

7. What potential does digital entrepreneurship have for being inclusive?

This chapter examines the extent to which policy makers should encourage and support digital start-ups as a way to “level the playing field” for entrepreneurs groups that are under-represented or disadvantaged in entrepreneurship. The chapter identifies and discusses the challenges that women, immigrants, youth, seniors and the unemployed face in starting digital businesses, as well as the policy actions that can be used to address market failures. Policy advice is provided for national, regional and local governments.

Key messages

Digital transformation is radically altering the way businesses function and organise production. This transformation is driven by the advance of new digital technologies such as the Internet of Things, Blockchain, Artificial Intelligence, Big Data, Cloud Computing, Next-generation Wireless Networks and more. Each of these is enabled by dramatic increases in computing power and a simultaneous decline in its cost.

Digital entrepreneurship – the creation of digital businesses and the adoption of digital technologies by existing entrepreneurs – may hold potential for helping to make entrepreneurship more inclusive. Under-represented population groups in entrepreneurship could be more likely to benefit from certain features of digital technologies for business creation and growth, including the lower start-up costs required for many digital businesses and the wider access to external markets offered by the internet. However, international surveys indicate that women, immigrants, youth and seniors are greatly under-represented among digital entrepreneurs in the EU. For example, it is estimated that women accounted for only 15.6% of digital start-ups in 2018, which was essentially unchanged from 2016 (14.8%). This is well below their share among entrepreneurs.

These gaps are due to many factors, including a lack of digital entrepreneurship role models and a lack of digital skills, which affects seniors and women. Moreover, several recent studies show that many obstacles to business creation (e.g. lack of skills, access to finance, small and ineffective networks) carry over into the digital economy. Data on computer usage clearly show that women and seniors have gaps in basic digital skills, as do some groups of youth. These skills barriers reinforce the obstacles to start-up financing and networks.

Digital entrepreneurship will not be a panacea for making entrepreneurship more inclusive but public policy can play a role in addressing obstacles to the creation of digital businesses by potential entrepreneurs from under-represented and disadvantaged groups. Nonetheless, there is a role for policy in addressing the barriers to digital entrepreneurship through schemes that build digital and entrepreneurship skills, including through education, training programmes and facilitating peer-learning. While most public initiatives are very new, experiences to date suggest that in addition to building digital and entrepreneurship skills, it is important to help entrepreneurs from under-represented and disadvantaged groups build stronger networks so that they can improve their access to funds, opportunities, clients, partners and suppliers. These targeted actions should be complemented by broad policy actions aimed at improving connectivity, stimulating innovation and strengthening the regulatory environment.

Policy recommendations

- Build a more inclusive culture towards digital start-ups:
 - Combat the stereotype that digital entrepreneurs are young males by showcasing a wide range of role models and success stories in entrepreneurship campaigns and entrepreneurship education. However, be careful not to promote it as an activity that will be suitable for all since digital start-ups tend to have lower survival rates.
 - Include entrepreneurship modules in science-based programmes in higher education to increase awareness about the potential of entrepreneurship for these students, particularly young women.

- Design tailored digital entrepreneurship schemes for women, youth and immigrants so that they convert participants into role models and ambassadors after successful completion of the initiative.
- Collect more gender and age disaggregated data on the digital economy and digital self-employment.
- Support the development of digital and entrepreneurship skills:
 - Embed digital entrepreneurship modules in entrepreneurship education to help youth develop digital and entrepreneurship skills in parallel. This would also require developing teaching materials and training teachers on the digital economy.
 - Offer digital entrepreneurship training programmes for women, youth and immigrants, covering the identification of opportunities in the digital economy, effective use of social media, reaching international markets and understanding regulatory differences across jurisdictions. It is important to ensure that training initiatives include opportunities to build networks and gain access to business development service providers.
- Improve access to resources for the creation of digital businesses and the digitalisation for the self-employed:
 - Include clear targets for different population groups in national digital plans and strategies to ensure that internet accessibility does not exclude people from digital entrepreneurship.
 - Ensure that digital entrepreneurship schemes increase awareness about digital entrepreneurship and digital business networks and their benefits.
- Improve access to finance for digital entrepreneurship:
 - Support and/or promote crowdfunding platforms to improve access to start-up financing for digital entrepreneurs, particularly women and youth.
 - Use award programmes to provide small grants and visibility digital entrepreneurs from under-represented and disadvantaged groups. Use the application and selection process to provide workshops on key topics (e.g. pitching business ideas, identifying opportunities), as well as coaching.
 - Promote gender balance in the financial sector, especially those receiving public funding.

The digital transformation

The digital transformation is well underway, impacting many facets of daily life and changing the way firms organise and manage production. This transformation is driven by the advance of digital technologies, which has been enabled by dramatic increases in computing power and a simultaneous decline in the cost of computing power (OECD, 2015^[1]). A good example to illustrate this is the evolution of the telephone. It took more than 70 years for phone penetration to go from 10% to 90% in US households, but it took only about 15 years for mobile phones and just over eight years for smartphones to reach this level of take-up (OECD, 2019^[2]).

This transformation is underpinned by an ecosystem of interdependent digital technologies (see Box 7.1), which will continue to evolve and drive economic and societal changes (OECD, 2019^[3]). Some of these technologies have already been integrated into daily life and many of these new technologies holds promise for driving innovation, improving productivity, stimulating economic growth, as well as enhancing individual well-being and quality of life (OECD, 2019^[2]). While it is widely agreed that the benefits of digital transformation are far from being reached, it is important to recognise that the benefits will likely not be shared by all. There is a risk that inequalities between people, firms and places will increase since the diffusion of digital technologies and benefits of digitalisation are uneven. Productivity and income gaps may widen, and it is likely that digital transformation will have losers since the impact on labour markets is mixed. Digitalisation allows many workers to perform their tasks more efficiently, and creates new jobs in both new and traditional sectors. However, automation and artificial intelligence will eliminate some types of work (OECD, 2019^[2]; OECD, 2018^[4]).

Box 7.1. Key technologies that drive digital transformation

Digital transformation refers to the economic and societal effects of digitisation (i.e. the conversion of analogue data and process into machine-readable format) and digitalisation (i.e. the use of digital technologies and data, as well as interconnections that result in new or modified activities) (OECD, 2019^[3]). Key technologies driving the digital transformation include:

1. **Internet of Things (IoT):** An extension of internet connectivity into devices and objects, allowing them to be remotely monitored and controlled. This enables new business models, applications and services based on data collected from devices and objects.
2. **Next-generation wireless networks (5G and beyond):** Improvements in wireless networks include higher speeds (i.e. 200 times faster than 4G) and networks that better support diverse applications through the virtualisation of the physical layers (i.e. “network slicing”). This will improve connectivity between devices and objects, and is critical for applications such as self-driving vehicles.
3. **Cloud computing:** A service that offers flexible, on-demand access to a range of online computing resources (e.g. software applications, storage capacity, networking and computing power) (OECD, 2014^[5]). These resources can be used (and priced) in an adaptable manner to enable customers to better meet their needs, as well as transform fixed costs into lower marginal costs.
4. **Big data analytics:** Data that is characterised by high volume, velocity and variety, often sourced from IoT. “Big data” can be used to develop new products and services, processes, organisational methods and markets, and enables data-driven innovation (OECD, 2015^[1]).
5. **Artificial intelligence (AI):** The ability of machines and systems to acquire and apply knowledge, including performing a variety of cognitive tasks such as sensing, processing language, pattern recognition, learning, and making decisions and predictions. AI is already part of daily life (e.g. recommendations from streaming entertainment services) and will increasingly drive new kinds of

software and autonomous robots (i.e. they can make and execute decisions without human input) (OECD, 2019^[3]; OECD, 2019^[6]).

6. **Blockchain:** A ledger or spreadsheet that is maintained and stored across a network of computers. The network regularly updates the database in all locations so that all copies are always identical, which allows records to be visible and verifiable by everyone. Should someone try to change information stored in the block, the “chain” is broken and all nodes in the network would be aware of it. Applications of blockchain technology includes smart contracts, cryptocurrencies and supply chain management.
7. **Computing power:**
 - *High-performance computing* (HPC): The aggregation of processing power to deliver far greater performance than a single computer.
 - *Quantum computing* (QC): The use of “qubits” that are organised in “states” that represent a combination of 0 and 1, rather than the traditional processing of binary data, i.e. 0 or 1. While still an emerging field with substantial obstacles, QC potentially offers an enormous leap in processing power that could be applied to AI and cloud computing (OECD, 2019^[3]).

