model, such as: smart sensors with software embedded for industrial control, interoperability platforms, administrative, logistic and productive control systems; and Big data.

Country: **Russian Federation**
Responsibility: The Ministry of Telecom and Mass Communications of the Russian Federation
Initiatives: The program «Digital economy of the Russian Federation» approved by the decree of the Russian Federation government dated 28.07.2017 No. 1632-R.

See section 3.

Country: **South Africa, Republic of**
Responsibility: Department of Trade and Industry/Department of Telecommunications and Postal Services
Initiatives: Industrial Policy and Action Plan IPAP, 2016

The **Industrial Policy Action Plan** will be amended in the 2018 iteration for IPAP 2018/19 to 2020/21 to align action plans with the digitalisation of production and continue efforts to overcome persistent structural hurdles to development and industrialisation.

Country: **The Netherlands**
Responsibility: Ministry for Economic Affairs
Initiative: Smart industry initiative

The digitalisation of industry is of great importance to the competitiveness of the Netherlands. In order to promote this, the government set up **Team Smart Industry**, which was then asked to devise an action agenda.

The rollout of the field labs is the main priority in this agenda. Businesses and knowledge institutes collaborate in field labs to develop and test ICT applications. Field labs are practical environments in which companies and knowledge institutions develop, test and implement smart industry solutions. In addition, field labs strengthen connections with research, education and policy on a specific smart industry theme. The Netherlands is currently working with more than 10 different field labs. The results thus far have been shared internationally in the context of the OECD project on Next Production Revolution (TNO report ICT developments in Smart Industry Field labs, February 2017).

Country: Singapore
Initiative: PPP

An example of PPP that will further develop the digital economy in Singapore: Most recently, the Infocomm Media Development Agency, Keppel Data Centres and Ascent Solutions signed MOIs and an MOU to form strategic private-public partnerships with Huawei to develop Singapore's digital economy. The partnerships aim to enhance industry collaboration, enable local companies to scale globally, empower the workforce with skills relevant for the digital economy as well as equipping companies with the technology and knowledge to build strong digital capabilities in a sustainable manner.

The partnerships will cover:

- Huawei, IMDA and Keppel Data Centres will focus on a 2-year strategic collaboration to explore the technical feasibility of a first-of-its-kind high-rise green data centre building;
- Huawei and IMDA will collaborate to accelerate the growth of SMEs by leveraging Huawei's technical expertise and facilities, go-to-market opportunities and global business network;
- Huawei will support Ascent Solutions as its technology enabler, allowing the local company to tap on Huawei's global business network and explore overseas opportunities;
- IMDA and Huawei will jointly promote deeper talent and capability building among local ICT students through overseas training stints and internship opportunities for students to explore new capabilities in technology areas critical to the future like IoT, 5G and cyber security.

Country: Spain
Responsibility: Ministry of Energy, Tourism and for the Digital Agenda
Initiative: National Plan for Smart Cities

The Digital Agenda for Spain approved in February 2013, promotes the development and strengthening of Smart Cities in Spain. In order to achieve this goal, the Ministry of Energy, Tourism and Digital Agenda approved in March 2015 the **National Plan for Smart Cities**, with a budget of €188 million.

This Plan is structured around 5 main axes containing 13 measures, which seek to increase the contribution of ICT to the GDP of the industrial sector, advance the governance of the Smart Cities ecosystem and improve the quality of life of citizens of urban areas and other communities. Among the main measures of the National Plan for Smart Cities are:

- Grants for development of smart city projects and promotion of smart tourism destinations.
- Promotion of standards to ensure the interoperability between smart solutions.
- Launching pads for innovation, grants to R & D projects related with smart cities and the promotion of the industry.
- Promotion of the cooperation between companies and local councils, in order to encourage the development of innovative solutions to be implemented in cities.
- Grants for new business models development based on efficiency and use of technology in smart cities.
- Internationalization of Spanish companies in the field of development of smart cities and smart tourism destinations

Two calls for tenders have been made within a general framework of grants for smart cities development. The first was launched in June 2014 with a budget of €15 million, benefiting 11 projects from 24 local councils. The second took place in July 2015 with a budget of €63 million, benefiting 14 initiatives from 17 local councils. Last but not least, a call for Smart Islands projects was launched also in July 2015, three projects were selected with a total budget of €30 million.

7. Enable all people to adapt to and excel in the digital economy and society

Country: Germany
Responsibility: Federal Ministry for Economic Affairs and Energy
Initiative: Calliope Mini

There is a lack of digital education in many countries at the moment – the educational system is unable to cope with the pace of digitalisation and therefore digital literacy is at stake. This means that we will not only run into a shortage when it comes to digital talent and the workforce, but also adoption of digital technologies in society will suffer, when citizens are not prepared to deal with them.

This is why a German group of designers, education specialists and digital entrepreneurs invented the **Calliope mini** – an educational tinkering board that can be used to get in touch with IT and digital technology literally – and in a very playful way. The board comes with a couple of sensors, a speaker, a 5 x 5 LED matrice and some more ways to interact, and it can be programmed from a browser. It is cheap in production so that every pupil can get their own mini-computer. Several federal states in Germany already decided to provide every child at 3rd grade with a Calliope mini, so that STEM-education can be brought to the next level.

Calliope mini is developed and distributed out of a non-profit company based in Berlin; several companies are acting as sponsors by providing money, material and support. The whole initiative was supported by the German government (Ministry of Economic Affairs and Energy) in the beginning as well and presented at the national IT summit 2016 to Chancellor Merkel and her cabinet.

A publisher of traditional schoolbooks is partnering with the initiative and published a textbook with learning material based on the Calliope mini.

Every material, even the board and the software, but also learning material is published under an open educational license (cc-by-sa), so that copies and commercial re-use/remix are allowed.

Country: Argentina
Responsibility: Ministry of Production/Ministry of Science and Technology
Initiative:

1. Entrepreneurship Clubs
2. Entrepreneurship Cities
3. Program.AR
4. Plan 111 mil

1. **Entrepreneurship Clubs** are co-working and maker spaces endowed with technological hardware and software tools, where people can learn, train and use technology to develop innovative projects and start new businesses. Throughout the country 25 clubs have been built and 25 more are under construction.
2. **Entrepreneurship Cities** assists 50 small cities to create local entrepreneurship programs to enable digital and entrepreneurial skills to adapt to the digital economy. The targeted cities have populations between 20,000 and 200,000 inhabitants and are located throughout the country.
3. **Program.AR.** Focused on teaching Computer Sciences at school, this program offers training to young high school graduated that seeks for jobs requiring digital or IT skills. The training lasts two quarters and it is taken in accredited institutions throughout the country. Upon completion the participants get a certificate of “Knowledge Analyst”, endorsed by the Ministry of Education. [Program.AR](#)

4. **Plan 111 thousand.** This National plan seeks to train people in software development tools. Over the next 4 years, it aims to train 100,000 IT certified programmers, 10,000 IT professionals and 1,000 entrepreneurs of the IT industry. The objective is to meet the labor demand of Knowledge-Based Industries, one of the fastest growing sectors.

The course lasts two semesters and it's taught in accredited institutions such as technical schools, vocational training, centers and universities. At the end of the course there is an exam and the attendants receive a certificate. This certificate has national validity and is jointly endorsed by the Ministry of Education and the Ministry of Production of the Nation. [Plan 111 thousand](#)

Country: [Australia](#)

Responsibility: Department of Industry, Innovation and Science/Department of Foreign Affairs and Trade

Initiatives:

1. Digital Careers program
2. International Cyber Engagement Strategy
3. innovationXchange
4. Adapting to structural change

1. The **Digital Careers program** is helping address Australia's ICT skills shortage. The objectives of the Program are to:

- increase awareness, interest and participation amongst school students in computational thinking and digital technologies, particularly those groups who traditionally do not have a great interest in ICT;
- increase awareness of career diversity and job opportunities for students studying ICT, Science, Technology, Engineering and Mathematics (STEM) and related fields; and,
- provide education and training materials and professional development for educators delivering digital technology curriculum and activities.

Delivered by Australia's preeminent science body, CSIRO, the program will deliver on these objectives through a series of activities to foster computational thinking, creating digital technology projects and competitions; providing teacher support and resources for the digital technologies curriculum; and linking university students studying STEM and related fields with job and work opportunities in Australian businesses.

2. Australia has appointed an **Ambassador for Cyber Affairs** to lead Australia's whole of Government international engagement to advance and protect Australia's national security, foreign policy, economic and trade, and development interests in the Internet and in cyberspace. Australia's ambitions across the broad spectrum of cyber affairs will be articulated in Australia's forthcoming **International Cyber Engagement Strategy**. Among other things, the Strategy will outline Australia's commitments to support the use of digital technologies for sustainable development and inclusive economic growth in the Indo Pacific.
3. The **innovationXchange (iXc)** was established in Australia's Department of Foreign Affairs and Trade to form new partnerships and identify innovative approaches to improve the effectiveness and impact of the Australian aid program, and public policy more generally. iXc has, for example, partnered with Google.org to identify the best innovative ideas using technology to tackle poverty in the Indo-Pacific, with winners bringing new technologies to remove arsenic from groundwater and offer financial services to the financially excluded. iXc has also partnered with the Massachusetts Institute of Technology (MIT) Solve initiative and Atlassian to find ideas that will help prepare disadvantaged young people for the workforce of the future, and ensure they have the necessary skills to participate in the digital economy.

4. The Australian Government assists workers to **adapt to structural change** such as that which is resulting from the growth of the digital economy. This includes encouraging participation in lifelong learning and ensuring that training is relevant to areas of jobs growth. Job seekers can also access assistance to reskill and search for work through Australia’s national public employment service network, jobactive, with the level and forms of support being tailored to the individual’s needs. This can include advice on local employment opportunities, referrals to suitable jobs, support to undertake employment-relevant training, wage subsidies and relocation assistance. Additional support for reskilling and job search is also available for communities or sectors which are particularly exposed to structural change, such as workers in the automotive and steel industries.

Country: [Brazil](#)

Responsibility: Ministry of Science, Technology, Innovation and Communications (MCTIC)

Initiative: Brasil Mais TI

The aim of the **Brasil Mais TI Program** is to foster digital vocational training for the youth. The focus of the program is the development of a distance education platform, which is made available on a national basis. Currently there are over 40 different courses ranging from introductory level IT, to advanced programming, among others. The platform has over 300,000 registered students, 1,200 tutors and approximately 500,000 ongoing training course sessions at any given time. The Brasil Mais TI Program plays an important role in bridging the “digital divide” and in qualifying the IT workforce, to meet the demand for IT professionals in Brazil.

Country: [Canada](#)

Responsibility: Innovation, Science and Economic Development Canada (ISED)

Initiatives:

1. Canada’s Innovation and Skills Plan
2. Ministerial Announcement on Data Vision (July 28th 2017)
3. CanCode
4. Digital Literacy Exchange
5. Accessible Technology Development

1. [Canada’s Innovation and Skills Plan](#) lays out the specific investments the Government will make to ensure that Canada is home to the most skilled workforce in the world, is a nation of innovators and is a world-leader in the innovation economy. To deliver the greatest benefits for Canadians, the Plan will target six key areas, including digital industries, with a focus on expanding growth and creating jobs. Under the Skills pillar, the plan aims to grow the number of Canadians equipped with science, technology, engineering and mathematics (STEM), coding and digital skills, especially among underrepresented groups. Under the Research, Technology, and Commercialization pillar, the plan envisages increasing investment in innovation by business in digital industries, among the other six high-growth sectors identified. Under the Investment and Scale pillar, the plan sets a target to double the number of high-growth digital companies in Canada.
2. The Minister of ISED announced a [Data Vision](#), envisaging the following: (1) Entrepreneurs, innovators and community builders will benefit from new business and social opportunities as a result of the Government of Canada’s vision to support innovation in a data-driven world; (2) Government has a role to play in collaborating with all sectors of the economy and society to promote data-driven innovation while preserving the freedoms that Canadians cherish: privacy, fairness and equality of opportunity; (3) a vision for Statistics Canada as an independent, modern and responsible statistical agency.
3. The **CanCode** program will invest CAD\$50 million over two years, starting in 2017–18, to support initiatives providing educational opportunities for coding and digital skills development to Canadian youth from kindergarten to grade 12 (K-12). The program aims to equip youth, including traditionally underrepresented groups, with the skills and study incentives they need to be prepared for the jobs of today and the future. Canada’s success in the digital economy depends on leveraging our diverse talent and providing opportunity for all to participate – investing in digital skills development will help to achieve this.

4. The **Digital Literacy Exchange** program will invest CAD\$29.5 million over five years, starting in 2017–18 to support initiatives that teach basic digital literacy skills, including how to use the Internet safely and effectively, to groups that are under-represented in the digital economy (e.g. seniors, Indigenous peoples, newcomers to Canada). Funded initiatives will be held at pre-existing facilities such as public libraries, refugee housing complexes and community centres.
5. The new **Accessible Technology Development** program will invest CAD\$22.3 million over five years to co-fund innovative projects led by the for-profit organizations, not-for-profit organizations and research institutes to develop new assistive devices and technologies for persons with disabilities. These devices and technologies will assist persons with disabilities to more fully participate in the digital economy.

Country: [China](#)
Responsibility: Ministry of Education
Initiative: Full Coverage of Digital Education Resources in Teaching Units

In 2012, the Ministry of Education and the Ministry of Finance jointly implemented a project called “**Full Coverage of Digital Education Resources in Teaching Units**”, aiming to make quality neighborhood education available for primary and middle school students and narrow the digital gap between rural and urban areas via providing basic digital education resources for primary and middle schools in rural areas.

A group of ICT experts, experienced teachers and subject specialists were organized to develop quality digital education resources, including new textbooks (Chinese, Math, English, Music, Art, etc.) for primary students in 1–4 grades. Since September 2013, these resources have been transmitted nationally through satellite and Internet. At present, 64,000 teaching units in China have gained access to digital devices, resource delivery as well as teaching applications, and schools in rural areas are able to enjoy real-time e-class and share the quality education resources with their counterparts. Hence the needs for teachers’ class teaching, students’ self-study, and teachers’ lesson preparation are satisfied.

In 2016, the project was further upgraded into “Full Coverage of Digital Education Resources in Rural Primary and Middle Schools”, targeting to integrate and develop 4 subject resources (English, Music, Art, and Science) for primary students in 4–6 grades within three years. Then these resources will be transmitted to primary and middle schools in rural areas through satellite and Internet, so as to make necessary courses available to students, improve the teaching quality, and narrow the gaps between rural and urban areas. It aims to promote balanced development of education in different regions and schools, ensuring that students in remote and poor areas have access to quality resources and neighborhood education.

Country: [European Union](#)
Responsibility: European Union
Initiatives: 1. Digital skills
2. e-Government

1. The European Commission is promoting various initiatives aimed at increasing training in **digital skills** for the workforce and for consumers; modernising education across the EU; harnessing digital technologies for learning and for the recognition and validation of skills; and anticipating and analysing skills needs.

On 10 June 2016 the European Commission published a new Skills Agenda for Europe, working together to strengthen human capital, employability and competitiveness. It presents a number of actions and initiatives with the ambition to tackle the digital skills deficit in Europe. The new agenda sets out to improve the quality and relevance of skills formation, to make skills and qualifications more visible and comparable and advancing skills intelligence, documentation and informed career choices. Digital Skills and Jobs Coalition is the new flag ship initiative among a number of other initiatives that were presented.

The mid-term review of the DSM Strategy, published in May 2017, focuses on digital skills oriented actions, aiming to manage digital transformation of our society and economy.

On 18 April 2016 the European Commission published a Communication on Digitising European Industry, which introduced a set of coherent policy measures as part of a Digital Single Market (DSM) technologies and public services modernisation package. A part of the Communication is dedicated on digital skills. In particular, it calls for a human capital ready for the digital transformation with the necessary skills.

2. A new **e-Government** plan will also connect business registers across Europe, ensure different national systems can work together, and that businesses and citizens have to put their data “once only” to public administrations. The “once only” measure will potentially save around €5 billion per year by 2017.

Country: France
Responsibility: DGE (Direction générale des entreprises)
Initiatives: Grande école du numérique, chèque numérique

The French government has strengthened higher education and lifelong learning in order to improve digital skills, through the implementation of innovative training initiatives:

In 2017, it implemented a “**digital cheque**” or a voucher to promote access to listed and professional digital mediation places. This initiative takes charge of all or part of the digital training needs of the citizens, using different structures to fund them (public services operators, foundations, work councils, mutual funds, etc.). It reinforces the financial means and visibility of digital mediation actors, and offers a mapping of the different services available in the form of a services reference document.

In 2015, it launched the “**Grande Ecole du Numérique**”, a network of short and free trainings to digital jobs. Because no previous degree is required, these trainings aim at a young and unemployed audience who dropped out of school or university. Its aim is to train, by the end of 2018, 10 000 persons within 200 certified courses: this goal has already been achieved, as we now have 268 certified trainings.

The government also supports the development of Massive Online Open Courses, or MOOCs, especially through the platform France Université Numérique, or through financial or operational partnerships with companies producing MOOCs – such as the one between Pôle Emploi and OpenClassrooms. France is also a pioneer in international cooperation with regards to this policy area: the platform France Université Numérique and the Agence Universitaire de la Francophonie provide a wide variety of free French speaking MOOCs to developing countries, designed by top French universities. France notably collaborates with Senegal and Tunisia in this matter.

Country: India
Responsibility: Ministry of Electronics and IT (MeitY)
Initiatives: Pradhan Mantri Gramin Digital Saksharta Abhiyan (PMGDISHA), eSign, DigiLocker

The Government has a programme “**Pradhan Mantri Gramin Digital Saksharta Abhiyan (PMGDISHA)**” to usher in digital literacy in rural India by covering 60 million rural households (one person per household) by March, 2019. Special focus of the above programme would be on training the beneficiaries on use of Electronic Payment System. Through this programme, persons would be able to operate computers/digital access devices (like tablets, smart phones, etc.), send and receive emails, browse Internet, access Government Services, search for information, undertake cashless transactions, etc. and hence use IT to actively participate in the process of nation building. The outcome measurement criteria would include undertaking at least 5 electronic payments transactions by each beneficiary using UPI (including BHIM app), USSD, PoS, AEPS, Cards, Internet Banking.

For easy and secure electronic authentication, **eSign Service** has been launched by the Government. It is an online electronic signature service which can be integrated with service delivery applications via an API to facilitate an eSign user to digitally sign a document. Using authentication of the **AADHAR** holder through AADHAR e-KYC service, online electronic signature service is facilitated.

Targeted at the idea of paperless governance, **DigiLocker** is a platform for issuance and verification of documents & certificates in a digital way, thus eliminating the use of physical documents. DigiLocker is a secure cloud based platform for storage, sharing and verification of documents & certificates. Indian citizens who sign up for a DigiLocker account, get a dedicated cloud storage space that is linked to their AADHAAR number. Organizations that are registered with Digital Locker can push electronic copies of documents and certificates (e.g. driving license, Voter ID, School certificates) directly into citizens' lockers. Citizens can also upload scanned copies of their legacy documents in their accounts. These legacy documents can be electronically signed using the eSign facility. So far, there are around 8 million registered users, 10 million documents uploaded and 1.7 billion documents issued on the DigiLocker platform.

It is also projected that the Indian Digital Economy will generate 30 million employment by 2024–25, which is double than the current scenario.

Country: Mexico
Responsibility: Ministry of Public Education/Ministry of Communications and Transports
Initiative: @prende

@prende 2.0 is a comprehensive proposal that contemplates the necessary components to promote the quality of learning-teaching processes in public schools of basic education in the country through the use and development of ICT. The Ministries of Public Education and Communications, and Transports worked together for the development of this program that promotes the equipment of computers and quality Internet connections in all schools within the country. This is part of the digital inclusion strategy of the NDS. The project launched its pilot program for 3K schools on November 2016 and has been operating under a scheme of constant monitoring and assessment, in order to keep real time tracking of its development. @prende 2.0 was create as a mechanism to address the increasing demand of human talent through a proper training process of teachers on the use of new technologies and; provide schools with the adequate digital tools (deployment of 20–30 digital devices in each one of them) and online content platforms to optimize the learning process.

Benefits of the program:

- Even more girls and boys of basic education will benefit with this new classroom model @prende 2.0, given that the use of digital devices is not limited to a single scholar grade but also in all educational levels and within all the subjects that professors considers more relevant.
- Development of computational thinking and digital skills in students of basic education.
- Strengthening of professional development in teachers through the use and leverage of TICs to promote the digital skills and computational thinking.
- Promote the autonomy of federative entities to diagnose, select, design and implement teachers' professional development with strategies in the use of ICTs.
- Increase the availability of educational digital resources in and out of classrooms that support the teaching-learning processes.
- Promotion of strategic initiatives that encourage the inclusion and collaboration.
- Equipment and increased connectivity within classrooms of @prende 2.0.
- Incorporation of monitoring mechanisms, assessment and analysis of information to a better planning and decision making.

Country: Russian Federation
Responsibility: The Ministry of Telecom and Mass Communications of the Russian Federation
Initiative: Federal state information system

“Public Services Portal of the state and municipal services (functions)” (further - the Portal) is designed and organized to provide the most convenient access to state services for all citizens of the Russian Federation, and for citizens of other States who are temporarily staying on the territory of the Russian Federation. The design of the portal and the organization of information and services were designed on the basis of user research and regular usability tests.

For all the inhabitants of villages and small towns who are connected under the program of eliminating the digital divide free access to the Portal is provided, even if the subscriber does not pay the commercial rate. Free access is provided at points of public access to the Internet in the Russian Post.

Public Services Portal of the state and municipal services multi-functionally works with mobile devices, allowing those who do not have access to desktop computers to fully enjoy the benefits of electronic services.

People with disabilities and low vision are provided with simplify access to electronic services to the international standards WCAG 2.0.

Information and service sections on life situations implemented additionally for such categories of citizens as pensioners, young families, refugees, disabled and the others, which enables providing targeted and comfortable support to this segments of population.

Furthermore, the Internet service “My health” that is posted on the Public Services Portal of the state and municipal services provides the option of an electronic record to the doctor and receiving services in health care in electronic form provided implemented for the citizens. https://www.gosuslugi.ru/promo/discount/?utm_source=beta&utm_campaign=target&utm_medium=banner&utm_content=discount, <https://www.gosuslugi.ru/category/health>

Country: South Africa, Republic of
Responsibility: Department of Telecommunications and Postal Services
Initiatives: Draft Bill on the establishment of the Ikamva National e-Skills Institute (INESI); White Paper for Post-school Education and Training (PSET White Paper)

The dti has developed a programme called the **Intsimbi Future Production Technologies Initiative** that has been designed to target talent-driven innovation and simultaneously reducing the skills gap for technical training. This new programme is an expansion of the successful pilot Intsimbi National Tooling Initiative programme (NTIP). The public private partnership governance model was developed as an integrated end-to-end industry system solution to address manufacturing enterprise challenges.

Implementation strategies for the Intsimbi Future Production Technologies Initiative are based on well-researched interventions in collaboration with international partners and local skills development stakeholders, aligned to industry needs and standards providing integrated systems solutions to close the skills gap, ranging from entry level through artisan, technician and engineering skills requirements for the broad manufacturing sectors. The Intsimbi Future Production Technologies Initiative is implementation ready and is awaiting funding to kick start technical training for advanced manufacturing.

The National Development Plan’s skills development target is 30,000 artisans a year by 2030.

Country: [United Kingdom](#)
Responsibility: Digital, Culture, Media & Sport/Education
Initiatives: Digital capability for all, digital skills for a digital economy and a more collaborative, coordinated and targeted approach to digital skills

If we want to increase our overall prosperity, to enjoy higher real wages, and if we want more opportunities for young people to get on, we have to raise our productivity. In a digitally-driven economy, that means ensuring that everyone has the skills they need to flourish, with nobody left behind.

We need to support everyone to develop the skills they need to participate in the digital economy and help all businesses harness the productivity benefits of digital innovation. To do this, we will ensure adults in England who lack core digital skills will not have to pay to access the basic digital skills training they need, mirroring the approach taken for adult literacy and numeracy training. And, as jobs and whole industries are disrupted by digital innovation, we need to make sure those affected have the support they need to adapt. We will establish a new Digital Skills Partnership, working together with partners who are passionate about making a difference and who share our ambitions to tackle the digital skills gap. The Partnership will play a crucial role in helping people access digitally-focused jobs at a local level, bringing together technology companies, local businesses, local government and other organisations to identify digital job vacancies and take action to help people move into these jobs.

We also need a strong pipeline of specialist skills – from coding to cyber – to support the tech industry and drive productivity improvements across the economy. We will deliver coding in the National Curriculum, from Key Stage One onwards, and we will take forward the recommendations of the Shadbolt Review to ensure computer science students have the real-world, up to date skills needed in the digital economy. To help more young people from a wider range of backgrounds consider a career in tech, we will support the National Citizen Service (NCS) in piloting new ways to include digital skills and careers in NCS programmes.

Country: [The Netherlands](#)
Responsibility: Ministry for Economic Affairs/Ministry of Education, Culture and Science
Initiatives: 1. Cinekid Media Awards
2. Open educational resources

1. ECP platform for the Information Society (which is sponsored by the Ministry of Economic Affairs amongst others), Mediawijzer.net and Cinekid are organizing in 2017 the **Cinekid Media Award** to give a boost to the production of high quality digital media for the youth e.g. apps, websites, games, coding. Special attention is given to aspects such as security, creativity and innovation.
2. Apart from learning ICT skills in primary and secondary education, the Netherlands also invests in open resources for higher education. The Ministry of Education, Culture and Science is working on excellent higher education that promotes the development of students' individual capacities and reduces learning deficits. To achieve this goal, digital learning resources will be deployed such as '**Open Educational Resources**', '**Open-CourseWare**', learning analytics and '**Massive Open Online Courses**'. To encourage the implementation of these resources, the Ministry of Education, Culture and Science has made €1 million per year available to SURF, a collaborative organisation for Dutch education and research.

Country: Spain

Responsibility: Ministry of Energy, Tourism and for the Digital Agenda/Ministry for Education and Culture/
Ministry of Economy, Industry and Competitiveness/Ministry for Employment and Social Security

Initiatives: 1. Committee for Innovation of Digital Training Offers
2. White Paper for the design of university degrees within the framework of the Digital Economy

1. The Ministry of Energy, Tourism and Digital Agenda created in October 2014 the **Committee for Innovation of Digital Training Offers (CIOFD)**. Its objective is to stimulate the dialogue between industry, public sector and university, in order to adapt the degrees offered by universities in the field of digital economy to the real demand of the sector. Members of the Committee are the Secretaries of State for Telecommunications and for the Information Society, Education, RDI, and Employment, as well as representatives of the ANECA Agency, universities and major associations in the sector. The creation of this Committee is part of the “Training for Excellence” initiative, which pursues a double objective. Firstly, to ensure that the titles – degree and masters – offered by Spanish universities have a profile more suited to the needs of the. Secondly, to allow universities specialized in providing training in the digital economy sector to have more facilities to offer official degrees, which are always preferred by potential students. The Committee, which includes representatives from both public and private sectors, will foster dialogue between the university and enterprises in matters related to the digital economy sector.
2. To this end, a **White Paper for the design of university degrees within the framework of the Digital Economy** was presented in September 2015. The White Paper pursues two major objectives: to ensure that the degree and master’s degrees offered by Spanish universities have a profile more suited to the needs of the sector and that there is a greater offer of official degrees linked to the Digital Economy. Structure of the White Paper for the design of university degrees within the framework of the Digital Economy:
 - The first part of the White Paper presents the situation of studies related to the Digital Economy. This section explores the structure of university and postgraduate graduates, regarding the differences in the supply and demand of the profiles related to the Digital Economy. In addition, this part also shows an international market study of the status of university degrees related to the Digital Economy in other countries.
 - On the other hand, the second part of the White Paper aims to be a guide for the preparation of university degrees for studies related to the Digital Economy. The result is shown in the Annexes of the White Paper through the tables of profiles, competences and contents that should be acquired by future graduates of the degrees developed.

As stated, both the profiles identified, as well as the competences and contents of the degrees, have been agreed by expert professionals, coming from the professional sector that competes and from the university. Therefore, it aims to show the profiles, competencies and contests demanded by the industry, in order to enhance and optimize the labor insertion of future graduates.