What is digital entrepreneurship?

Defining digital entrepreneurship – like defining entrepreneurship – is not an easy task and many definitions are used in practice. Several attempts were made to define digital entrepreneurship in 2015 as part of the European Commission’s suite of policy initiatives to harness the potential of the digital economy. The first definition was fairly broad and difficult to measure:

Digital entrepreneurship embraces all new ventures and the transformation of existing businesses that drive economic and/or social value by creating and using novel digital technologies. Digital enterprises are characterised by a high intensity of utilisation of novel digital technologies (particularly social, big data, mobile and cloud solutions) to improve business operations, invent new business models, sharpen business intelligence, and engage with customers and stakeholders. They create the jobs and growth opportunities of the future (European Commission, 2015^[7]).

A second concept was put forth in the European Commission’s Digital Entrepreneurship Scoreboard in 2016. This definition considers digital entrepreneurship to include the digitalisation of entrepreneurs and SMEs (i.e. the adoption of cloud computing, mobile technologies, social media and big data by entrepreneurs and SMEs, as well as the share of firms’ revenue deriving from e-commerce), as well as start-ups in ICT sectors (European Commission, 2016^[8]). While this definition is slightly more tangible than the 2015 definition, it presents some measurement challenges. First, it is difficult to measure the adoption of digital technologies in new and existing firms because adoption rates vary greatly across sectors, and across firms within sectors. Second, while measuring start-ups in ICT sectors is feasible, the ability to assess the digitalisation of the self-employed and SMEs is currently limited to a small number of basic indicators (e.g. daily computer usage).

A third definition was proposed by the European Commission’s Joint Research Council around the same time. It defined digital entrepreneurship as “the phenomenon associated

with digital entrepreneurial activity, which is the enterprising human action in pursuit of the generation of value, through the creation or expansion of economic activity, by identifying and exploiting new ICT or ICT-enabled products, processes and corresponding markets” (Bogdanowicz, 2015^[9]). This definition builds on the definition of entrepreneurship used by the OECD-Eurostat Entrepreneurship Indicators Programme (Box 7.2). Estimating the number of digital entrepreneurs with this definition would be a momentous task given the difficulties with defining ICT-enabled products, processes and markets. Nonetheless, the definition acknowledges that digital entrepreneurship is not confined to the ICT sector. This point is underlined in other recent academic and policy literature (van Welsum, 2016^[10]).

Box 7.2. What is entrepreneurship?

The OECD-Eurostat Entrepreneurship Indicators Programme defines entrepreneurship as “the phenomenon associated with entrepreneurial activity, which is the enterprising human action in pursuit of the generation of value, through the creation or expansion of economic activity, by identifying and exploiting new products, processes or markets” (OECD, 2017^[11]). This definition considers that entrepreneurship can manifest itself in the economy, but also in other ways that are not necessarily related to the creation of wealth. This could include, for example, increasing employment, tackling inequality or social challenges.

Although a consensus on the definition of digital entrepreneurship has yet to emerge, it is important for policy makers to understand that digital transformation is relatively new and will continue to evolve, likely at a rapid pace. The impact will be uneven across firms and sectors, but those who are able to adopt these new technologies will likely find themselves in stronger competitive positions. Therefore, policy makers should seek to ensure that all entrepreneurs have similar access to the skills and resources needed to successfully use digital technologies. This chapter will examine the potential for inclusive entrepreneurship policy to support women, immigrants, youth, seniors and the unemployed in the creation of digital start-ups, or to boost the adoption of digital business technologies for those who are self-employed.

What are the potential benefits of digital entrepreneurship?

Digitalisation can drive innovation, creating new opportunities for entrepreneurs

Digital technologies are radically altering the ways that research and innovation are undertaken. The digital transformation has improved access to scientific publications and information through new tools and platforms, enhanced access to research data and strengthen engagement with a wider range of stakeholders (OECD, 2019^[12]). These can be illustrated by four key trends. First, data is becoming a key input for innovation because it provides insights on market trends, allows for the optimisation of production and distribution processes, and facilitates the adjustment of products and services to market demand. Second, data enables services innovation since new services are (and will be) required, e.g. the Internet of Things has enabled predictive maintenance services. Third, digital innovations such as 3D printing increase the speed of innovation cycles since product design, prototypes and testing can all be accelerated. Finally, innovation is increasingly collaborative, which helps share the costs and reduces the risks of digital innovation.

These trends are creating more opportunities for start-ups to be born global, or have the ability to grow and scale across borders very quickly (van Welsum, 2016_[10]). Public policy can have an important role in maximising this potential by ensuring that entrepreneurs and SMEs have the digital skills to adopt these innovations and investing in appropriate infrastructures (e.g. 5G) (OECD, 2019_[12]).

However, policy makers need to recognise that not all potential entrepreneurs have the same access to these opportunities. It is well documented that there are wide gender gaps in STEM fields and in the use of digital tools for business (OECD, 2017_[13]).

The self-employed can boost their productivity and access more opportunities

Digital transformation offers many opportunities for the firms, including the self-employed, but only about 2% are taking full advantage of the digital economy (European Commission, 2014_[14]) and there is large gap in adoption rates of digital tools between small and large firms (OECD, 2019_[15]). The benefits broadly fall into two categories: creating opportunities to access new markets (i.e. customers in other regions or countries, new products and services) and boosting productivity by reducing business operating costs. These benefits are summarised in Table 7.1.

Table 7.1. Expected benefits of digital entrepreneurship for entrepreneurs and the self-employed

Expected benefit	Source
Improved access to market research, business data and networks	(Hair, 2012 _[16]); (Kollmann, 2006 _[17]); (Thompson Jackson, 2009 _[18]); (Shoham, 2006 _[19])
Wider reach and lower cost of client-facing operational functions, e.g. advertising, communications and distribution	(Fairlie, 2006 _[20]); (Hull, 2007 _[21]); (Hair, 2012 _[16]); (Nambisan, 2016 _[22])
Lower cost of internal operational functions; e-creation of value	(Thompson Jackson, 2009 _[18]); (Nambisan, 2016 _[22]); (Kollmann, 2006 _[17]); (Sussan and Acs, 2017 _[23])
Improved customer relations through social media	(Fischer and Reuber, 2014 _[24]); (Hair, 2012 _[16]); (Nambisan, 2016 _[22])
Improved access to existing sales channels	(Chandra and Coviello, 2010 _[25]); (Hair, 2012 _[16])
Creation of new sales channels	(Mahadevan, 2000 _[26])
New platform development, existing platform transformation	(Chandra and Coviello, 2010 _[25]); (Giones and Brem, 2017 _[27]); (Mahadevan, 2000 _[26]); (Nambisan, 2016 _[22])
Greater ability to locate, contact and develop reputation with investors	(Chandra and Coviello, 2010 _[25]); (Shoham, 2006 _[19])
Creation of economies of scale	(Giones and Brem, 2017 _[27]); (Nambisan, 2016 _[22]); (Sussan and Acs, 2017 _[23])

Source: Adapted from (Martinez Dy, Martin and Marlow, 2018_[28])

This combination of new opportunities and reduced costs potentially opens-up entrepreneurship to more people. The lower costs of starting and running a business makes it more feasible for those with lower levels of savings and capital to pursue digital entrepreneurship. This includes, for example, the potential to operate a digital business without a physical location and relatively little equipment. However, these lower barriers to entry would be expected to lead to more entrants, increasing competition. This is an important consideration for inclusive entrepreneurship policy because increased competition will likely have a negative impact on business survival rates. It is therefore unwise for policy makers to direct public resources towards supporting entrepreneurs with little chance of success in highly competitive industries that may already be characterised by an oversupply of goods and/or services.

Digital transformation is also facilitating new types of work and self-employment. For example, the “gig” economy has led to a new type of work being created that blurs the line between employment and self-employment (Box 7.3). This type of work accounts for a small but growing share of the labour market and although these workers are organised through digital platforms, they are not generally considered to be digital entrepreneurs. Nonetheless, this type of work does hold some potential for improving access to work for those on the margins of the labour market. However, there are some concerns among policy makers that work in the “gig” economy is often precarious since many of these workers have low earnings, relatively low levels of autonomy and little chance for career progression (OECD/EU, 2017^[29]).

Box 7.3. Are workers in the “gig” economy entrepreneurs?