8. Strengthen trust in the digital economy

Country: Germany
Responsibility: Federal Ministry for Economic Affairs and Energy/Federal Ministry for Education and Research
Initiative: Trusted cloud and industrial data space

The systematic application of cloud services is of paramount importance in view of the digital transformation of the economy and the improvement of competitiveness of the German and European industry, in particular for SMEs. Various studies in this field confirm, that the competence of SMEs in cloud computing have to be improved. Among these companies, there is still uncertainty with legal certainty, security, loss of control and data ownership and insufficient transparency.

The German Ministry for Economic Affairs and Energy has established a “**Trusted Cloud Platform**”, supporting the application of cloud technologies in SMEs. This platform provides a comprehensive package of orientation knowledge with regard to cloud computing. Competences of cloud users are supported and the competitiveness of small and medium cloud services in relation to international cloud suppliers is improved.

Various countries in the other EU Member States follow a similar approach. The European Commission is interested in these activities and following actively in order to possibly harmonize ongoing initiatives.

The **Industrial Data Space** initiative aims at increasing trust in digital technologies by providing technological solutions for a secure and sovereign exchange of industrial data between companies. It was launched in Germany at the end of 2014 by representatives from business, politics, and research. The Industrial Data Space comes as an initiative that is organized in two branches: a research project and a non-profit user association. The research project is funded by the German Federal Ministry for Education and Research (BMBF). It is of pre-competitive nature and aims at the development and pilot testing of a reference architecture model of the Industrial Data Space. The work of the research project is tightly connected with the activities of the user association named “Industrial Data Space e.V”. The main goal of the user association is to identify, analyse and evaluate the requirements of user companies to be met by the Industrial Data Space. Furthermore, the user association contributes to the development of the reference architecture model and promotes its standardisation. In the meanwhile, the user association has won over 70 members from the private industry, including several large companies. It also cooperates closely with the German Platform Industry 4.0.

Country: Argentina
Responsibility: Ministry of Production
Initiatives: Strengthening Regional Capacities for Industry Development

Strengthening Regional Capacities for Industry Development

This program attempts to support the creation – and development – of knowledge-based services policies and clusters, based on strengthening existing capacities and gathering private companies, educational institutions, and local governments. This program also seeks to identify business opportunities, attract investments, and generates employment in the knowledge-based services sector.

This initiative is developed through ninety-days-long external consulting that brings together the main local stakeholders related to the project, government authorities, businesses and educational institutions.

It is worth to mention that one of the main components of this program consists of carrying out a survey and an assessment of capacities at a regional level. Upon completion of the data collection stage, a report that summarizes the main findings is written. Among others, this report features: characterization of the knowledge-based service companies’ universe; presence of large national and multinational companies, and its impact at local level; existence

of formal and informal organization that gather companies in the knowledge-based services sector; number of workers employed by the sector; related educative programs, along with the profile of their graduates and the ability to meet current and potential demand of trained human resources.

Country: [Australia](#)

Responsibility: Department of Prime Minister and Cabinet/Department of Industry, Innovation and Science

Initiatives:

1. Cyber Security Strategy
2. The Entrepreneurs' programme
3. The Cyber Security Growth Centre

1. The **Cyber Security Strategy** was launched in April 2016 and sets out a four year plan to build a secure and trusted digital economy that will underpin Australia's future prosperity. The Strategy outlines 33 initiatives across five key themes to improve Australia's cyber security by: building a national cyber partnership; developing strong cyber defences; taking global responsibility and exercising international influence; enabling growth and innovation; and becoming a cyber-smart nation. The Australian Government is providing around AUS \$230 million over four years to fund the Strategy's initiatives. The Strategy recognises that Governments cannot ensure Australia's cyber security alone. Governments, business and individuals must work together to share information and strengthen our defences against cyber threats.
 2. The **Entrepreneurs' Programme** provides business support and advice to help businesses commercialise novel products, processes and services, as well as improve their productivity and competitiveness. The Entrepreneurs' Programme launched a webinar series to equip businesses with the knowledge and tools to incorporate cyber security into business called "Cyber security for your business".
 3. The **Cyber Security Growth Centre** was announced in December 2015 as part of the Government's National Innovation and Science Agenda to create business opportunities for Australia's cyber security sector and improve Australian businesses' cyber security. It is a key measure of Australia's Cyber Security Strategy, and part of the Government's Industry Growth Centres initiative. The Centre coordinates cyber security research and innovation for national benefit, enabling Australia to become a global leader in cyber security solutions and services. Creating a national network of research and innovation, the Centre brings together Australian governments, businesses, start-ups and the research community to define and prioritise cyber security challenges that are both critical to national success and those for which Australia has a leading ability to build globally competitive solutions. The Centre also links to existing cyber security innovation hubs overseas.
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Country: [Brazil](#)

Responsibility: Institutional Security Cabinet of the Presidency (GSI/PR)/Ministry of Science, Technology, Innovation and Communications (MCTIC)/National Congress

Initiatives:

1. National Policy for Information Security
2. Data protection and privacy

1. Brazil has recently developed the first draft of its **National Policy for Information Security (PNSI)**, which will be soon submitted to public consultation. Once approved by the National Congress, this law project will constitute the legal framework for cyber security and cyber defense. The new law will also establish a National Authority, a National Agency and a National Plan for Information Security, among other initiatives to strengthen trust in the digital environment.
2. The Presidency presented in 2016 before the National Congress a **law proposal on privacy and data protection**, already submitted to public consultation and discussed at an international seminar. Alongside with this project, there are five more proposed by congressmen regarding similar topics, all of them currently following legal

channels in both Houses. Currently, the House of Representatives is focusing on establishing a single text before submission to vote.

The aim of a law on privacy and data protection is to regulate some provisions written in the Civil Rights for the Internet in Brazil (Law no. 12.965/2014) related to privacy and data protection. It is also intended to constitute the legal basis for a national strategy on the same subject, as a part of the Brazilian Strategy for Digital Transformation. This national strategy would comprehend topics such as user guarantees, the regulation of data economy and the establishment of digital business models. A national privacy protection agency could also be created as a result of those legal instruments.

Country: [Canada](#)
Responsibility: Competition Bureau
Initiative: Collaborate with international consumer protection agencies to stand against online fraud

The **Competition Bureau coordinated the 2015 International Consumer Protection and Enforcement Network Internet sweep**, which saw 25 agencies participating in reviewing more than 1,500 websites to identify issues, such as “drip pricing” in travel and tourism (i.e., when an advertised price is unattainable because of mandatory additional fees) and e-commerce subscription traps. Nearly half of the websites examined, including Canadian websites, were flagged as being suspicious. The Bureau also contributed to the new version of the Organisation for Economic Cooperation and Development (OECD) recommendation on consumer protection in e-commerce, which has been updated to address the emerging trends and challenges faced by consumers in the digital marketplace, which marks the first significant revision to this document since it was created in 1999. We also continued to collaborate with the National Cyber Forensics Training Alliance Canada, and met with domestic and international law enforcement partners to discuss new forensic tools and technologies for capturing and preserving representations made in online and mobile environments – and how to use that evidence in our investigations.

Country: [China](#)
Responsibility: Ministry of Industry and Information Technology
Initiatives:

1. Pilot Demonstration of Cyber Security Technologies
2. Regulations on Personal Information Protection for Telecommunications and Internet Users

1. The Ministry of Industry and Information Technology has been working on the **Pilot Demonstration of Cyber Security Technologies** for two consecutive years, with a focus on key processes, collecting and promoting the best practices and cases from enterprises and relevant institutions in the areas of basic telecommunications, cyber security, Internet etc.
2. The **Regulations on Personal Information Protection for Telecommunications and Internet Users**, issued in 2013, standardized behaviors that telecommunications operators and Internet information providers’ collection and utilization of customers’ personal information, guaranteeing customers’ rights to know and choose.

Country: [European Union](#)
Responsibility: European Union
Initiatives:

1. Reinforcing trust and security in digital services and the handling of personal data
2. A partnership with industry on cyber security
3. eIDAS Regulation

1. On 10 January 2017, the Commission adopted a draft **Regulation on Privacy and Electronic Communications** with the view of aligning ePrivacy legislation with the new EU Data protection rules, which entered into force in May 2016.

2. On 5 July 2016 the European Commission announced the launch of a **contractual Public-Private Partnership on cyber security**. The aim of the partnership is to foster cooperation at early stages of the research and innovation process and to build cyber security solutions for various sectors, such as energy, health, transport and finance. The EU will invest up to €450 million in this partnership, under its research and innovation programme Horizon 2020. Cyber security market players, represented by European Cyber Security Organisation (ECSO), are expected to invest three times more.
3. The Regulation (EU) No. 910/2014 on electronic identification and trust services for **electronic transactions in the internal market (eIDAS Regulation)** adopted by the co-legislators on 23 July 2014 is a milestone to provide a predictable regulatory environment to enable secure and seamless electronic interactions between businesses, citizens and public authorities.

The eIDAS Regulation:

- ensures that people and businesses can use their own national electronic identification schemes (eIDs) to access public services in other EU countries where eIDs are available.
- creates an European internal market for eTS – namely electronic signatures, electronic seals, time stamp, electronic delivery service and website authentication – by ensuring that they will work across borders and have the same legal status as traditional paper based processes. Only by providing certainty on the legal validity of all these services, businesses and citizens will use the digital interactions as their natural way of interaction.

Another major step was accomplished with the adoption of all the implementing acts due by 18 September 2015. In order to foster the market and favour interoperability, these implementing acts take account of and promote the adoption of existing European or international standards. Under the Connecting Europe Facility (CEF) the European Commission and EU Member States are also rolling out the eID technical interoperability infrastructure and components to operationally support the cross border use of eID.

As of 1 July 2016, all trust service providers, who have received the qualified status in line with the eIDAS Regulation, can use the EU trust mark to indicate in a simple, recognisable and clear manner the qualified trust services they provide.

The Commission launched the **eIDAS Observatory** – an online collaborative platform for exchanging views and positions, sharing ideas and good practices. The Observatory is a virtual community of stakeholders whose aim is to build a common understanding of the issues relating to the implementation and uptake of the eIDAS Regulation and to facilitate the use of cross-border electronic identification and trust services.

Country: [France](#)
Responsibility: Ministère de l'économie et des finances/ANSSI (Agence nationale de la sécurité des systèmes d'information)/Ministère de l'Europe et des affaires étrangères
Initiative: Loi République Numérique, stratégie nationale pour la sécurité du numérique

Passed in 2016, the [Digital Act](#) reinforced trust through:

Network Neutrality

The #DigitalAct enshrines the principle of net neutrality in French legislation, guaranteeing non-discrimination of access to the network according to the services by the access providers. Specifically, operators will not be able to offer, for example, a slower Internet to certain customers, and faster speed to others, to access the same service from the same offer. The French regulator for electronic communications (ARCEP) will be responsible for ensuring compliance with this principle and is provided with the legal means necessary for its action (sanctioning powers in particular).

Loyalty of information to consumers

The #DigitalAct provides “a regulation of online notices, which today constitute one of the main sources of information of the users”. The objective is to allow the consumer to check the degree of credibility of the notices available on the Internet. For example, it will be necessary to ensure that a restaurant does not publish a rain of favorable opinions on its establishment in order to make it climb mechanically in the rankings of the sites of advisory councils based on recommendations.

Protection of personal data

The principle of the right to the free disposal of personal data is established. This principle will also illustrate several concrete measures, such as the confidentiality of electronic correspondence. E-mail and other electronic private correspondence services will be as confidential as a letter, unless the user has given consent for automated statistical processing or to improve the service rendered to the user. In addition, such consent shall be regularly renewed.

Pornographic Revenge

The penalization of pornographic revenge, the practice of publishing against his consent erotic or pornographic images of a person was hardened to two years in prison and 60,000€ in fines.

National strategy for digital security

The French national digital security strategy, announced October 16th, 2015 is designed to support the digital transition of French society. It is also an unprecedented impulse that places France as a leader in promoting a road map for European digital strategic autonomy. This strategy, led by ANSSI, is the result of coordinated interdepartmental efforts to respond to emerging issues of the digital age.

The digital transition favours innovation and growth, yet it simultaneously carries risks for the State, economic stakeholders and citizens. Cybercrime, espionage, propaganda, sabotage and excessive exploitation of personal data threaten digital trust and security, thus calling for a collective and coordinated response based on five strategic priorities:

- Fundamental interests, defence and security of State information systems and critical infrastructures, essential operators to the economy and society, major cyber security crisis
- Digital trust, privacy, personal data
- Awareness raising, initial training, continuing education
- Environment of digital technology businesses, industrial policy, export and internationalisation
- Europe, digital strategic autonomy, cyberspace stability

Country: [India](#)
Responsibility: Ministry of Electronics and IT (MeitY)/Ministry of Finance
Initiatives: National Cyber Security Policy 2013, Information Technology Act 2000

National Cyber Security Policy 2013 is to protect information and information infrastructure in cyberspace, build capabilities to prevent and respond to cyber threats, reduce vulnerabilities and minimize damage from cyber incidents through a combination of institutional structures, people, processes, technology and cooperation. The **Information Technology Act, 2000 (Amendment 2008)** is the primary law in India dealing with cybercrime and electronic commerce. The Act provides legal framework for electronic governance by giving recognition to electronic records and digital signatures. With the Government promoting cashless economy and boost being given to various digital payment systems in India, a framework for security of various Prepaid Payment Instruments (PPIs) operating in the country is being developed. Ministry of Electronics and Information Technology (MeitY) has formulated draft rules for security of prepaid payment instruments under provisions of Information Technology Act 2000.

Indian Computer Emergency Response Team (ICERT) has been designated under Section 70B of Information Technology (Amendment) Act 2008 to serve as the national agency for collection, analysis and dissemination of information on cyber incidents, to forecast and alert and take emergency measures for handling cyber security incidents, issue guidelines, advisories, vulnerability notes and whitepapers relating to information security practices, procedures, prevention, response and reporting of cyber incidents.

The Indian Government recognized that **Computer Emergency Response Team in Financial Sector (CERT-Fin)** needs to be established to work towards strengthening cyber security in the financial sector in close coordination with all financial sector regulators and national level CERT-In. A Working Group was set up to study and recommend measures for setting up the CERT-Fin. The Working Group has submitted the study report to the Government.

Country: [Japan](#)
Responsibility: 1. Ministry of Internal Affairs and Communications
2. Personal Information Protection Commission
3. Personal Information Protection Commission, Ministry of Economy, Trade and Industry
4. Ministry of Economy, Trade and Industry
Initiative: 1. Comprehensive Package of IoT Security Measures
2. Legislation of the New Act on the Protection of Personal Information
3. Privacy Protection and Interoperability between Privacy Frameworks
4. Cyber security for Business

1. As the number of IoT devices is expected to increase exponentially, we need to anticipate a rapid increase in cyberattacks on them. To ensure cyber security is a crucial issue for building a safe and secure society for the people and improving socio-economic vitality and sustainable development. Under these circumstances, the Ministry of Internal Affairs and Communications of Japan published “**Comprehensive Package of IoT Security Measures**” in October 2017.

The package is to reinforce measures in a total of five areas, with a focus on (1) measures against IoT devices vulnerabilities, followed by (2) promotion of research and development, (3) acceleration of security measures in the private sector, (4) strengthening of human resource development and (5) promotion of international cooperation.

(1) Measures against IoT devices vulnerabilities consists of three initiatives: assessing vulnerability of IoT devices by using a cyberattack observation network and vulnerability search tools, sending an alert to those who own vulnerable devices, and providing information on vulnerability for device manufacturers. We aim to implement a system to collect the results of the vulnerability assessment and share them with related parties and consider introducing a system that periodically certifies IoT devices newly manufactured and sold as meeting certain security requirements.

Considering technology innovation in this field and the latest cyberattacks situation, these security measures should be reviewed semiannually or on an ad hoc basis and improved accordingly.

2. In Japan, the **amended Act on the Protection of Personal Information** in Japan was promulgated in 2015 and has fully enforced since May in 2017. A new system design was called for with the globalization of economic society and the rapid development of advanced information and communication technology. Such a new system was also needed to strike a balance between protection and utilization of personal information and attain global harmonization.

The main five points of the amended Act are as follows;

- The Personal Information Protection Commission (PPC) has been established as an independent authority to administrate and oversee the protection of personal information in Japan.
 - Specific regulations on cross-border transfer of personal data have been introduced.
 - The PPC has been authorized to develop enforcement cooperation with the foreign enforcement authorities.
 - Penalties against unlawful provision of a personal information database etc. have been instituted.
 - The Act applies to all business operators including SMEs.
3. The **APEC Cross-Border Privacy Rules (CBPR) System** is an international arrangement within APEC that promotes protection of personal data in cross-border transfer through providing third-party certification and enforcement mechanism for business operators' privacy protection system in accordance with the APEC Privacy Framework. The importance of the CBPR System is recognized among leaders of APEC economies.

Responsible groups of APEC and EU have been holding discussions to promote interoperability between the CBPR System and EU's mechanisms for cross-border transfer of personal data, such as the Binding Corporate Rules (BCR).

4. METI formulated "**Cyber security Management Guidelines**". The guidelines summarize the principles that management should recognize and important matters that management should direct to executives responsible for security measures. As cyber security in SMEs is very important to ensure cyber security in the entire supply chain, "Cyber security Management Guidelines for SMEs" are also formulated.

Since 2011, the Information-Technology Promotion Agency (IPA) provides information on necessary counter-measures against cyberattacks. Such information is analyzed and anonymized information of voluntarily provided information from critical information infrastructure operators. Also, in 2014, the organization "Cyber Rescue Team" is organized, which mainly supports critical information infrastructure operators in case of receiving high-level cyberattacks that are difficult for operators to deal with by themselves.

As a base for developing human resources who will be the core personnel for cyber security measures, in April 2017 the Industrial Cyber Security Center of Excellence (ICSCoE) is established in IPA. ICSCoE will share and exchange knowledge with responsible agencies in other countries for developing better HRD system.

Country: [Korea, Republic of](#)
Responsibility: Ministry of Science and ICT (MSIT)
Initiative: Personal Information Protection

Korea has a comprehensive laws governing data privacy, the '**Personal Information Protection Act**' since 2011. But the '**Act on the Promotion of Information and Communications Network Utilization and Information Protection**' (IT Network Act) is the sector specific legislation that regulates the collection and use of personal information by business that use the Internet. There are four major data protection regulatory authorities ("DPA") in South Korea:

- Personal Information Protection Commission (“PIPC”) [Article 7 of the PIPA].
- Ministry of the Interior (“MOI”) [Article 61–67 of the PIPA].
- Korea Communications Commission (“KCC”) [Articles 3, 63, 64 of the IT Network Act].
- Financial Services Commission (“FSC”) [Articles 45–48 of the Enforcement Rules for the Use and Protection of Credit Information Act].

MOI, as well as PIPC, are responsible for the affairs concerning general data protection issues, whereas KCC is responsible for the affairs between online service providers and users under the IT Network Act. FSC is responsible for the affairs relating to financial services under the Credit Information Act. All DPAs publish guidelines on the compliance requirements under the relevant laws and distribute educational materials to business entities. Korea Internet & Security Agency (“KISA”), which is the subordinate institute of MOI and KCC, periodically conducts onsite inspection and preliminary investigation of data protection issues under the instruction of MOI and KCC.

Country: Mexico
Responsibility: Office of the Federal Prosecutor for the Consumer – PROFECO
Initiative: Federal Consumer Protection Law

In Mexico, there is the **Office of the Federal Prosecutor for the Consumer – PROFECO**, which promotes and protects the consumer rights by guarantying equitable commercial relations to strengthen the responsible consumer culture and the access to better market conditions to goods and services. In addition, it provides legal and juridical certainty within a regulatory framework of human rights recognized by the consuming population.

In this regard, the Mexican cyber consumer is protected when shopping online by the Federal Consumer Protection Law – LFPC, which contain general provisions on electronic commerce in its chapter VIII bis of Consumer Rights in transactions made through the use of electronic and optical devices or any other technology.

Country: Russian Federation
Responsibility: The Ministry of Telecom and Mass Communications of the Russian Federation
Initiatives: The establishment of Unified System for Identification and Authentication (USIA) to provide government services to the population and legal entities.

Migration to government and municipal services in electronic format requires that Government shall provide citizens and public authorities with a tool for secure online identification. Therefore, the **Unified System for Identification and Authentication (USIA)** with the aim to harmonize and centralize the processes of user registration, identification, authentication and authorization within the e-government structure has been established supporting the following functions:

- a. Provides technical solution to information systems of public authorities on trusted identification of users (natural and legal persons, public authorities). The trustworthiness is achieved through the following:
 - Registration in USIA involves checking significant personal criteria;
 - USIA protects information within the system in accordance with the Russian Law.

b. USIA is a user-friendly system offering the following capabilities:

- Identification and authentication through a single account and using a wide choice of supported authentication methods, when accessing a variety of public information systems;
- User management of personal data accommodated within the USIA and monitoring their distribution to public information systems.

The following possibilities can provide the identification and authentication of the users:

- Single-factor authentication (user within one session could have access to any information system utilizing USIA without re-identification and re-authentication);
- Support of different authentication methods: by password, digital signature, as well as two-factor authentication (permanent password and single-use password sent by SMS);
- Support of trusted levels of user identification (simplified account, standard account, confirmed account).
- Updated by the availability of mobile application the service is also showing a considerable increase. The growth rate is currently keeping more than one million users per month.

Country: South Africa, Republic of

Responsibility: Department of State Security/Department of State Security/Department of Telecommunications and Postal Services
Department of Science and Technology (CSIR)

Initiatives: Cyber-security Policy Framework, 2012 ; Cyber-security Bill; Protection of Personal Information Act, 2016 (POPI)

Cabinet approved the **Cyber security Policy Framework in 2012**. It intends to implement an all –encompassing approach pertaining to all the role-players in relation to cyber security. It also made provision for the establishment of the National Cyber security Advisory Council that was inaugurated in October 2013. A cyber security hub was established in 2013 and further hubs will be developed in all the national regions. The cyber security framework sought to address the following:

- Centralize coordination of the cyber security activities within South Africa so as to have a coordinated approach to cybercrime, national security imperatives and to enhance the information society and knowledge-based economy;
- Strengthen intelligence collection, investigation, prosecution and judicial processes in respect of preventing and addressing cybercrime, cyber terrorism and cyber warfare;
- Anticipate and confront emerging cyber threats, in particular threats to the national critical information infrastructure and to coordinate responses thereto; and
- Foster cooperation and coordination between government, the private sector and civil society, including ensuring that South Africa becomes a critical contributor to international matters.

A Cyber security bill is being processed for finalization. A Protection of Personal Information Act (POPI) purpose is to ensure that all South African institutions conduct themselves in a responsible manner when collecting, processing, storing and sharing another entity’s personal information by holding them accountable should they abuse or compromise personal information in any way.

Country: Turkey
Responsibility: Ministry of Transport, Maritime Affairs and Communications
Initiatives:
1. National Cyber Security Organization
2. 2016–2019 National Cyber Security Strategy and Action Plan
3. The Public Institutions Virtual Network Project

Under the “Strengthen Trust in the Digital Economy” subject, developments in Turkey may be listed as:

1. **National Cyber Security Organization** was established. Within the scope of national cyber security organization, Cyber Security Board started to work under the presidency of Minister of Transport, Maritime Affairs and Communications. TR CERT (USOM) was established and institutional and sectoral CIRTs (Cyber Incident Response Teams-SOME) that work 24/7 in public and private sector institutions have been taking their places in the organization by coordination of Ministry. Sectoral CIRTs operates in sectors that rely on critical infrastructures which were determined by Cyber Security Board earlier.
2. **2016–2019 National Cyber Security Strategy and Action Plan** was prepared by Ministry of Transport Maritime Affairs and Communications and has come into effect recent year. Strategy and Action Plan has 5 main strategic actions and they are:
 - Strengthening the Cyber Defence and Protection of Critical Infrastructures,
 - Combating Cyber Crimes,
 - Improvement of Awareness and Human Resources,
 - Developing a Cyber Security Ecosystem,
 - Integration of Cyber Security to the National Security.
3. **The Public Institutions Virtual Network (KamuNet)** has been established by Ministry and many institutions have started to use KamuNet structure. KamuNet has been built to minimize cyber security risks by securing data communications between public institutions via an internet disabled secure virtual network, to standardize existing and probable secure closed loop solutions, to provide suitable infrastructures for common applications and to integrate planned common data centers.

The law about electronic communication sector was updated in 2008, and consequent secondary legislations were considerably completed. The need for improvement of competition in electronic communication and effective utilization of arrangements and for improvement of broadband infrastructure and services in terms of speed, quality and cost, is continuing. Cyber Security Board was established under the Ministry of Transport, Maritime Affairs and Communications and activities in the field of cyber security have been accelerated.

Country: United Kingdom
Responsibility: Digital, Culture, Media & Sport/Cabinet Office
Initiatives:
1. Cyber security, child Internet safety and an open Internet
2. Supporting the data economy, building public trust and using Government data effectively

1. A safe and secure cyberspace is an essential requirement for an inclusive, prosperous digital economy. It will give people the confidence to be part of the digital world, as well as giving the UK a significant competitive advantage.

To secure our technology, data and networks from the many threats they face and to keep our businesses, citizens and public services protected, we will support the **National Cyber Security Centre** to provide a single point of contact for companies, particularly those that form part of Britain’s ‘critical national infrastructure’. And we will

introduce a new approach of **Active Cyber Defence**, using the skills, knowledge and technical expertise of GCHQ working with the country's ISPs (Internet service providers) to provide a new level of protection for British cyberspace. To ensure that the UK has a pipeline of cyber skills that meets its current and future needs we will run a national after-school programme for the most talented students, cyber as well as apprenticeships, and adult retraining.

We also recognise that creating a safe and secure cyberspace for children requires some particular actions. So, to stop children's exposure to harmful sexualised content online, we will continue to support companies to roll-out family-friendly filters to all broadband customers and introduce age verification controls for access to online pornographic material provided on a commercial basis in the UK.

To ensure safety while at the same time not stifling innovation the UK is developing a Digital Charter which aims to create a new framework that balances freedom and responsibility online. The Digital Charter should bring together best practices from workstreams such as supporting innovation, supporting digital business, child Internet safety and cyber security.

2. As part of creating the conditions for sustainable growth, we will take the **actions needed to make the UK a world-leading data-driven economy**, where data fuels economic and social opportunities for everyone, and where people can trust that their data is being used appropriately.

Data is a global commodity and we need to ensure that our businesses can continue to compete and communicate effectively around the world. To maintain our position at the forefront of the data revolution, we will implement the General Data Protection Regulation by May 2018. This will ensure a shared and higher standard of protection for consumers and their data.

Country: **The Netherlands**

Responsibility: Ministry for Economic Affairs/Ministry for Security and Justice

Initiatives:

1. National Cyber security Strategy
2. Encryption policy

1. The government has set down its strategy within the **National Cyber security Strategy 2 (NCSS2)**. This strategy has five objectives:
 - I. The Netherlands is resilient against cyber-attacks and protect its vital digital interests.
 - II. The Netherlands tackles cyber-crime.
 - III. The Netherlands invests in secure and privacy-boosting ICT products.
 - IV. The Netherlands builds coalitions for security and peace in the digital domain.
 - V. The Netherlands possesses sufficient cyber security knowledge and expertise and invest in ICT innovation in order to achieve our cyber security-related objectives.

In all of these fields activities are employed and initiatives taken, such as with regard to number 4 above on the development of an international agreed norm to protect the general functionality of the Internet.

It is the responsibility of the government to guarantee the security of the Netherlands and to investigate criminal offences. The government underlines the necessity of lawful access to information and communication in this respect. Additionally, government authorities, companies, and citizens benefit from maximum security of digital systems. The government endorses the importance of strong encryption for Internet security to support the protection of personal privacy of citizens, for confidential communication of the government and companies and for the Dutch economy.

The Netherlands is therefore of the opinion that at this point in time it is not desirable to take restrictive legal measures as regards the development, **availability and use of encryption**. The Netherlands will disseminate this conclusion and the underlying assessment internationally.

Country: [Norway](#)

Responsibility: Ministry of Local Government and Modernisation

Initiative: ID-porten: Efficient at safe access to public services

ID-porten is a common component developed to provide Norwegian citizens with a coordinated/common login solution to public services. Developed by the Norwegian Agency for Public Management and eGovernment (Difi) as a mechanism for online identification for citizens and businesses, the ID-porten is available on several Norwegian public websites, providing access to more than 1,100 services from over 600 government agencies and with more than 90 million logins in 2016.