Digital transformation has facilitated the creation of the gig economy (also known as the collaborative economy or the platform economy), which is often defined as economic and social activities that are facilitated by online platforms (OECD, 2018^[30]). These platforms typically facilitate transactions that occur outside of traditional business structures by (OECD, 2019^[31]):

1. Individual sellers of goods and services (including self-employed) to individual consumers, i.e. the sharing and gig economy;
2. Business sellers of goods and services to individual consumers – business-to-customer (B2C);
3. Business sellers of goods and services to business consumers – business-to-business (B2B).

This has led to an increase in business creation because many workers in the gig economy operate as self-employed workers that are co-ordinated through online platforms that are operated by large, well-resourced firms. This work typically involves performing very short-term tasks (e.g. short-term driver services, food delivery) and has blurred the relationship between workers and firms because it combines elements of self-employment and employment (OECD/EU, 2017^[29]). Most of these workers do not work in the digital economy and should not be considered digital entrepreneurs.

The number of people working in the gig economy has grown over the past decade (European Commission, 2019^[32]) and many millions of people worldwide are now working on platforms. For example, Uber had more than three million active drivers worldwide who completed about four billion rides in 2017 (Bhuiyan, 2018^[33]). More broadly, the COLLEEM survey¹ of 14 EU Member States indicates that at most, just under 2% of the entire labour force, on average, report platform work as their primary activity (Pesole et al., 2018^[34]). In the United States, a recent estimate indicates that platform workers accounted for 1% of total employment in May 2017 (BLS, 2018^[35]). Most of the other existing studies covering a range of countries have typically produced estimates that vary between 0.5% and 3.0% of the labour force (OECD, 2018^[36]). However, it is likely that many of these workers are working part-time to generate a second income.

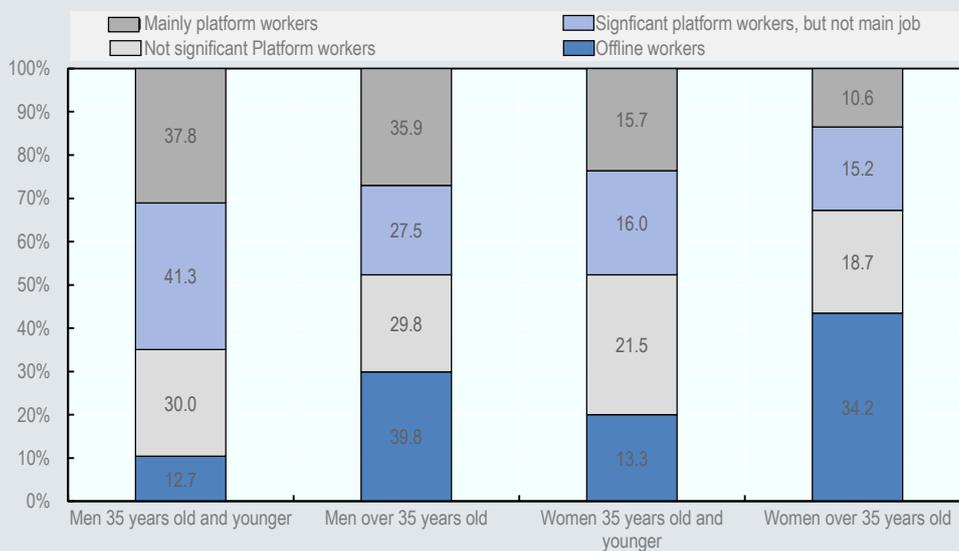
The gig economy holds potential for providing a level playing field for all, since the work is distributed by algorithms. This may reduce any discrimination in the market as long as the algorithms themselves do not discriminate. There is a growing body of research that

suggests that those who work in platform economy are likely those who face disadvantages in employment. For example, Uber drivers that work the most tend to be those with the fewest options in employment (Cook et al., 2019_[37]). Further insights into platform workers can be gleaned from the COLLEEM survey (Pesole et al., 2018_[34]). First, it is clear that young workers are disproportionately represented among platform workers. Second, the more intensively the individual does the platform work, the more likely they are young. Moreover, when age and gender are examined together, there is an even more dramatic split, with the share of older women progressively decreasing as the intensity of platform work intensifies (Figure 7.1).

This type of self-employment has both benefits and drawbacks for individuals and society. More people can access flexible work through these platforms but these workers tend to enjoy few of the advantages of employment (e.g. social security protection), few of the advantages of self-employment (e.g. task diversity) and all of the disadvantages that are associated with self-employment (e.g. low income, financial insecurity, long working hours) (OECD/EU, 2017_[29]). Moreover, there is evidence that workers in the gig economy are not able to overcome some of the gaps in labour market outcomes. Research on Uber drivers found that gender gaps in earnings persisted and were mostly due to gender-based preferences such as the value of time not spent at paid work and driving speed (Cook et al., 2019_[37]).

Figure 7.1. Platform workers are mostly young males

Characterisation of labour market activities by age and gender, 2018



Source: (Pesole et al., 2018_[34])

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Productivity growth can be boosted through innovation and firm-level efficiencies

At the macro level, digital transformation may be able to increase productivity growth by enabling innovation and reducing the costs of a range of business processes. Although

aggregate productivity growth has slowed over the past decade, there is evidence to show that the digital transformation is having an impact on firm-level productivity (OECD, 2019_[38]). Greater impacts at the economy-level are expected to emerge as digital transformation evolves and digital technologies, business models and practices are adopted by more firms and industries, and as digital-intensive firms gain market share (OECD, 2019_[38]). Public policy can have a role in unlocking this potential productivity growth by ensuring that complementary investments are made in digital skills, process innovations and new business models.

Digital transformation impacts different industries and firms differently. Accordingly, the way in which digital transformation also affects productivity varies since adoption rates of digital technologies vary greatly across sectors, and also across firms within sectors. There is evidence that the most advanced firms have not slowed their rate of productivity growth, but the aggregate productivity slowdown due to laggard firms and the growing productivity divide between frontier firms and those with limited capabilities or incentives (Andrews, Criscuolo and Gal, 2016_[39]). This productivity gap may be driven partly by digitalisation, but also by differences in access to skills since less productive firms may have greater difficulties attracting workers with the skills needed to adopt digital technologies.

New technologies and platforms may hold potential for strengthening social and economic inclusion

Given the potential lower barriers to entry for many digital businesses, many suggest that digital entrepreneurship holds potential for making entrepreneurship more inclusive (Pappas et al., 2018_[40]; van Welsum, 2016_[10]). This argument is underpinned by three points. First, reduced costs of starting and managing a digital business so that more people can afford to consider business creation. Second, digital entrepreneurship can conceal visible disadvantages, which can boost the entrepreneurs' self-confidence and reduce any discrimination in consumer and financial markets. (Dy, Marlow and Martin, 2017_[41]) Third, the rise of the digital economy has led to new types of finance and new ways of accessing start-up finance. This democratised access to capital will create new opportunities to access start-up financing, especially for women entrepreneurs (Greenberg and Mollick, 2017_[42]; Sorenson et al., 2016_[43]). These all combine to create an opportunity for potential entrepreneurs from under-represented and disadvantaged groups to overcome many of the barriers faced in business creation.

However, this perspective is not universally accepted. For example, an empirical study from the United Kingdom on women digital entrepreneurs challenges the notion that the Internet is a neutral platform for entrepreneurship and argues that social class has a significant impact on resource acquisition also for digital businesses (Martinez Dy, Martin and Marlow, 2018_[28]). Similarly, a recent analysis of the recent Belgian law on the “sharing economy” found that regulatory exemptions for platform-mediated employment reinforced labour market exclusion rather than reducing it (Zanoni, 2019_[44]). This is consistent with broader labour market research that finds that women's under-representation in the ICT sector is largely due to wider structural inequalities, including cultural norms and practices (Maclean, Marks and Chillias, 2017_[45]). Therefore, the small but growing body of research suggests that many of the challenges faced by women in the digital economy carry over into digital entrepreneurship. It is, however, important to recall that some of these differences may be due, at least in part, to gender-based preferences as noted by research on Uber drivers (see Box 7.3).

The evidence base for other social groups such as minorities, immigrants, seniors, youth is very thin and has been noted as an important gap for researchers to address (Zaheer, Breyer and Dumay, 2019^[46]).

How many digital start-ups are there?

Estimates suggest the number of digital start-ups is increasing

It is estimated that the digital economy already contributes up to 8% of GDP in G20 countries (European Commission, 2014^[14]) and accounts for just under 10% of value added, income or employment in most economies (IMF, 2018^[47]). Further, recent estimates in the EU indicate that 13.6% of firm's turnover comes from e-commerce (European Commission, 2016^[8]). These estimates come with several caveats. First, definitions of the digital economy vary so estimates are likely not perfectly comparable. Second, current statistical classification systems were developed to measure economic activity in a pre-digital world so many digital activities are not probably quantified (Ahmad and Ribarsky, 2018^[48]). This is further complicated by the varying impact of the digital transformation across all sectors.

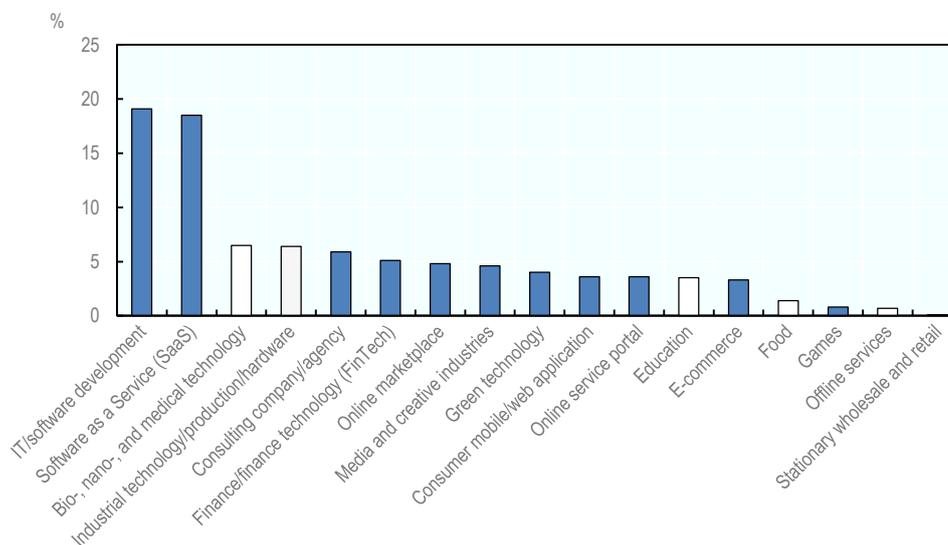
There is also a body of work that shows that digital sectors tend to have high entry and exit rates and disproportionately contribute to job creation. Between 2006 and 2016, about 40% of new jobs in OECD countries were created in highly digital-intensive sectors (OECD, 2019^[49]). However, the entry rates and job reallocation rates (i.e. the sum of job creation and job destruction rates) in highly digital-intensive sectors are declining because advanced technologies are maturing (Calvino and Criscuolo, 2019^[50]). These findings are consistent with earlier results published in the European Commission's Digital Entrepreneurship Scoreboard 2015, which noted high birth rates in ICT sectors in many EU Member States such as Latvia, France and Lithuania (European Commission, 2016^[8]).

In 2018, an international survey by the European Startup Monitor (an umbrella organisation for start-up associations) found that five of the top seven sectors in terms of new firms in 2018 were digital sectors. This survey covered new start-ups, business development service providers and business associations, and sought to identify firms that: i) are less than ten years old; ii) use innovative technologies and/or business models; iii) seek significant employee and/or sales growth. While this is not perfectly aligned with the concept of the digital start-ups, an attempt is made to identify digital businesses.

More than one-third of the innovative start-ups surveyed were in the IT/software development sector (19.1%) or software as a service (18.5%) (Figure 7.2). Of the 18 countries surveyed in 2018, the IT/software development sector was the most common sector in eight countries and software as a service in another eight (Steigertahl and Mauer, 2018^[51]). Overall, the survey suggests that digital start-ups account for the majority of new businesses created and that this share is growing (Steigertahl and Mauer, 2018^[51]). However, it is likely that this survey over-estimates the share of digital businesses in the economy because the sample frame is not fully comprehensive. Moreover, the survey is conducted online so there is a bias towards digital businesses.

Figure 7.2. Digital start-ups account for a growing share of new businesses

Distribution of innovative start-ups by sector, 2018.



Note: Blue bars indicate sectors that are defined as digital sectors.

Source: (Steigertahl and Mauer, 2018^[51])

StatLink  <http://dx.doi.org/10.1787/888934066482>

A small number of national studies have attempted to estimate the number of active digital businesses. In the Netherlands, for example, estimates suggest that businesses with an online presence in 2015 accounted for 87% of turnover and 86% of employment in the business sector (Ostrom et al., 2016^[52]). However, when the online economy is defined more narrowly as online stores, online services and Internet-related ICT services, the shares of turnover and employment were 7.7% and 4.4%.

Moreover, some research has investigated the different profiles and motivations of digital entrepreneurs. A large survey was undertaken in the United Kingdom and a cluster analysis based on a large survey identified six profiles and four motivations (Box 7.4). These insights can be helpful for policy makers in designing and targeting digital entrepreneurship policies and programmes.

Box 7.4. Who are the digital entrepreneurs in the United Kingdom?

GS1, a business organisation in the United Kingdom with more than 39 000 members working in retail, foodservice, healthcare and more, conducted a digital entrepreneurship survey of its membership in 2017. The aim of the survey was to better understand the different profiles of digital entrepreneurs, including their characteristics and motivations (GS1 UK, 2017^[53]).

There are many different profiles of digital entrepreneurs...

- *Traders* (account for 38% of digital entrepreneurs): These entrepreneurs identified an opportunity to generate income, often using a strategy of identifying new products and

trends. They often offer lower cost products at high volumes and sell through multiple online channels.

- *Creatives* (25%): These entrepreneurs were usually relative new to online markets and tended to focus on a single online marketplace. Many had created their business from a hobby, operated out of their home and used the activity for supplementary income.
- *Innovators* (14%): These entrepreneurs often started as an online business and continuously look to expand. They often focus on niche products and services, and offer a smaller range of products and worked with small teams of people who are committed to helping them operate and grow their business.
- *Growers* (12%): These entrepreneurs often started a traditional business offline and recognised the need to move online. Their focus is on expanding sales of their products and services to new customers through online marketplaces.
- *Pioneers* (8%): These are experienced users of online marketplaces who were likely early adopters. They often selectively use a range of marketplaces based on their products and customers. Many have enjoyed stable growth and are looking to increase sales as well as internal processes.
- *Leaders* (3%): These are often larger businesses with many sales channels. International growth is a priority.

...and they tend to have different motivations

- *As a hobby*: These businesses usually sell simple items in small quantities. The products might be home-made, personalised or have a very small amount of value added. These include entrepreneurs selling on platforms such as Etsy. Sellers may expand their business to larger platforms such as Amazon or eBay.
- *As a testing bed for new products*: Entrepreneurs with a more established presence may develop new products for sale on platforms such as Amazon or Ebay to test consumer demand before integrating these products with existing offers.
- *As a platform to grow their customer base*: Entrepreneurs who are established on several marketplaces tend to use Google Shopping to help with marketing and reach a broader customer base. Online marketplaces provide a platform to scale-up businesses that focus on online sales.
- *As an additional sales channel*: Entrepreneurs that primarily operate offline may open up a new sales channel by offering some products in online marketplaces to complement existing sales channels.

Source: (GS1 UK, 2017^[53])

Women, youth and seniors are under-represented among digital entrepreneurs

The European Startup Monitor survey suggests that women, youth and seniors are under-represented among “startup founders” (see previous section for a brief description of how start-ups are identified). In 2018, women accounted for only 15.6% of start-up founders, which was essentially unchanged from 2016 (14.8%) (Steigertahl and Mauer, 2018^[51]). At the country-level, the proportion of women among “startup founders” ranged from 5.1% in

Portugal to 23.9% in Poland. Similarly, youth and seniors appear to be fairly unlikely to operate innovative and digital businesses. In the 2018 survey, the average age of “startup founders” was 35 years old (Steigertahl and Mauer, 2018^[51]), which is slightly outside of the definition of youth used in this report (20-29 years old). Further insights are available in the 2016 European Startup Monitor results where the sample allowed for a distribution of “startup founders” by age. Approximately 5% were under 25 years old and 4.5% were over 55 years old (Kollmann et al., 2016^[54]). As noted in the previous section, it is difficult to assess the reliability of these estimates given that the sample used for the survey may not be representative.