In order to use digital services from Norwegian public agencies, the user must have an electronic ID (e-ID). Five different electronic IDs are available for this use: MinID, BankID, BankID on mobile, Buypass or Commfides. An electronic ID confirms that you are who you say you are when logging into digital services. Public institutions are encouraged to use the digital ID port as means of access to services that require login and authentication. ID-porten is operated by the Agency for Public Management and eGovernment (Difi). There is also an on-going process in adapting ID-porten to the eIDAS regulation so that the portal will also be able to support foreign eIDs.

9. Promote consumer protection online

Country: Germany

Responsibility: Federal Ministry of Justice and Consumer Protection

Initiatives: Market watchdog to monitor the digital world, best-practice catalogue for consumer-friendly apps and one pager on data protection

The Federal Ministry of Justice and Consumer Protection (BMJV) has established three instruments to strengthen consumer trust in the digital world. Firstly, BMJV has established a **market watchdog to monitor the digital world** (Marktwächter Digitale Welt). The main task of the market watchdog digital world is the identification of shortcomings in digital products and services at an early stage. The market watchdog is operated by the Federation of German Consumer Organisations and 16 consumer centres of the Länder. (region/state). Additionally, the market watchdog Digital world is differentiated alongside the market segments digital services, digital purchase, user generated content, digital goods and telecommunication services. The insights of the market watchdog are passed on to the competent supervisory authorities, the policy and the consumers, where applicable, the watchdogs also use collective instruments of private legal enforcement.

Secondly, upon initiative and participation by BMJV a group of app experts has compiled a best practice catalogue for consumer friendly apps. This Best Practice Catalogue sets out various consumer oriented measures and criteria which apps should adhere to in the areas of data protection, consumer protection and youth protection. The catalogue is intended to serve as a reliable guide for all the different market players on how to make apps more consumer friendly and how to improve consumer, data and youth protection.

Thirdly, in order to restore and safeguard consumer sovereignty in the digital world a quick guide has been developed by a stakeholder group, guided by IBM and BMJV. The so-called “data protection one pager” provides a summary of the key data protection issues which can easily be understood by consumers.

Country: Argentina

Responsibility: Ministry of Production/Ministry of Modernization

Initiatives:

1. Right of regret for digital purchases
2. Federal Single Claims Window
3. Incorporation of the Digital File into the “Protected Consumption” Program (COPREC) and the National Consumer Arbitration System (SNAC) processes

1. Right to regret digital purchases

Argentinean legislation has incorporated the right to regret digital purchases. This applies to purchases made through e-commerce and provides consumers with the possibility of revoking the purchase within a 10 days period from the day of receipt (Article 34 of Law 24,240).

2. Federal Single Claims Window

The National Directorate of Consumer Defense has implemented, jointly with the Ministry of Modernization, the new web platform. This platform allows consumers to make their claims from their personal computer or mobile phone, without leaving their home or your workplace. This web is integrated to the site argentina.gob.ar

3. Incorporation of Digital Files into the “Protected Consumption” Program (COPREC) and the National Consumer Arbitration System (SNAC) processes

Since 2017 the COPREC and the SNAC (2 different instances of consumer’s protection) are electronically processed, enabling a more efficient and transparent task.

Country: [Australia](#)
Responsibility: The Treasury
Initiative: The Australian Consumer Law

The **Australian Consumer Law (ACL)** applies equally across all forms of technology, providing Australian consumers with the same rights and protections regardless of whether they are purchasing online or in a physical store. The Australian Competition and Consumer Commission (ACCC), whose role is to enforce the ACL, identified emerging systemic consumer issues in the online marketplace as a priority in 2016–17. The ACCC actively monitors and engages with businesses about online supply to make sure they comply with the consumer protections in the ACL, regardless of their business model.

ACL regulators run regular education campaigns to promote awareness of consumer rights online and highlight the risk of online scams. Guidance is also provided for businesses and consumers on shopping online, the sharing economy, online reviews, comparator websites, drip pricing, online group buying and in-app purchases. Although the ACL has adapted well in the rapidly changing online environment, a recent review of the law recommended reforms to improve transparency in online pricing practices and modernise the treatment of online auctions. The review also proposed a research project to assess how the ACL should apply to purely digital products and emerging technologies.

Country: [Brazil](#)
Responsibility: Ministry of Justice
Initiative: Promoting Consumer Protection Online

In Brazil, the **Consumer Protection Code (Law n. 8078/90 – CDC)** dates from 1990. Although this legislation had provided comprehensive protection for consumers for over twenty years, it did not reflect the specific terms and conditions of the era of e-commerce. To address this issue, specific legislation (Decree 7962/2013) updates the Code to establish detailed provisions for consumer protection online.

Country: [Canada](#)
Responsibility: Canadian Radio-television and Telecommunications Commission (CRTC)
Initiatives: 1. The Wireless Code
2. Commissioner for Complaints for Telecom-television Services (CCTS)

1. In June 2013 the CRTC created the **Wireless Code**, a mandatory code of conduct that applies to all wireless service providers and to all retail mobile wireless voice and data services. The goal of the Wireless Code is to make it easier for individual and small business customers to get information about their contracts for wireless services, including their rights and responsibilities, and to establish minimum standards for wireless service providers. The Code promotes a dynamic marketplace by empowering Canadians to make informed choices about their wireless services and establishing standards for industry behaviour. In June 2017, following a public review, the CRTC revised the Wireless Code. Most of the revisions take effect on December 1, 2017.
2. In 2007, the Government of Canada ordered the CRTC to create an independent, industry-funded agency to resolve complaints from consumers and small business retail telecom customers. Since then, the **Commissioner for Complaints for Telecom-television Services (CCTS)** has been helping Canadian telecom consumers resolve complaints about all aspects of their home phone, long distance, broadband Internet, and wireless services. To ensure that the CCTS is meeting the needs of consumers and the industry, the CRTC holds public reviews of the CCTS' structure and mandate. The most recent review took place in 2016, and in March 2017 the CRTC issued a decision expanding the CCTS' mandate to include authority to accept complaints about TV services, effective September 1, 2017. The CCTS also administers three mandatory codes of conducts for service providers issued by the CRTC – the Deposit and Disconnection Code (issued in November 2011), the Wireless Code (issued in June 2013) and the TV Service Provider Code (issued in January of 2016).

Country: [China](#)
Responsibility: Ministry of Industry and Information Technology/National Development and Reform Commission/Ministry of Commerce/Cyberspace Administration of China
Initiatives: 1. Consumer protection for telecommunications and Internet users
2. The 13th Five-year Development Plan on E-commerce and the Three Year's Action Plan to Promote the Development of E-commerce (2016-2018)

1. In terms of **protection of telecommunications and Internet users**, regulations were issued successively, including Telecom Service Specification, Interim Measures for the Supervision and Administration of Telecom Service Quality, as well as the amendment and implement of Approaches to Telecom Users' Complaints. As for the supervision, firstly, we carried out daily dialing test and quarterly centralized dialing supervision in terms of the quality of telecom service and consumer protection. Secondly, we host regular technological detection on telecommunication and Internet users' personal information, urging for enterprises' rectification. Thirdly, we established ministerial and provincial level complaint handling organizations for telecom users, ensuring effective channels for complaint handling, and protecting customers' legal rights.
2. The National Development and Reform Commission, the Ministry of Commerce and the Cyberspace Administration of China jointly unveiled the **13th Five-year Development Plan on E-commerce and Three Year's Action Plan to Promote the Development of E-commerce (2016-2018)**. Efforts were made in the issue of the Law of E-Commerce, the amendment of Patent Law, Copyright Law and the Law for Countering Unfair Competition, and acceleration of the legalization process of e-commerce supervision, ensuring the legal rights for e-commerce enterprises, customers and relevant parties.

Country: [European Union](#)
Responsibility: European Union
Initiative: Enforcing consumers rules – review

To build consumer trust in the European digital single market, EU-wide enforcement of consumer protection rules is crucial. The **Consumer Protection Co-operation (CPC) Regulation** set up a network of national enforcement authorities to ensure enforcement of the main EU consumer laws consistently across borders. The primary aim was to ensure legal certainty in the single market via coherent enforcement of key Union consumer acquis. After the assessment of the CPC Regulation showed that the existing rules need to be revised to respond to the challenges of the digital economy and the development of cross-border retail trade in the EU, the review of the CPC Regulation was announced in the 2015 Digital Single Market Strategy and was put on the 2016 Commission Work Programme.

[A legislative proposal for revision of the CPC Regulation](#) was submitted on 25 May 2016 as part of the Commission's ecommerce package. The aim is to strengthen enforcement of consumers' rights by developing more efficient cooperation mechanisms among national authorities in charge of the enforcement of EU consumer legislation.

Country: [France](#)
Responsibility: Ministère de l'économie et des finances (DGCCRF)
Initiative: Loi République Numérique

Law number 2016-1321 of 7 October 2016 for a digital Republic requires digital platforms operators to provide consumers with clear, fair and transparent information. This law carries forward the existing provisions of Article 147 of Law number 2014-344 of 17 March 2014 under which the operators, who provide online information to compare the prices and features of goods and services, shall deliver clear, fair and transparent information.

Article 49 of Law number 2016-1321 changes Article L. 111-7 of the consumer code. It requires digital platforms operators (marketplaces, sharing economy websites and price comparison websites) to provide consumers with the rank-

ing and referencing criteria of the offers, the nature and way of working of the proposed intermediation service and other specific information depending on the nature of the business.

A decree, issued pursuant to Article 49 of Law number 2016-1321 of 7 October 2016, sets out the content and the form of the required information for marketplaces, sharing economy websites and price comparison websites. The decree fully incorporates the provisions of Decree number 2016-505 of 22 April 2016 concerning the information requirements applicable to the price comparison websites.

Article L. 111-7-1 of the consumer code (Article 50 of Law number 2016-1321) provides that the intermediation platform operators, whose activity exceeds a certain number of connections to be defined by decree (5 million monthly connections), shall disseminate good practices so as to improve the clearness, fairness and transparency of the information provided to consumers.

Article L. 111-7-2 of the consumer code (Article 52 of Law number 2016-1321) sets out new consumer information requirements as far as the arrangements for publication and handling of the user reviews are concerned. The implementing decree of this article provides that the published user reviews shall go along with information on the existence or otherwise of a monitoring procedure. When such a procedure exists, the information must cover its main features, the date of issue of the reviews, the date of the experience with the good or service, the reason why a review could not be published, if there is a consideration in exchange for the reviews, the maximum amount of time for the reviews to be published and the maximum retention period of the reviews.

Three implementing decrees are currently being published. They will come into force on January 1, 2018 for the provisions addressing the information that the platforms shall provide and the user reviews. Provisions addressing the dissemination of good practices for the most popular platforms will come into effect on January 1, 2019. Professionals from the sector and consumer associations have been consulted on these implementing decrees. The decrees have been notified to the European Commission pursuant to Directive 2015/1535 of 9 September 2015. The publication of the decrees was blocked for three months by the notification process in order to allow the Commission and the member States to submit comments. No comment has been made.

Country: [India](#)
Responsibility: Ministry of Electronics and IT (MeitY)/Department of Consumer Affairs
Initiatives: Information Technology Act 2000, Consumer Protection Act 1986

The Indian Information Technology Act 2000 has done a big deal in giving recognition to online purchases. The Reserve Bank of India by issuing various circulars regarding online banking and money transfer activities have made consumers capable of securing the online space. It's true that as a whole, there are no specific laws that seek to protect consumers in the online space. However, that does not necessarily mean that the consumers are left without any recourse and in this regard it may be possible to use the **Consumer Protection Act 1986** to protect consumer rights in the online environment as well. Further, various portals, mobile apps like **Integrated Grievance Redress Mechanism (INGRAM)**, **Grievances Against Misleading Advertisements (GAMA)** etc. have also been launched for consumers for creating awareness, registering complaints etc.

Country: [Italy](#)
Responsibility: Italian Ministry of Economic Development
Initiative: Joint Negotiation Procedures, provided by Article 141-ter of the Italian Consumer Code

The procedure for joint negotiation, better known as joint conciliation, comes to light from the experience of the most representative users and consumer associations in Italy (included in the Italian Ministerial list, Art 137 of the Consumer Code), in order to provide high-level consumer protection, especially in the digital world and in e-commerce, achieving a uniform system where consumers can choose Alternative Dispute Resolution (ADR) bodies providing effective, fast,

impartial, low cost and fair ADR on a voluntary basis. It is the most original and innovative ADR model for Italy in the last 50 years. For this reason, the European Parliament's Resolution of 25 October 2011 – on alternative dispute resolution in civil, commercial and family matters (2011/2117(INI) – identifies “the example of Italian ‘joint conciliation’ as a possible best practice model based on a protocol agreed and signed by the company and the consumer associations requiring the company to agree in advance to ADR in order to resolve any disputes which arise in the area covered by the protocol”.

These joint conciliation procedures have been recognized as ADR procedures thanks to Legislative Decree No. 130 of 6 August 2015. The procedure is based on a protocol agreement signed by the consumer associations and the company (or trade associations); in this protocol, rules are laid down and applied to the parties to resolve the dispute. The Conciliation Commission is composed in equal way by 2 qualified conciliators: one represents the enterprise and the other one represents the consumer. The conciliation procedure is based on a voluntary basis: the consumer decides whether to accept the agreement or go to court.

The advantages and benefits for the consumer are:

- Conciliators are well qualified and can provide them with excellent assistance services.
- *The composition of the Conciliation Commission:* the competent Authorities shall act to help to reduce information asymmetries, ensuring that all participants are adequately informed about the procedures.
- *Procedure accessibility:* the ADR procedure is either free of charge or available at a nominal fee for consumers. The only requirement for the consumer is lodging a formal complaint against the company, if the company does not reply on time or does not answer. Either way, the solution is not satisfactory to the consumer.
- *Efficiency and speed:* mediators must be able meet the short deadlines between referral and decision.
- *Adversarial principle:* equity between consumers and professionals. The two parties are able to express their position and to familiarize themselves with the position and the facts stated by the other.
- *Transparency:* besides providing general information.
- *Freedom of choice:* ADR must be optional and based on respect for the parties' freedom of choice throughout the process. That allows them the possibility of choosing, at any time, to settle their dispute before the courts. At the same time, guarantees must ensure that genuine efforts are being made to achieve successful mediation. The decision stemming from it can be binding only if the parties have been informed to that effect beforehand and have expressly agreed on it. Despite such a decision, it must still be possible for the parties to opt for a court hearing.
- *Right to privacy:* everything regarding to dispute is covered by privacy.
- *Legal force of agreements:* the minutes shall constitute the settle agreement in accordance with Art 1965 of the Italian Civil Code.
- *Restoring the balance of negotiating power:* a company usually has more negotiating power than a consumer. The consumer associations help overcoming this imbalance, supporting the consumer during the dispute.