These findings are broadly consistent with the results from the 2015 European Working Conditions Survey, which found that females accounted for 23.4% of entrepreneurs in the ICT sector (European Commission, 2016^[55]). Although the use of the ICT sector is a rather narrow measure of digital entrepreneurship, it is noteworthy that investments in women-founded firms in the ICT sector perform 63% better than those in ICT firms founded by men (European Commission, 2016^[55]). This survey also found that the average age for female entrepreneurs in the ICT sector was 43 years old, which was slightly below the average age in non-ICT firms (46.5 years old).

Obstacles to digital entrepreneurship for people from under-represented and disadvantaged groups

All entrepreneurs face barriers in business creation, including access to finance, a lack of entrepreneurship skills and high levels of administrative and regulatory burden. Many of these barriers also apply to digital entrepreneurship, but in slightly different ways because the organisational structures, processes and activities are likely different in digital intensive businesses. It is therefore necessary to consider the specific barriers to digital entrepreneurship, which may differ from the traditional barriers to business creation. Barriers to digital entrepreneurship tend to be greater for those from under-represented and disadvantaged groups – including women, immigrants, youth, seniors, the unemployed, and people with disabilities – as digital inequality often mirrors offline resource inequality (Ignatow and Robinson, 2017^[56]).

In addition to considering the barriers that individuals face, it is also important for policy makers to consider how the regulatory environment affects digital entrepreneurship. Existing regulations have largely been implemented for non-digital industries and may stifle digital entrepreneurship. Three key regulatory areas that affect digital entrepreneurship are product market regulations (PMRs) (i.e. regulations for business entry and foreign entry, public ownership, vertical integration and price regulations), competition policy and regulatory harmonisation across jurisdictions.

Strictness in PMRs has been found to be important for the efficient allocation of resources, the growth of successful firms and the exit of unsuccessful establishments thereby contributing to overall aggregate growth (DeStefano, De Backer and Moussiégt, 2017^[57]). Less restrictive PMRs can induce greater ICT use since competitive pressure induces firms to adjust to productivity shocks by investing in new technologies (DeStefano, De Backer and Moussiégt, 2017^[57]).

Competition policy is also important for stimulating innovation and business creation, particularly in the telecom sector which often facilitates digital entrepreneurship. More competitive telecom sectors are more encouraging of technology adoption by reducing the price of telecom products and services and therefore enabling for more ICT use (DeStefano,

De Backer and Moussiégt, 2017^[57]). It is also important with respect to new technologies, products and sectors. Blockchain technology and cryptocurrencies such as Bitcoin have a large potential for innovation but have been adversely affected by unclear legal status (Orcutt, 2019^[58]; NESTA, 2016^[59]).

Furthermore, since digital start-ups are very often international, regulations often vary across jurisdictions making it difficult for digital entrepreneurs to operate relatively seamlessly across jurisdictions. This is particularly important for entrepreneurs from disadvantaged groups who typically lack knowledge about the regulatory environment and have more difficulty accessing legal advice and support from the networks or professionals (OECD/The European Commission, 2013^[60]).

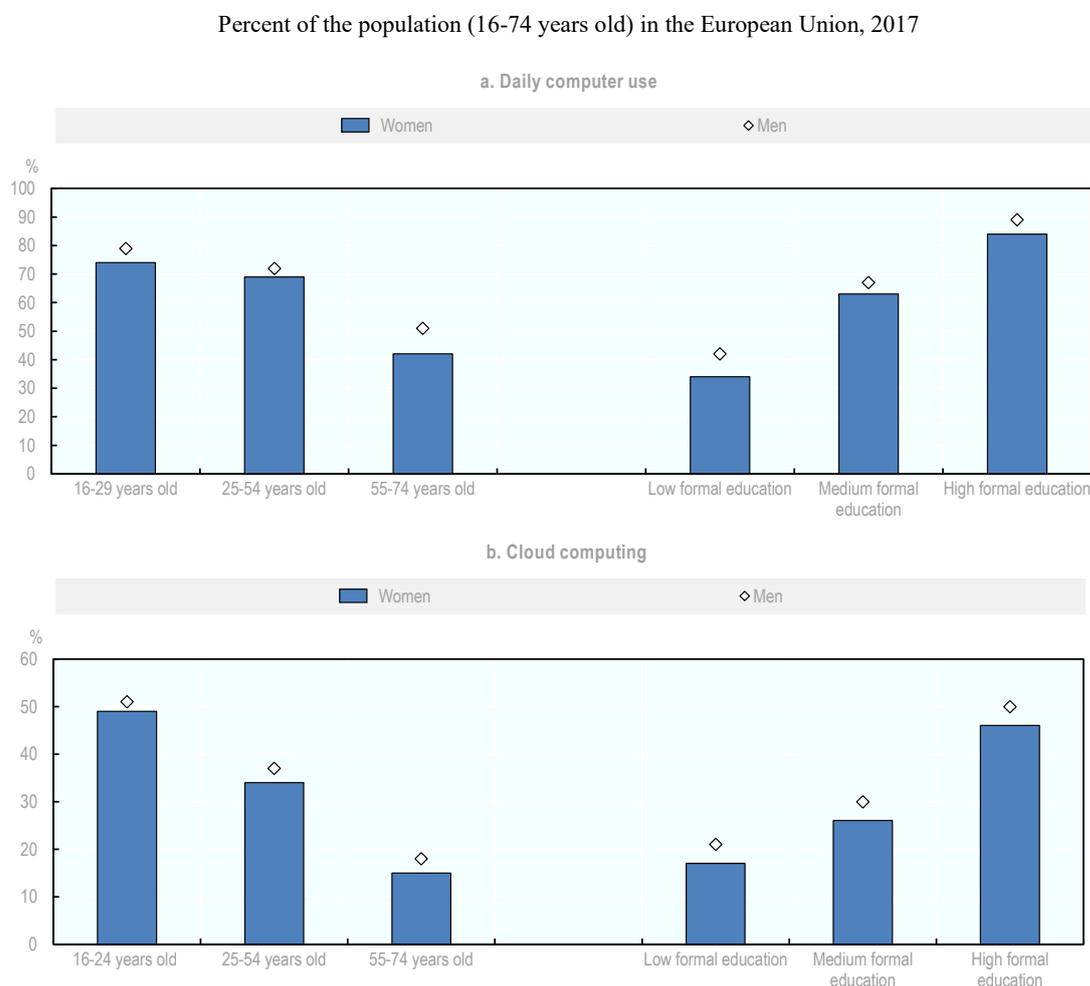
Women, seniors and the unemployed lack of digital skills

A lack of basic digital skills significantly hinders an individual's ability to be successful in creating digital businesses, or adopting digital technologies if they are already self-employed. This includes the ability to identify technology-enabled business opportunities and exploit them (van Welsum, 2016^[10]).

Overall, it is estimated that 37% of the workforce in the EU do not have basic digital skills (European Commission, 2017^[61]), and disaggregated data reveal gender and age gaps. Those between 55 and 74 years old were the least likely age group to use computers daily (51% of men and 42% of women), and very few used cloud computing in 2017 (18% of men and 15% of women) (Figure 7.3). These low usage rates suggest that older people have low levels of digital skills and this is confirmed by research that examines abilities to use technology. Only one in ten people in OECD countries between 55 and 65 years old can complete tasks involving multiple steps and requiring the use of specific technology applications such as online forms relative to 42% of those between 25 and 34 years old (OECD, 2015^[62]). This is consistent with academic research that has found that seniors tend to lack basic digital skills (Kadefors, 2011^[63]).

Although the vast majority of youth use computers daily and about half use cloud computing, some youth lack basic digital skills. Children that live in households with parents that have low levels of digital literacy are less likely to be able to maximise use of technology (Thompson Jackson, 2009^[18]). In addition, a recent survey by the Prince's Trust in the United Kingdom suggests that about half of youth that are not in employment, education or training (i.e. NEETs) do not consider themselves "very good" at using computers relative to 71% of a broader sample of youth (Jones, Brinkley and Crowley, 2015^[64]). Moreover, about one-quarter of NEETs lack confidence when undertaking basic tasks with a computer such as creating a spreadsheet (Jones, Brinkley and Crowley, 2015^[64]). A lack of basic digital skills would greatly diminish the chances of launching a sustainable digital business.

Figure 7.3. Young people are most likely to be regular users of computers and cloud computing



Note: Low formal education refers to levels ISCED 0 (less than primary education), ISCED 1 (primary education) and ISCED 2 (lower secondary education). Medium formal education refers to ISCED 3 (upper secondary education) and ISCED 4 (post-secondary non-tertiary education). High formal education refers to ISCED 5 (short-cycle tertiary education), ISCED 6 (bachelor's or equivalent level), ISCED 7 (master's or equivalent level), and ISCED 8 (doctoral or equivalent level).

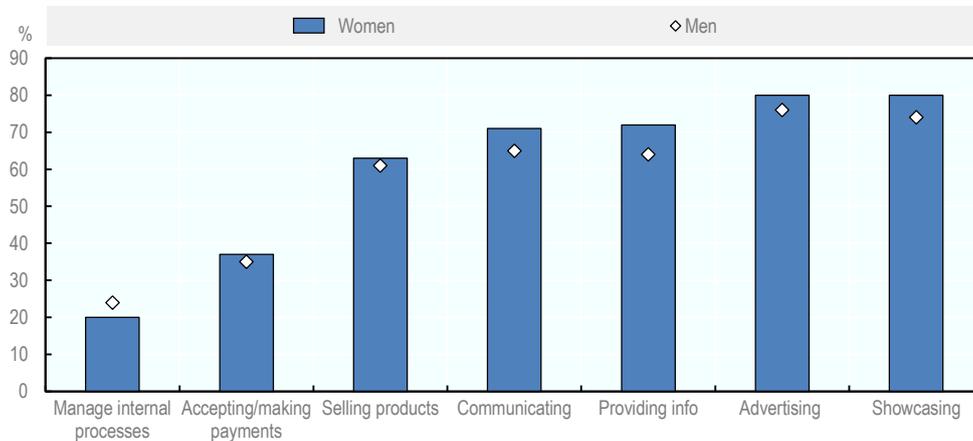
Source: (Eurostat, 2019^[65])

StatLink  <http://dx.doi.org/10.1787/888934066501>

While the gender gaps in Figure 7.3 are quite small, other data suggest that men and women entrepreneurs use digital tools differently. Men entrepreneurs appear to be slightly more likely to use online tools to improve business operations, whereas women entrepreneurs appear slightly more likely to use online tools for interacting with customers (Figure 7.4). This is consistent with earlier academic studies that found that women entrepreneurs were as likely as men entrepreneurs to use computers but less likely to use them to pursue business opportunities such as accessing online marketplaces and streamlining business processes (Braun, 2008^[66]).

Figure 7.4. Women entrepreneurs appear more likely to use online tools to communicate with customers than men but slightly less likely to use them for internal processes

Percent of entrepreneurs with an online presence that use online tools, March 2018



Source: (Facebook / OECD / The World Bank, 2018^[67])

StatLink  <http://dx.doi.org/10.1787/888934066520>

Evidence on digital skill levels for other population groups (e.g. the unemployed, immigrants) is very thin and it is therefore difficult to draw strong conclusions about the extent to which digital skills are a barrier to digital entrepreneurship. In general, the long-term unemployed are likely to have low skills levels (OECD/EU, 2014^[68]) and it is clear from Figure 7.3 that those with lower educational attainments are less likely to use computers regularly. Therefore, digital skills appear likely to be a barrier to the creation of digital businesses for the unemployed. Immigrants are a mixed group and many are likely to have high levels of digital skills, including those who immigrate on economic classes and as students in higher education. However, others who immigrate as family or humanitarian immigrants likely have low levels of digital skills (OECD, 2019^[69]). Digital skills therefore appear to be a barrier to the creation of digital businesses for the latter group, as well as adoption of digital technologies by those that are self-employed.

Social attitudes can lead to self-selection away from digital sectors, particularly for women

Social attitudes often discourage certain population groups from considering entrepreneurship as a labour market activity (OECD/The European Commission, 2013^[60]) and this is also true for digital entrepreneurship. There is some evidence that, on average, social attitudes play a strong role in shaping women's desire to pursue digital entrepreneurship (Pappas et al., 2018^[40]). This is often explained by three key factors: a lack of suitable digital role models, discrimination and the role of education in shaping social attitudes and labour market decisions.

There are few digital entrepreneurship role models for people from disadvantaged groups

A lack of role models in digital entrepreneurship can have a negative influence on an individual's decision to start a digital business or adopt digital technologies for those who

are self-employed. This is a strong barrier for women, as they are greatly under-represented in science, technology, engineering and mathematics – both in education and in the labour market (OECD, 2017^[13]). This under-representation in digital fields overall leads to fewer women pursuing digital entrepreneurship and reduces the visibility of those who are active. Other women entrepreneurs and young women are therefore deprived of being exposed to strong role models in digital entrepreneurship, which has a negative impact on how digital entrepreneurship is viewed.

This issue also affects other under-represented and disadvantaged groups such as seniors for the same reasons. Seniors are much less likely to use digital technologies due to low levels of digital skills and lower levels of confidence with technology. Consequently, there are relatively fewer older digital entrepreneurs and they are less visible to other senior entrepreneurs.

However, there are many digital entrepreneurship role models for youth and immigrants. Both of these groups are over-represented in this sector, but gender remains an issue in both social groups.

Discrimination can discourage digital entrepreneurship

A second element of an unsupportive entrepreneurship culture is discrimination. This can come in the form of discrimination from consumers that is based on misperceptions about innovativeness or digital skills. This type of discrimination is frequently reported by women (Pappas et al., 2018^[40]), seniors (Kibler et al., 2012^[70]) and people with disabilities (Halabisky, 2014^[71]). For example, cultural norms and practices in the ICT sector can present challenges to females due to a male-dominated work culture and pressures to prioritise work-life over family-life (Pappas et al., 2018^[40]).

Further, “statistical discrimination” is common in digital and ICT sectors (European Commission, 2013^[72]). This phenomenon is where the average behaviour for women, for example, is viewed as the characteristic of all women. While it is true for women’s entrepreneurship overall (Muravyev, Talavera and Schäfer, 2009^[73]), it is particularly strong in digital entrepreneurship due to the small number of women involved in running digital businesses and a lack of role models.

Formal education can reinforce stereotypes in digital and technology fields

The formal education system has a strong role creating social attitudes that are supportive of entrepreneurship by increasing the understanding of the role of entrepreneurship in an economy, building entrepreneurial mindsets and start-up intentions, and developing entrepreneurship skills (OECD/The European Commission, 2013^[60]). Efforts to embed entrepreneurship education in the formal education system have increased significantly in the past two decades (European Commission/EACEA/Eurydice, 2016^[74]).

However, several challenges remain with respect to promoting digital entrepreneurship. One of the challenges to building digital skills among youth is modernising education and training systems to ensure that teachers are equipped with the skills and resources to teach basic and advanced digital skills to students (Thompson Jackson, 2009^[18]). A second important challenge is the gender bias that influences male and female students to take different learning pathways and study different subjects. Women are under-represented in STEM subjects (Mostafa, 2019^[75]; Pappas et al., 2018^[40]) because they make different educational choices (OECD, 2017^[13]), often due to a lack of suitable role models (Bettinger and Long, 2005^[76]). Moreover, there is some research that suggests that female students

are less likely to use e-learning and digital tools during their education (Pappas et al., 2018_[40]).

External finance is a greater challenge for digital female entrepreneurs and those with low skills levels

Not all digital start-ups seek external investment due to the lower entry costs (see earlier section on the benefits of entrepreneurship), but those who do often find it to be difficult. Digital businesses are typically characterised by a relatively high risk with a lack of tangible assets that can be used as collateral to obtain bank loans. The need for personal capital is more likely to be difficult for potential entrepreneurs from under-represented and disadvantaged groups since they are less likely to have savings and personal assets that can be used to obtain financing.

The small but growing evidence base on digital businesses supports this. Women entrepreneurs have been found to have greater difficulties accessing start-up financing for digital businesses than men due to the male-dominated environment in the ICT sector and male dominated networks (Hampton, McGowan and Cooper, 2010_[77]; Alakaleek and Cooper, 2018_[78]). Another important factor is the under-representation of women on the supply side of the financial market, notably among business angles and venture capitalists that typically invest in digital-intensive businesses (Cain-Miller, 2010_[79]).

It is also important to consider the interrelatedness of barriers (OECD/The European Commission, 2013_[60]). Those with low levels digital skills and entrepreneurship skills among groups such as women, youth and seniors are likely to have difficulty convincing investors and lenders about the quality of their business idea since financiers typically assess the skills and previous experiences of the founders among their assessment criteria.

How can public policy support digital entrepreneurship for people from under-represented and disadvantaged groups?

Public policy has a role in encouraging and supporting the adoption and effective use of digital technologies by entrepreneurs and SMEs by addressing market failures, notably in the areas of access to finance, skills and information. It is also important to adopt a long-term strategy to address many of the cultural obstacles that cause individuals to self-select out of technology fields.