As of today, the number of disputes resolved by the Joint Conciliation is very high, more than 97%.

Country: [Japan](#)
Responsibility: Consumer Affairs Agency/Ministry of Internal Affairs and Communications
Initiatives: Act on the Specified Commercial Transactions, Act on Regulation of the Transmission of Specified Electronic Mail, Civil Code, Consumer Contract Act, Act against Unjustifiable Premiums and Misleading Representations, etc.

In Japan, various laws such as Civil Code, Consumer Contract Act, Act against Unjustifiable Premiums and Misleading Representations or other laws or measures concerning consumer protection are applied as consumer protection measures of B2C online transactions as well as general transactions. As online shopping is a form of mail order sales, **Act on the Specified Commercial Transactions**, a law which regulates the specified commercial transactions such as transactions of Door-to-Door Sales, Mail Order Sales, Telemarketing Sales, is also applied. The **Act on Regulation of the Transmission of Specified Electronic Mail** regulates unsolicited commercial electronic mail.

Country: [Korea, Republic of](#)
Responsibility: Korea Fair Trade Commission
Initiative: Improving protection of consumers in on-line transactions

Korea has since 2001 witnessed a 16-times increase in online commercial transactions at an average yearly increase rate of 22 %. Online shopping transactions accounted for approximately 15 % of retail sales at the end of 2015. Such numbers suggest that online transactions have become an important distribution channel in Korea. In particular, there has been a rapid increase in transactions via mobile equipment such as smart phones; the amount of mobile transactions accounted for 45.4 % of the total online transactions in 2015. Along with the increase online commerce, consumer injury has increased as well; the number of reparation requests received by the Korea Consumer Agency totaled 7,821 cases in 2015, which was a 28 % increase from 2014. Because seller and consumer do not meet in the online world, there are cases of consumer injury unique to online transactions such as delivery of product that is different than advertised online, non-delivery of product or delivery to a wrong address, fraudulent transaction, identity theft, etc. Such problems can be ameliorated through continuous monitoring and correction of misconduct or violation of the law as well as improved regulations that foster accountability of sellers which in turn will increase the level of trust in online transactions.

The Korea Fair Trade Commission is the main government body in charge of protecting consumer rights. KFTC in 2016 amended the “**Notice on Standards for Exemption from Telemarketing Business Reports,**” “**Notice on Provision of Information on Products in E-Commerce Transactions,**” “**Guideline for Consumer Protection in E-Commerce Transactions,**” “**Notice on Methods of Labeling, Advertising, or Notification for Transaction Safety Services,**” which aim to increase consumer confidence and trust in the online commercial world. Efforts to protect consumers from overseas sellers are in place also; the KFTC established the overseas transaction support team in the Korea Consumer Agency in 2015 which investigates overseas Internet shopping malls that receive consumer complaints, and issues a consumer injury alert when necessary.

The KFTC has the power to issue punitive measures against business in violation of the ‘Act on E-Commerce Transactions’. For instance in 2015, seven mobile game sellers that mislead consumers through faulty pop-up messages were fined a total of KRW 36 million, 11 online educational service providers that exaggerated or provided faulty information on their rate of success on civil service entrance exams were fined KRW 31.5 million and 10 duty free Internet shopping sites were fined KRW 33 million for misleading consumers on the discount benefits.

Country: Mexico
Responsibility: Office of the Federal Prosecutor for the Consumer – PROFECO
Initiative: “Monitoreo de Tiendas Virtuales”

In this regard, PROFECO constantly provides digital tools, or mechanisms to promote the consumer protection online. On this matter, and to name a few initiatives oriented to the promotion of consumer protection online, there are:

1. **Monitoring of Virtual Stores:** This program is in charge to review the compliance of consumer rights and providers obligations within transactions made through electronic devices. The outcomes from the monitoring are useful to verify that Mexican websites which offer online selling services meet the required elements that protect consumer rights, these elements consider: security measures to protect personal and financial data, contact details to interact when claiming or soliciting clarification from the providers, etc. The report of the monitoring is updated in a fortnightly basis and consumers have access to it

When reviewing the websites, PROFECO seeks that provider’s websites meet the following criteria:

- I. *Policy or privacy notice:* Sites must specify what information is being gathered and which will be the use of the personal information provided by consumers provide
 - II. *Security on personal data:* Sites must have technical means to encrypt their customer’s personal information, such as name, address, date of birth, RFC, telephone number and email address.
 - III. *Security on financial data:* Sites must have technical means to encrypt their consumer’s financial data when making a payment
 - IV. *Physical address:* Sites must show a physical address where to go in case you require submitting claims or requesting clarifications.
 - V. *Fixed telephone number:* Sites must show a telephone number to turn out to present claims or requesting clarifications.
 - VI. *Detailed description of goods and services:* A real, clear and sufficient description of the good or service to sell must be shown, in order that consumers can take a well-based decision before buying.
 - VII. *Total costs and taxes:* Sites must display prices in national currency and a breakdown of total costs, taxes and shipping costs.
 - VIII. *Information of payment methods:* Sites must inform on the available payment methods
 - IX. *Conditions for shipping and delivery:* Sites must inform the delivery time and means, as well as the distribution area
 - X. *Conditions for cancellation, exchange or reimbursement:* Sites must inform which are the criteria, terms, penalties and other conditions to solicit a cancellation, exchange or reimbursement.
2. Another example that promotes the consumer protection online is the platform “**Concilianet**”, PROFECO developed this platform as an alternative to present complains from anywhere and any device through the Internet. Concilianet is an Internet portal that permits settlement disputes that arise between consumers and providers of goods and services (registered in PROFECO). The process encompass since the complaint submission until the conciliatory process.

3. The Office of the Federal Prosecutor for the Consumer and the Mexican Association of Online Sales reached an agreement to promote a safe environment of electronic commerce in Mexico. In this regard, **PROFECO and AMVO signed a collaborative agreement for the adhesion of more companies to the platform Concilianet of PROFECO**. Since its subscription, the two entities implemented coordinated actions for the detection and sanction of fraudulent, deceptive and abusive practices with respect to services or products offered by Internet means and that does not respect the Law.

Country: [Russian Federation](#)

Responsibility: The Federal Service for Surveillance on Consumer Rights Protection and Human Wellbeing (Rospotrebnadzor)

Initiative: The Law of the Russian Federation «On Consumer Rights Protection» No. 2300-1 dated 07.02.1992 (amended dated 01.05.2017).

Rospotrebnadzor is the Federal agency that works to provide oversight and control of wellbeing and consumer rights and protection of the citizens of the Russian Federation. Rospotrebnadzor reports directly to the Government of the Russian Federation.

More specifically, Rospotrebnadzor is the executive body, which carries out the functions for the formulation and enforcement of state policy and legislation in the field of consumer rights protection, as well as the development and approval of the state sanitary and epidemiological guidelines and hygienic norms. In addition, Rospotrebnadzor is responsible for carrying out the federal state sanitary and epidemiological surveillance and federal state monitoring in the field of consumer rights protection.

International cooperation is deemed as the one of the most important areas of activities of Rospotrebnadzor.

Country: [South Africa, Republic of](#)

Responsibility: Department of Trade and Industry/Independent Communication of South Africa (ICASA)

Initiatives: Consumer Protection Act, 2008

The **Consumer Protection Act** was signed into law on 24 April 2009 with the aim of:

- Promote a fair, accessible and sustainable marketplace for consumer products and services;
- Establish a national norms and standards to ensure consumer protection;
- Make provision for improved standards of consumer information, to prohibit certain unfair marketing and business practices;
- Promote responsible consumer behavior;
- Promote a consistent legislative and enforcement framework, related to consumer transactions and agreements; and,
- Establishment the National Consumer Commission

Country: Turkey
Responsibility: Information and Communication Technologies Authority (ICTA)
Initiatives: Value Added Services Principles and Consumer Complaints System

Firstly, Turkish ICT regulatory body The Information and Communication Technologies Authority has a regulation on **Provision of Value Added Electronic Communication Services**, aiming to establish acknowledgement and transparency at subscriptions to VASs. It ensures the consumers are informed of what they purchase and its terms and conditions and it provides non-repudiation.

While surfing on the internet, consumers come across certain websites directing them to VASs, and they may unintentionally subscribe to VAS. Their communication operator charges the fee of the service on their invoices. Where this situation creates many disputes and consumer complaints. ICTA made this regulation in order to provide a solid mechanism to ensure consumer is well informed and willing to purchase the service.

Secondly, **ICTA has set an obligation for the operators to maintain a consumer complaints system on their websites**. With the aim of consumer complaints can be made and to be answered via internet and also the resolution of the consumer complaints in the fastest, the easiest and the most effective manner, ICTA has set an obligation for the operators to build and maintain a consumer complaints system on their web sites.

With this Board Decision, the subscribers will be able to deliver their complaints directly to the operators and their complaints will be answered within at most 10 working days. In case of repetition of the consumer complaint on the same subject, this complaint will be transmitted to ICTA automatically by the system that is built between the operators' and ICTA's inner operations systems. With this method ICTA can be able to supervise the consumer complaints and potential misdemeanors in the ICT sector.

Country: The Netherlands
Responsibility: Ministry of Economic Affairs
Initiative: Net neutrality regulation

Apart from general and specific consumer protection regulation and the general EU privacy regulation, The Netherlands advocated a **net neutrality regulation** in order to ensure an open Internet via the legal requirement that all consumers are treated equally by network operators. The market watchdog ACM is supervising the application of this rule and is currently investigating how zero rating services comply with the legal requirements.

Country: Spain
Responsibility: Ministry of Energy, Tourism and for the Digital Agenda
Initiative: Unified Invoice for Telecommunication and Digital Services

It is a common practice among telecom operators including in its offer to the customers an ever expanding bundle of digital goods and services. Some of the services are included on a fix basis and others are provided on demand, some of the services are directly provided by the telecom operator while other services are provided through agreement with content providers.

The above described commercial practice demand new consumer protection measures regarding the right to protest part of the services he has received. It could happen that he is satisfied with the Internet access services but due to the dynamic context where these additional value services are provided, the consumer may discover later that some of the services or goods acquired do not fulfill with its description or the quality expected. So the user should have the right to return the invoice or complaint about additional service without any impact in his Internet connectivity service.

In order to strengthen the consumer protection in a context of bundling services, the Ministry of Energy, Tourism and the Digital Agenda introduce in the **Royal Decree 899/2009** approving the chart of rights of the user of electronic communications services, two key protection measures. On one hand, the telecom provider is obliged to break down the different concepts of the invoice, including, at least, for each of the additional value services the name of the company that provides the service and the call-center phone number. On the other hand, it is enshrined the right of the consumer to un-pay or return the part of the invoice related with the additional value service without suffering the cut of the Internet access service.

10. Measuring the digital economy

Country: [Argentina](#)
Responsibility: Ministry of Production
Initiatives: Observatory of the Knowledge Economy

The [Observatory of the Knowledge Economy](#) (OEC, by its Spanish acronym) is responsible for monitoring and analyzing the main trends in knowledge-based services at the global, national and regional levels, as well as monitoring and evaluating public policies related to the sector.

The Observatory also provides information relevant to public policy formulation, academic research, and private sector decision making, through issuing periodic reports and consultations. It also disseminates the relevance of the knowledge-based services as a tool for accessing external markets, generating quality employment, and adding value to other activities. In addition, it implements the monitoring of the evolution and results of public policies related to the knowledge-based services.

Country: [Australia](#)
Responsibility: Australian Bureau of Statistics
Initiatives: OECD Working Party for National Accounts

The **OECD Working Party for National Accounts** has formed an advisory group to advance the measurement of the digital economy agenda. The work of the group, of which Australian Bureau of Statistics (ABS) is a member, will help to shape the discussion on quantifying the effects of the digital economy on the economy and productivity measures. Specifically the group is tasked with the following four issues:

- Clarify the statistical concepts relevant to the digital economy (products, industries, potential data sources, new opportunities to collect data, potential indicators etc.).
- Quantify potential mismeasurement issues, including the adequacy of price indexes and investment due to the partial use of consumer durables as business assets.
- Quantify the value of 'free' goods and services.
- Quantify cross border digital economy related trade, including e-commerce, digital services and IP products.

An interim report is due in November 2017, with the final report to be presented at the 2018 Working Party of National Accounts meeting (November 2018). In the interim, the ABS National Accounts plans to undertake its own research work to investigate the size of the GDP gap which would be necessary to bring total productivity growth to rates seen in the 1990s. Further, analysis of digital intermediate input use will be investigated using annual data. The ABS is committed to advancing work in economic statistics generally and specifically in the area of productivity measurement.

Country: [Brazil](#)

Responsibility: Ministry of Science, Technology, Innovation and Communications (MCTIC)/Brazilian Internet Steering Committee (CGI.br)

Initiatives:

1. National Laboratory of Scientific Computation (LNCC)
2. Regional Center for Studies on the Development of the Information Society (Cetic.br)

1. **The National Laboratory of Scientific Computation (LNCC)** is the main research center in Brazil with initiatives relating to the development in data analysis and treatment. It is equipped with supercomputing facilities and implements big data initiatives in cooperation with several national and international research institutions.
2. In 2012, the Brazilian government signed a pioneering agreement with the United Nations Educational, Scientific and Cultural Organization (UNESCO). Through that agreement, the **Regional Center for Studies on the Development of the Information Society (Cetic.br)** was set up in Brazil under the auspices of UNESCO and hosted by [NIC.br](#). It is UNESCO's first center of studies on the information society. Among the five sectoral areas covered by UNESCO, the Center is linked to the Information and Communication sector and it contributes to the institution's strategic objectives by strengthening its efforts to monitor the building of information and knowledge societies. Its regional work covers Latin America and Portuguese speaking countries in Africa. The Center's lines of action comprise activities designed to contribute to a more informed debate on the importance of ICT measurement for public policy making and exchange of experiences among key actors engaged in investigating the intersection between society and technology topics and their implications for building knowledge societies.

Producing data to be used in designing public policies in Brazil, making it possible for public decision-makers to take evidence-based actions, is one of the objectives of the surveys carried out by Cetic.br. The studies conducted by the Center have supported the definition of government strategies for digital inclusion, universal access to broadband, e-government, and knowledge society development. To make sure that its studies fulfill this role, since 2005 Cetic.br has relied on a multi-sectoral group of experts that includes representatives of government, international organizations, academia, and nonprofit organizations. Thus, the research work carried out by Cetic.br is structured in such a way as to promote cooperation and take advantage of the analyses of this group of specialists known for their competence and expertise in different areas of knowledge. In addition to ensuring accuracy and transparency in its methodological and statistical procedures, this process lends legitimacy to critical data production stages: planning of samples, data collection in the field, processing and analysis. Besides validating methodologies, questionnaires, and indicators and setting guidelines for data analysis, this group also contributes to identifying new areas for studies and improvement of methodological procedures that ensure the production of reliable data. Altogether, more than 200 experts are taking part in the project as volunteers, particularly in the planning and analysis stages.

Country: [Canada](#)

Responsibility: Innovation, Science and Economic Development Canada (ISED)

Initiative: OECD-ISED MOU and Grant Arrangement "Developing a Framework to Measure the Size of the Digital Economy", under the auspices of the OECD Going Digital horizontal project

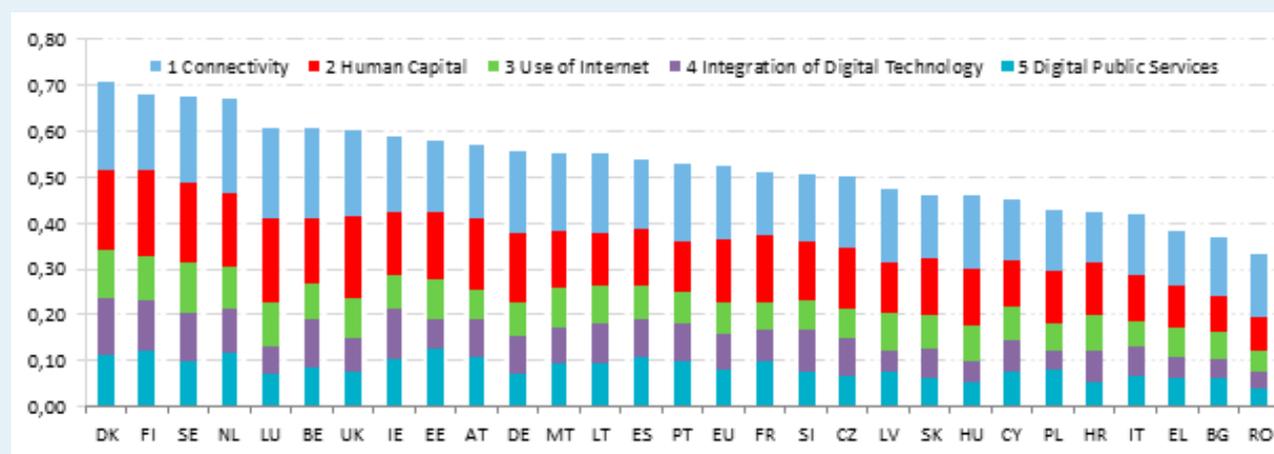
The objective of this project is to develop a framework to estimate the size of the digital economy, based on the System of National Accounts approach across OECD members, based on Gross Domestic Product (GDP) and other international standards as applicable. The project is intended to help enable evidence-based policy-making by improving the measurement of the digital economy.

Country: European Union
Responsibility: European Union
Initiative: DESI – measuring progress in the digital economy

The **Digital Economy and Society Index (DESI)** – developed by the European Commission – is a composite index that summarises relevant indicators on Europe’s digital performance and tracks the evolution of EU member states in digital competitiveness.

DESI 2017

Digital Economy and Society Index (DESI) 2017 ranking



Denmark, Finland, Sweden and the Netherlands have the most advanced digital economies in the EU followed by Luxembourg, Belgium, the UK and Ireland. Romania, Bulgaria, Greece and Italy have the lowest scores on the DESI.

In 2016, all Member States improved on the DESI. Slovakia and Slovenia progressed the most (more than 0.04 as opposed to an EU average of 0.028). On the other hand, there was low increase in Portugal, Latvia and Germany (below 0.02).

DESI scores by dimension:

1. Connectivity
2. Human Capital/Digital skills
3. Use of Internet by citizens
4. Digital Public Services
5. Integration of Digital Technology by businesses

Each dimension is measured by a synthetic index, which summarises a set of indicators on a variety of aspects of that dimension. The five indexes are then added up to a single number providing an overall measurement across EU28 Members countries and over time.

Country: France
Responsibility: DGE (Direction générale des entreprises)
Initiative: Observatoire du numérique

The digital observatory (“**L’observatoire du numérique**”) was created in 2011 and aims at collecting and analysing data in order to assess the impact of digital on the economy and at allowing comparisons/benchmarks with other countries.

Country: India
Responsibility: Ministry of Electronics and Information Technology (MeitY)

It is important that statistical models for measurement should be such that it should motivate stakeholders towards adopting policies of promotion of digital economy. It is felt that present models are such that they reflect disparity among the developed and under developed economies with little or no chance for the later to overcome the former in spite of best efforts. So, statistical models for measuring digital economy of G20 members should be on growth basis. Also, as digital economy is an important tool for social inclusion so its impact on the same should be an important parameter to monitor. Further, the role of National Statistical Organisations (NSOs) is indispensable while measuring the Digital Economy. Other International Organisations such as IMF, ITU, World Bank and WTO should be encouraged in collaboration with NSOs to elaborate on frameworks for analysing key issues in digitalisation at the country level taking into account the structure of the local economy and statistical capacity.

Country: South Africa, Republic of
Responsibility: Statistics SA, Department of Telecommunications and Postal Services (DTPS)
Initiatives: National Integrated Policy White Paper; ICT Households Survey, 2013; ICT Satellite Account, 2012; ICT General Household Survey

The National ICT Integrated Policy White Paper, 2016 provides for the development of measuring the ICT universal access indicators. The collaboration between the Stats SA and DTPS have developed an ICT Household measurement survey, which began in 2013. The Stats SA made a provision for a satellite account to measure ICT contribution to GDP growth on a yearly basis. The quarterly General Household Survey by the Stats SA also provided for the measurement of ICTs impact in the household spending.

Country: The Netherlands
Responsibility: Ministry of Economic Affairs, Central Bureau of Statistics, ACM regulator
Initiatives:

1. Measuring the Internet economy in The Netherlands: a big data analysis (CBS discussion paper)
2. Cyber security monitor (CBS)
3. Telecommonitor-ACM
4. Emancipation Monitor

1. Measuring the Internet economy in **The Netherlands: a big data analysis** (CBS discussion paper). Key messages:
 - This research, a three-way partnership between Statistics Netherlands, Google and Dataprovider, is the first to combine big data with regular statistics to study the Dutch Internet economy.
 - As part of this research, a new set of operational definitions was developed to describe the way businesses use the Internet.

- A sophisticated matching algorithm resulted in a comprehensive set of Dutch businesses and their websites, suitable for extensive further analysis.
 - In 2015, 550,000 businesses (36% of all businesses) had a website. Of the businesses which do not have a website, 83% represent self-employed persons.
 - The core of the Internet economy (online stores, online services and Internet related ICT) consists of 50,000 businesses and provides 345,000 jobs (4.4% of the total) and a turnover of € 104 billion (7.7% of the total).
2. **Cyber security monitor (CBS)** provides an overview of cybercrimes and cyber-incidents for consumers, businesses and organisations and the preventive measures they take. The monitor appears one every year.
 3. **Telecom monitor (ACM)** shows developments in the field of mobile and fixed service, broadband as well as TV and bundles. The data are provided by operators and form the basis for market analysis of ACM. The monitor appears 4 times per year.
 4. **Emancipation Monitor** is published under joint editorship of the Netherlands Institute for Social Research (SCP) and Statistics Netherlands (CBS) at the request of the Minister of Education, Culture and Science, who is responsible for emancipation policy. It also monitors women in STEM.

11. Bridging the Digital Gender Divide

Country: Germany

Responsibility: Federal Ministry for Economic Cooperation and Development/
Federal Ministry for Family Affairs, Senior Citizens, Women and Youth/
Federal Ministry for Economic Affairs and Energy

Initiatives: 1. #eSkills4Girls
2. The Girls Innovation Camp, reverse mentoring programme and “Women in Digital”

1. **#eSkills4Girls** is an initiative under the German G20 presidency with the aim to tackle the existing gender digital divide, in particular in low income and developing countries. The specific objectives are to globally increase women’s and girls’ access to and participation in the digital world and to boost relevant education and employment opportunities in emerging and developing countries. This platform is a joint project by G20 members – backed by a consortium of leading international organisations including UNESCO, UN Women, ITU and OECD. The platform aims to collect and disseminate information and knowledge on the issue, to showcase current initiatives as well as good practices and policy recommendations to different stakeholders that are playing an essential part in helping to get more women online and into IT professions. It does not aim to duplicate any existing efforts but rather helps at aligning and linking existing initiatives and stakeholders with each other.
2. The **Girls Innovation Camp (GIC)** initiated by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) on behalf of the Federal Ministry for Economic Co-operation and Development (BMZ) in cooperation with the Indonesian Ministry of Education and Culture as well as Intel Indonesia addresses the need for improving gender equality in the workplace by raising the digital skill levels of women. Organised for the first time in 2016, the Girls Innovation Camp offers hands-on training in design thinking for innovation, career guidance and provided an introduction to the basics of teamwork, leadership and gender mainstreaming to female students and teachers. The initiative aims to foster innovation among students and teachers using technology in order to prepare them for jobs in the digital economy.

Aside from Intel, GIZ is currently cooperating with other IT companies such as IBM, Axioo or the local developer hub Dicoding. This type of collaboration is needed to better match workforce supply and demand, expose students to the latest technology, real work environments and personal skills required by the 21st century world of work. In addition to the realization of the innovation camp, two films on gender were produced in cooperation with the Indonesian Ministry of Education and Culture as well as the private sector to promote and encourage women to study and work in the field of STEM and to address the importance of gender equality in companies.

“More female politicians on the net!” This is the motto of the **reverse mentoring programme** (2015-2017) of the Helene Weber College. The special feature of the programme is that the relationship between generations is reversed. The objective of the reverse mentoring is for experienced local female politicians with deficits in using and handling social media to be taught by younger, so called “digital natives” and show them how they can better use online services (in particular Twitter, Facebook, blogs or Instagram) for their political work.

Country: Argentina

Responsibility: Ministry of Modernization/Ministry of Social Development/Ministry of Production

Initiatives: 1. National Plan for Digital Inclusion (“Ellas hacen”)
2. Women Economic Development Center

1. **National Plan for Digital Inclusion – Social Program Component for woman “Ellas Hacen”**
Within the previous mentioned National Plan for Digital Inclusion, and as a joint venture with the Ministry of Social Development, there are specific components targeting women that benefit from the Social Program “Ellas Hacen” (They do). The program “Ellas hacen” promotes work and training opportunities for vulnerable women.

2. Women Economic Development Center

The Women Economic Development Center aims to develop a research field oriented to foster women's inclusion and participation in programs and services offered by the Secretariat of Entrepreneurs and SMEs as well as other public and private institutions.

The Center is the first Governmental Organization working directly on the women's economic self-sufficiency. The center has a counselor Board that includes local and international experts. This Board supports the center by providing a medium and long term vision concerning gender equity and women empowerment.

The Center focuses its work on 3 main issues: awareness to promote women's economic empowerment-considering them as a change agent with economic impact; networking to connect women with providers, investors, incubators, accelerators, trainers and any other agent that can support the growth of their projects; financial assistance to foster the Secretariat and Ministry's existing credit lines to women projects.

Country: Australia

Responsibility: Department of Industry, Innovation and Science/Department of Communication and the Arts/Department of Education/Department of Employment/The Treasury/the Department of Prime Minister and Cabinet, 4&5 Department of Foreign Affairs and Trade

Initiatives:

1. Expanding opportunities for women in STEM and entrepreneurship
2. eSafetyWomen
3. Household Use of Information Technology
4. Technology Enabled Girl Ambassadors
5. Women's World Banking

1. Participation by Australian girls and women in science, technology, engineering and mathematics (STEM) at school and university remains a challenge. For example, a 2013 paper from the Australian Council of Learned Academies notes that the participation of girls in at least one mathematics and one science subject after year 10 has been decreasing since 2001. Further, women occupy fewer than one in five senior researcher positions in Australian universities and research institutes, and around one quarter of the STEM workforce overall. Only one in four IT graduates and fewer than one in 8 engineering graduates are women. **The Australian Government's National Innovation and Science Agenda** is addressing these challenges through its Expanding opportunities for women in STEM and entrepreneurship initiative, which includes:

- AUS \$2 million over 2016–17 to 2018–19 to support the expansion of the Science in Australia Gender Equity (SAGE) pilot to cover more science and research institutions. SAGE aims to improve gender equity and diversity in the fields of STEM and medicine (STEMM). It requires participants to collect, analyse and present data on gender equity policies and practices in STEMM departments, as well as identify gaps and opportunities for improvement.
- AUS \$2 million over 2016–17 to 2018–19 to establish a new initiative using the 'Male Champions of Change' model, to encourage leaders in STEM-based and entrepreneurial industries to drive improved gender equity and to achieve a significant and sustainable increase in the representation of women in leadership positions.
- A competitive grant program intended to increase the participation of girls and women in STEM and entrepreneurship education, activities and careers. It is targeted at girls and women in schools, universities, the research sector, STEM-based industries, and the start-up and entrepreneurial sector (AUS \$8 million over 2016–17 to 2019–20, AUS \$1 million annually ongoing).
- The program provides grants of up to AUS \$250,000 over two years. The first round supported several projects focused on ICT studies and careers, including coding workshops for primary school girls and teacher training aligned to the digital curriculum.