Overall, the environment for digital entrepreneurship needs to be strengthened. Digital entrepreneurship can be highly innovative, leading to the development of new products, markets and processes. This, along with the rapid pace of change, can create challenges for regulators due to the need to balance their role of enforcing safety and standards, and/or protecting consumers without stifling innovation.

One of the main regulatory challenges in the EU is to improve the coherence of regulations across jurisdictions. This includes actions at the EU-level such as the EU Digital Single Market (European Commission, 2019_[80]), which seeks to create a single market in the EU with free movement of goods, persons, services, capital and data, as well as update rules around data and privacy, and improve connectivity. This would facilitate digital entrepreneurship by making it easier to operate a digital business across the EU, including those from under-represented and disadvantaged groups even though there are no targeted actions. There are also many actions at the national level that aim to facilitate digital entrepreneurs, including “regulatory sandboxes” that engage entrepreneurs, SMEs and larger companies in the development of regulations to allow for experimentation and

greater flexibility in the development of regulations in sectors that evolve rapidly (NESTA, 2016^[59]). These complement ongoing efforts to reduce tax compliance costs and harmonising tax regimes across jurisdictions (see Chapter 8 for further discussion).

In addition, there are some specific actions that can be used to support inclusive entrepreneurship.

Build a more inclusive culture towards digital start-ups

Increase awareness among policy makers about the digital entrepreneurship

The first step to building positive and supportive social attitudes towards digital entrepreneurs from different backgrounds is to better inform decision-makers about the digital economy and to collect more information and data on the scale of digital entrepreneurship activities. Many efforts are already ongoing at international organisations such as the OECD (Box 7.5), including work to better define the digital economy and digital entrepreneurship. This also includes international discussions on how to improve measurement of digital economic activities such as the proposed framework for satellite accounts in national accounting systems to measure digital economic activities (Ahmad and Ribarsky, 2018^[48]).

Box 7.5. OECD Going Digital Initiative

The OECD has been examining how the digital transformation affects policymaking across a large spectrum of policy areas since 2017, including competition; consumer policy; digital economy policy (privacy, security, infrastructure, economic impact); science, technology and innovation; industry and entrepreneurship; insurance and private pensions; financial markets; fiscal affairs and taxation; statistics; economic policy (monetary, fiscal and structural); education and skills; employment and social affairs; public governance; and trade. The project draws on national experiences and policy experimentation occurring across the OECD's member countries, accession countries, key partners and many other economies involved in the OECD's work. These countries offer a rich diversity of approaches, challenges and levels of development. The OECD has also been engaging policy makers and stakeholders in a variety of ways. The OECD welcomes the active involvement and contributions of governments and stakeholders in this work.

The March 2019 Going Digital Summit marked the end of the first phase of the project. Over 2019 and 2020, Phase II aims to help countries implement an integrated policy approach to the digital transformation, especially through further development of the Going Digital Toolkit (including indicators, policy notes and innovative policy examples) and Going Digital national reviews. Phase II will also address new opportunities and challenges through analysis of frontier technologies, notably artificial intelligence and blockchain, with an ongoing focus on jobs, skills and social inclusion, and on productivity, competition and market structures (including the evolving role of platforms and SMEs).

A key achievement of this work was the formal adoption of intergovernmental policy guidelines on Artificial Intelligence (AI), which sets out international standards that aim to ensure AI systems are designed to be robust, safe, fair and trustworthy (OECD, 2019^[81]). The 36 OECD countries, as well as Argentina, Brazil, Colombia, Costa Rica, Peru and

Romania adopted these principles in May 2019. These principles also have the backing of the European Commission.

For more information, please see: <https://www.oecd.org/going-digital/>

A number of EU-level actions have been launched by the European Commission to promote digital entrepreneurship. Key recent actions include the Digital Entrepreneurship Monitor to raise awareness about digital entrepreneurship and identify relevant policy actions, the Strategic Policy Forum on Digital Entrepreneurship (2014-16), and the Enabling Digital Entrepreneurship policy framework (European Commission, 2014_[14]). In addition, the Entrepreneurship 2020 Action Plan was launched in 2012 to stimulate entrepreneurship in the EU, including digital entrepreneurship, and also make entrepreneurship more inclusive (Box 7.6). However, there are mixed views on the impact of the Action Plan. Entrepreneurship education is generally considered to have been strengthened since 2012 (European Commission/EACEA/Eurydice, 2018_[82]) but challenges remain, including addressing the unevenness of adoption. However, others have pointed out that efforts to reduce regulatory burden are unclear, access to finance appears to have become more difficult for most and little impact on culture can be observed since most EU initiatives are online or are still in the early stages of implementation within the Member States (Ganderson, Giulla and Gauci, 2019_[83]).

Box 7.6. Entrepreneurship 2020 Action Plan

The Entrepreneurship 2020 Action Plan was launched in 2012 to support the EU 2020 Strategy. It aims to stimulate growth and create new jobs by removing obstacles to business creation and building a culture of entrepreneurship. The Entrepreneurship 2020 Action Plan identified three areas for immediate intervention:

1. Entrepreneurial education and training to support growth and business creation;
2. Removing existing administrative barriers and supporting entrepreneurs in crucial phases of the business lifecycle;
3. Reigniting the culture of entrepreneurship in Europe and reaching out to women, seniors, migrants, the unemployed, and young people.

The Action Plan also outlines several actions to support digital entrepreneurship. It notes that the Commission will strengthen digital skills, develop an online market monitoring mechanism to build a knowledge base on market trends and innovative business models, promote the benefits of digital transformation to entrepreneurs and SMEs and building

European networks such as a European Mentors Networks. The Action Plan also contains launch specific for digital entrepreneurs, such as:

- Creating the Start-up Europe Partnership to offering mentoring, technology adoption services to help entrepreneurs and SMEs scale-up;
- Launching a Web Entrepreneurs Leaders Club to bring together world-class digital entrepreneurs and strengthen the web entrepreneurial culture in Europe;
- Build a European network of web business accelerators;
- Work with European investors in order to increase the flow of venture capital and crowd-funding into web start-ups; and
- Foster digital talent by stimulating the emergence of Massive Online Open Courses and the setting up of platforms for mentoring, and skill building.

The Action Plan also calls on Member States to:

- Reinforce national or regional support for digital start-ups, including alternative financing instruments for early-stage technology start-ups, e.g. ICT innovation voucher schemes;
- Promote access for entrepreneurs to big data, e.g. cultural data set “Europeana”;
- Support the talented entrepreneurs, e.g. by encouraging, the brightest graduates to begin their career in start-ups;
- Adopt on-going policy initiatives such as the data protection reform;
- Use of European funds to foster digital entrepreneurship.

For more information, please see: https://ec.europa.eu/growth/smes/promoting-entrepreneurship/action-plan_en.

Source: (European Commission, 2013^[84])

Local, regional and national governments also have an important role to play in promoting the digital entrepreneurship and digitalisation for the self-employed. One approach used by government to improve their awareness about the digital economy and the potential for digital entrepreneurship is through roundtables with the private sector. This approach is part of Canada’s innovation policy called “Innovation for a Better Canada”. The public-private sector roundtable “Compete in a Digital World” included a range of public and private sector representative and was an opportunity for a mutual learning experience that led to the development of a set of policy recommendations for the federal government (Box 7.7).

Box 7.7. Compete in a Digital World Roundtable, Canada

Target group: Public and private sector stakeholders in the digital economy.

Intervention type: Roundtable discussion to explore key policy challenges.

Description: The roundtable was held in August 2016 and aimed to generate ideas to improve Canada’s competitive position in the digital economy. Participants included

representatives from the federal government, private sector and higher education. The four key questions discussed were:

- How can the Government support and engender an entrepreneurial society?
- How can Canada attract, retain and develop high-end talent?
- How can the government ensure that Canada, its students and companies can compete in a digital world?
- Is there a role for Government to help encourage investment in specific sectors of the digital economy?

Entrepreneurship was an important theme covered in the discussion as many participants noted the importance of fostering an entrepreneurial society. Sweden was highlighted as a successful example of creating entrepreneurship/innovation districts, attracting foreign talent and strengthening the relationship between large and small companies. Other topics discussed included digital infrastructure, commercialisation of applied research and digital skills.