In addition, to encourage all Australians to engage with STEM in society and participate in further study the Government is investing \$48 million over four years in several other NISA initiatives, such as:

- Supporting Australian students to participate in STEM related events and competitions at home and overseas;
 - Developing early learning initiatives such as play-based learning apps and programmes; and
 - Encouraging community engagement through funding for Citizen Science and National Science Week.
2. **Safe access to technology** is crucial for women so they can stay connected to their family and friends, engage with the world, take advantage of education and economic opportunities, and get information and support. As part of a larger package addressing Women's Safety, the Office of the eSafety Commissioner has established eSafetyWomen – a set of Internet resources to help women manage technology risks and abuse by giving them the tools they need to be confident when online. The Office of the eSafety Commissioner plans to continually update and add resources to eSafetyWomen and will in future include targeted resources for Indigenous women, women from culturally and linguistically diverse communities, and women with disabilities.
 3. **The Australian Bureau of Statistics' Household Use of Information Technology publication** (cat. no. 8146.0) includes tables of data on number of Internet users, hours spent online in a typical week, reasons for accessing the Internet, type of goods purchased online, and whether used the Internet for home based work, by sex. The most recent data published is for 2014–15.
 4. Australia supports the **Girl Effect** to help build young women's leadership, voice and agency in Bangladesh through an innovative research model, **Technology Enabled Girl Ambassadors (TEGA)**. TEGA trains young women aged 18-24 in data collection techniques and mobile technology to collect real-time data in their communities. With insights from the data, Girl Effect and its partners' programs can better address the concerns of women and girls. TEGA also builds agency and leadership for young women through strengthening their voice, and increasing confidence, leadership and connections through the development of new digital skills.
 5. Building on **Women's World Banking's (WWB)** experience trialing digital solutions for low income women throughout the world, Australia is supporting WWB over the next four years to expand their programs in South East Asia. Increasing the reach and use of digital financial services is a key strategy to help overcome the financial inclusion gender gap. WWB will test innovative programs such as driving the uptake and use of mobile accounts by women in Indonesia, and supporting digital insurance service providers in Cambodia expand into new areas.

Country: [Brazil](#)
Responsibility: National Telecommunications Agency (Anatel)
Initiative: Bridging the Digital Gender Divide: Girls in ICT Day

Anatel, the telecommunications regulator in Brazil, holds annually the **Girls in ICT Day**. The event is organized in tandem with the global Girls in ICT initiative, led by the International Telecommunications Union (ITU). Every year the national event celebrates the achievements in bridging the digital gender divide in Brazil, as well as promoting a "field day" for girl students.

Country: [Canada](#)

Responsibility: Global Affairs Canada

Initiatives:

1. Digital Inclusion Lab
2. GIRLS Inspire – Preventing Child, Early and Forced Marriage through Open, Distance, and Technology-based Learning (Canada’s contribution to Germany’s #Eskills4girls initiative)
3. Preparing Haitian Youth for Digital Jobs (Canada’s contribution to Germany’s #Eskills4girls initiative)
4. African Institute For Mathematical Sciences Skills For Employability Project (Canada’s contribution to Germany’s #Eskills4girls initiative)
5. Improving Prospects for Digitally Enabled Livelihoods Among Marginalized Communities in Egypt (Canada’s contribution to Germany’s #Eskills4girls initiative)

1. The **Digital Inclusion Lab** is part of the Office of Human Rights, Freedoms and Inclusion. The Lab focuses on increasing understanding of how information communications technology (ICT) can be used in innovative ways to advance foreign policy and the impact ICT has on foreign policy issues. Priority issues in 2017–2018 include: violence against women online, and gender and digital inclusion, as well as terrorist use of the Internet, counter-ing online hate, Internet freedom, misinformation campaigns, and digital aspects of hybrid threats.
2. **GIRLS Inspire** aims to break the cycle of child, early and forced marriage (CEFM) by increasing access to education and training for girls and women through open, distance, and technology-based learning in select Common-wealth countries with a high prevalence of child marriage.
3. **Preparing Haitian Youth for Digital Jobs** aims to create the enabling conditions for young Haitians, especially women and girls, to find employment in the digital economy through the design and evaluation of locally adapted online courses, development of job matching platforms, and support for telecommunications engineers.
4. The **Skills for Employability Project** will strengthen and expand the African Institute For Mathematical Sciences (AIMS) Industry Initiative (linking AIMS academic program, student and alumni to industry to enhance employ-ability post AIMS) and the AIMS Co-op pilot program in Senegal.
5. **Improving Prospects for Digitally Enabled Livelihoods** will create optimal conditions to enable young Eryp-tians, mainly women, to take advantage of the entrepreneurial and employment opportunities the digital econ-omy offers by piloting and testing a localized high quality curriculum for developing digital skills.

Country: [China](#)

Responsibility: All-China Women’s Federation

Initiative: Heroine Actions: Entrepreneurship and Innovation

In order to implement the national strategy of mass entrepreneurship and innovation, All-China Women’s Federation launched the **Heroine Actions: Entrepreneurship and Innovation**, with a focus on improving women’s capacity for innovation and development through education and training, disseminating digital literacy among urban and rural women, and organizing trainings on e-skills. In the context of the latest trend of “Internet+”, the Federation established an all-in-one curriculum system with specific characteristics, and organized diversified e-commerce training and practices for women in rural areas. In 2016, the Federation at different levels organized training programs for 4 million women, mentored 960,000 women, hosted over 2,800 competitions, and established more than 5,000 entrepreneurial practice bases for female college students. Besides, around 2,900 platforms have been developed, including Female Maker Space, Incubators, as well as service platforms for the maker, and over 1,800 entrepreneurial associations and chambers have been founded, providing e-commerce entrepreneurial guidance for millions of women. Currently, female entrepreneurs in China’s Internet sector account for 55%, taking up 42.9% of the total employees. Women are seen in more and more fields of e-commerce and some in rural areas have stepped out of poverty through the project of “Internet + Modern Agriculture”.

- Country:** [European Union](#)
- Responsibility:** European Union
- Initiatives:**
1. European Network of Women Web Entrepreneurs Hubs
 2. Grand Coalition for Digital Jobs
 3. EU Code Week
 4. Independent Expert database
 5. Girls in ICT Day
 6. EU Prize for Women Innovators

Only 30% of the around 7 million people working in the information and communication (ICT) sector are women. They are underrepresented at all levels in the ICT sector, especially in decision-making positions. The ICT sector is rapidly growing, creating around 120 000 new jobs every year. Due to differences in demands and skills – and despite soaring unemployment – there may be a lack of 900,000 skilled ICT workers in 2020. A study on [women active in the ICT sector](#) was published in October 2013, found that allowing more women to enter the digital jobs market can create an annual €9 billion GDP boost in the EU area. A policy change is needed particularly because of an alarming drop in ICT female graduates (today only 29 out of every 1,000 female graduate have a computing or related degree, and only 4 go on to work in ICT-related activities).

One of the pillars of the DSM is the [e-society](#) where people can manage their lives online, with good infrastructure and the right skills. In order to empower women in the tech sector we specifically support them in three domains: education, entrepreneurship, research & innovation.

The European Commission has been addressing these challenges through our policy and funding programmes and some great in-house initiatives:

1. The [European Network of Women Web Entrepreneurs Hubs](#) which link women’s organisations with entrepreneurs’ organisations as well as investors and mentors;
2. The [Grand Coalition for Digital Jobs](#) which hosts pledges to increase the participation of girls and women in digital jobs.
3. Moreover, the European Commission is trying to get women and girls involved with digital technologies and improving their skills during the annual [EU Code Week](#) which offers plenty of activities, including seminars, dedicated classes, boot camps etc.
4. Under Horizon 2020 there are clear requirements to **include women in evaluation panels and scientific consortia**. The goal is to have at least 40% of women evaluators and a campaign has been launched to get more women to join the [independent expert database](#) for European research and innovation.
5. Every year in April the European Commission celebrates [Girls in ICT Day](#).
6. The EC also participates in the [EU Prize for Women Innovators](#). [Watch the video](#) of the 2016 winner.

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- Country:** [France](#)
- Responsibility:** Ministère de l’économie et des finances/Secrétariat d’Etat en charge de l’égalité entre les hommes et les femmes/Ministère de l’enseignement supérieur, de la recherche et de l’innovation
- Initiative:** Plan sectorial mixité et numérique

The launch of the [Plan](#) in January 2017 constitutes a lever for mobilization and actions to promote equality between women and men in the digital sector, thanks to the joint determination of the public authorities and the private sector. By federating the work of important representatives of digital and public authorities, this plan will promote diversity by acting at every stage of the women’s journey: in orientation and continuing education, in access to employment and entrepreneurship.

Examples of measures:

- Fight against stereotypes of sex, cybersex and cyber-violence;
- for initial training, work on the representations associated with digital professions;
- for lifelong education, promote the diversity of digital professions and the attractiveness of positions for women; and,
- Promote the employment of women in the digital sector;

Country: **India**

Responsibility: Ministry of Electronics and IT (MeitY)/Ministry of Women & Child Welfare

Initiatives: IT For Jobs, National Digital Literacy Mission (NDLM) and Digital Saksharta Abhiyan (DISHA)

Information Technology has the capacity to empower women by raising social and political awareness, improving education and employment opportunities. Addressing digital gender divide is important to mitigate the risk of existing inequalities which may create a new kind of inequality. Keeping this in view, **a draft Policy for women 2017** is under preparation and efforts will be made to increase women's access to an effective use of digital technologies through promotion of start-ups of women owned enterprises while addressing their access barriers to ICT and digital financial services. Effective use of ICT for education at all levels will be promoted amongst women with emphasis on rural and semi-urban areas.

Women form half of the population of the country and, therefore, it goes without saying that the true benefits of Digital India for a digital economy can come up only if women are empowered. For this purpose, specific initiatives are being taken to empower women in the area of digital literacy, providing them employment opportunities and to deal with issues relating to security and empowerment of women. Women make up 24% of the workforce in India and according to Forbes report only 5% of these reach the top layer, compared to a global average of 20%. Whereas, Almost 91% of women who take a break in India want to come back to work only 58% are able to rejoin full time work. The percentage is still smaller for women with technical backgrounds and wants to rejoin. Looking into this India is working to facilitate more number of such technically qualified women having an intent/aptitude to restart a professional career through an incubation support programme and skill enhancement.

The ultimate goal of **IT for Jobs Programme** under Digital India has been **"INCLUSIVE GROWTH"** which is considered to be achieved through skill development, capacity building exercises, creating IT Infrastructure for empowering women. Though the programme is Gender Neutral, however, to provide equitable opportunities to all, special thrust is provided for women e-literacy.

Also under **National Digital Literacy Mission (NDLM)** and **'Digital Saksharta Abhiyan' (DISHA) Schemes**, 6 Mn women candidates have been trained and certified for them, to be empowered to reap the benefits evolving under the Digital India Programme.

In short, India, today is very well poised to march towards a **'One Trillion Dollar Digital Economy'** which will not only create employment opportunities for youth, but will also pave way for creating new business avenues in the ICT and other related sectors.

Country: Mexico
Responsibility: Coordination of the National Digital Strategy – CEDN/Ministry of Communications and Transports of Mexico – SCT
Initiatives: 1. CEDN – “Codigo X”
2. SCT -Migrant Women

1. The program of mentoring “**Codigo X**” is an initiative directed from the National Digital Strategy Coordination of the Office of the President of the Republic, to consolidate efforts at the national and international levels of industry, civil society, academia and government in order to promote the inclusion of girls and women in Information and Communication Technologies (ICT). Considering that only 14 % of women in Mexico are currently studying technology related careers, one of the main goals of the program is to invite girls to get to know different institutions to better understand the opportunities that learning ICTs would bring them.

Codigo X initiative involves, as of today, 21 different organizations, currently offering 33 different programs to support women from different ages. The initiative also launched a mentoring program that provides girls with support from women industry leaders with at least 10 years of working experience in the IT industry.

2. **Migrant Women** is a portal promoted by the Government of Mexico through the Ministry of Communications and Transportation and the Coordination for the Information and Knowledge Society. It provides communication and reliable and timely information for migrant women and their families – in Mexico and abroad, but particularly in the US. It also provides these services to migrants from Central America that have already established or currently in transit through Mexico, in order to reduce risks derived from their dual vulnerability, being migrant and women.

This initiative accounts with government and civil society’s information on how to solve their concerns in terms of migrant procedures, services, health, human rights, education, labor, emergency numbers and support centers for the migrant population. In addition, it accounts with an [electronic site](#) that provides free training in diverse TICs subjects, including ecommerce. Its expected outcome consists on achieving economic empowerment of women and MSMEs through the information and communications technologies.

Country: The Netherlands
Responsibility: Ministry of Education, Culture and Science, public/private partnerships
Initiatives: 1. Encourage girls to choose STEM
2. Girlsday, women in technology and ICT
3. Talent viewer
4. Women in Cyber security

1. The Dutch government has implemented several policy measures to **encourage girls to choose for STEM**. These policy measures are aimed at:

- shifting perceptions and assumptions about girls and STEM and combat stereotype behaviour;
- informing girls about their possibilities in STEM and introduce role models;
- Training parents and teachers in gender awareness.

The ministry of Education, Culture and Science had financed several projects and activities carried out by non-profit organisation VHTO. VHTO is the Dutch national expert organisation on Girls/Women and Science/Technology. VHTO uses research-based interventions throughout the education system, from primary to higher and vocational levels, offering training programmes for teachers and career advisers and consultations with school/education managers.

2. One of the initiatives supported by the Ministry of Education is the organization of a [Girlsday](#) in technology and ICT. The VHTO is organizing the Girlsday every year since 2015. Many technology and ICT companies open their doors for young girls to show them what their working practice contains and discuss opportunities for girls. Women, working in those companies, reply to their questions.
3. The government also funded the 2011 VHTO **Talenten kijker (Talent Viewer)** project for primary schools (grades 5 and 6, children aged 9-12), involving more than 3,500 classes over two years. The project entails a series of lessons in which boys and girls explore their talents, meet STEM-field professionals and learn more about the skills needed for STEM-related jobs. Parents and teachers are actively involved in the Talent Viewer project. A recent study indicated that the project enhanced teachers' gender-awareness, as well as enhancing and updating knowledge of STEM-related studies and professions among children, teachers and parents. Talent Viewer was found to be eye-opening for students and teachers alike, highlighting the role of women in STEM professions, with fewer students viewing STEM as 'something for boys' after participating in the project.
4. **Women in Cyber Security Foundation (WiCS)**, based in The Hague (NL), is a discipline-specific community for women working in cyber security. The main goal of WiCS is to foster connections among the under-represented women in the various cyber security fields (research, programming, policy, architecture, design, management, communications etc.). Women in Cyber Security Foundation allows women to connect with other women who share the same cyber security interests and ambitions, who attend the same conferences and who face the same career hurdles and opportunities.