Results achieved: Participants developed six recommendations for government following the day of discussions:

- Create innovation zones in major urban areas to promote collaboration between business and universities, including the development of common objectives and working groups with start-ups, SMEs, universities and other stakeholders.
- Create a forum to improve knowledge sharing around IT adoption.
- Strengthen entrepreneurship skills and digital literacy among entrepreneurs, researchers and businesses by (i) creating linkages between students and SMEs to help disseminate digital skills and knowledge and (ii) increasing flexibility in immigration policies to attract and retain highly talented individuals.
- Improve the quality of the digital infrastructure to improve innovation and data sharing.
- Consider relaxing foreign-ownership rules in telecommunication regulations to improve funding for digital infrastructures.
- Review data sharing regulations to ensure that they do not deter foreign parties from working in Canada and fund “open labs” at universities to allow businesses to test new technologies.

Lessons for other initiatives: This is an example of a public-private sector dialog that is a mutual learning experience. The public sector has an opportunity to learn about trends, new development and challenges faced from the private sector. At the same time, the private sector can learn about policy priorities and has an opportunity to potentially influence future policy directions. It is also an occasion to raise issues about inclusion so that future policies and programmes can meet the needs of different stakeholders.

Source: (Innovation, Science and Economic Development Canada, 2016^[85])

Use role models to inspire future digital entrepreneurs from under-represented and disadvantaged groups

Role models can play a crucial role in developing entrepreneurial spirit. Research shows that they have demonstrated an ability to impact an individual's entrepreneurial propensity, including through positive representations and stories in the media, through direct interactions and through learning material and case studies used in entrepreneurship education and training programmes (Bijedić et al., 2014^[86]).

Having diverse role models is especially important for digital entrepreneurship, as media tend to portray entrepreneurs as young male technology-oriented entrepreneurs. It is therefore important for policy makers to use role models to combat stereotypes and inspire potential digital entrepreneurs, particularly for women, migrants, seniors and youth still in school, see also (OECD/The European Commission, 2013^[60]). These groups, particularly women, tend to be more strongly influenced by role models than the mainstream population (OECD/The European Commission, 2013^[60]).

There are various approaches that governments can take for promoting digital entrepreneurship role models, including promoting them through media campaigns, at public events (e.g. conferences, business networking meetings), and in education and training programmes. The promotion of role models is a low-cost activity so the use of multiple channels can improve the reach and influence of role models. It is important to showcase digital entrepreneurs with different backgrounds and characteristics to demonstrate that it can be feasible for many people to be successful digital entrepreneurs. One approach used in Germany is to using digital entrepreneurship support programmes for women to create role models out of the participants (Box 7.8).

An example of a broader approach to creating female digital entrepreneurship role models is WeHubs, which was launched in 2015 as part of the EU's strategy on Women in Digital (Box 7.9). WeHubs is a European community that connects business ecosystems to support women entrepreneurs in the digital sector. Its objective is to showcase the potential of women entrepreneurs in the digital sector and to encourage ecosystems to support them in realising their potential. A major component of this project was gender-sensitisation of existing business and innovation centres (including business incubators and accelerators) to enable them to increase their representation of women clients, especially those with web-based start-ups.

Box 7.8. Female entrepreneurs of the future, Germany

Target group: Women entrepreneurs that have businesses with up to 30 employees.

Intervention type: Coaching to support the development and implementation of an action plan digitalisation.

Description: Female entrepreneurs of the future was launched in February 2018 by the Association of German Businesswomen (*Verband deutscher Unternehmerinnen, Vdu*), Global Digital Women (an international network of female digital pioneers), BRIGITTE Academy (a personal development initiative of the magazine BRIGITTE) and Amazon. The mission statement of the initiative is “No Digitalisation without diversity!”.

There were 160 applicants to the first round and 20 participants are selected based on an application letter or video that describes the applicant's business and challenges in the digital economy. Participants can access 20 coaches and digital experts for six months to

help them develop and implement a digital plan for their business. This includes strategies such as increasing brand awareness, optimising processes, identifying new sales channels, reaching new customers. Experts and coaches act as role models and the initiative aims to have participants be digital role models for other women entrepreneurs.

At the end of the programme, four winners are selected to receive greater visibility on Amazon platforms. The selection process is based on a multi-stage evaluation that focusses on commitment, approaches, progress made and decision making. The selection includes a jury from government, media, business sector and entrepreneurs.

Results achieved: Among the first cohort of 18 participants, nine launched an online shop or professionalised an existing one. All participants expanded their activities in online market places and expanded their customer base, including 16 who had new sales in other countries. After one year, these 18 women entrepreneurs had created 19 new jobs.

Lessons for other initiatives: This programme illustrates that developing partnerships with private sector actors can improve the quality of support provided, and also creates the potential of offer valuable prizes to help participants advance their business.

Source: (Deutsche Welle, 2019^[87])

Box 7.9. WeHubs (Women Web Entrepreneurs Hubs), European Union

Target group: Women web entrepreneurs and business support organisations.

Intervention type: Promotion and support of female digital entrepreneurship.

Description: WeHubs is part of the European Commission initiative Startup Europe, and receives funding from the EU's Horizon 2020 research and innovation programme. It aims to connect business ecosystems and offers tools to provide dedicated support and services to digital women entrepreneurs. Activities include direct support to women entrepreneurs, as well as webinars that encourage mutual learning among women's entrepreneurship support organisations.

WeHubs is a consortium of eight partner organisations led by the European Business and Innovation Centre Network (EBN) in Belgium. It has local hubs in Austria, France, Germany, Greece, Lebanon, Lithuania, Malta, Norway, Slovenia, Sweden and United Kingdom.

Results achieved: WeHubs has built a community of more than 800 business support organisations and more than 700 women digital entrepreneurs.

Lessons for other initiatives: WeHubs is an example of how policy makers can engage business support organisations that work with women to leverage the existing infrastructure rather than building a new one to provide digital support in parallel to the support infrastructure for offline businesses.

Source: (WeHubs, 2019^[88])

Support the development of digital and entrepreneurship skills

Build digital entrepreneurship skills in formal education

Education and training programmes need to offer youth opportunities to learn about and work with new technologies. The EU has been active in stimulating the use of digital technologies in education, including through the EntreComp and DigComp frameworks (Box 7.10). These were complemented by the Digital Education Action Plan (European Commission, 2018^[89]) to support the use of technology in education across the EU.

Education programmes for digital entrepreneurship need to simultaneously help students acquire digital skills and entrepreneurship skills, and understand how these skillsets can be used together. This can be accomplished in the classroom, or through extra-curricular activities such as student clubs, hackathons and start-up weekends. A new international programme led by the University of Tartu's (Estonia) Centre of Educational Innovation provides digital entrepreneurship education to students that are 14 to 19 years old (Box 7.11). This education programme is built around group work with students in other countries and provides individual mentoring for each student. An important element of this initiative is the training that is provided to teachers and mentors.

The success of digital entrepreneurship education depends largely on the capabilities of the teachers, which should have strong digital skills and entrepreneurship skills. The EU's Digital Skills and Job Coalition brings together EU Member States, private sector companies, social partners, non-profit organisations and education providers to develop solutions to address the lack of digital skills in Europe (European Commission, 2018^[90]). One key area of focus is strengthening digital skills in education and supporting teachers in delivering education for the digital economy, including MOOCs (i.e. Massive Open Online Courses, which are free online courses available for anyone to enrol) for teachers.

It is important for policy makers to address the gender gap in STEM subjects in education, which will help increase the share of women among digital entrepreneurs. Across OECD countries, boys are more than twice as likely than girls to expect to go on to have careers in technology related fields (OECD, 2017^[13]). Key policy actions to address this gap include addressing lower confidence levels in STEM subjects by providing more positive feedback to young girls and removing gender biases in teaching materials and methods.

Moreover, digital entrepreneurship can be boosted by strengthening entrepreneurship education in STEM subjects.

Box 7.10. EU frameworks to support the development of digital skills

EntreComp

The Entrepreneurship Competence Framework (EntreComp) is a reference framework that was developed by the Joint Research Centre (JRC) and the European Commission. It was designed to help students, and people more generally, understand what is meant by entrepreneurship as a key competence for lifelong learning. This framework seeks to support and inspire actions to improve the entrepreneurial capacity of EU citizens and organisations, by creating a shared understanding of the knowledge, skills and attitudes necessary to be entrepreneurial. The framework cover the support of digital skills and

supporting the training of educators, trainers and teachers to be able to deliver digital skills programmes.

For more information, please see: <https://ec.europa.eu/social/main.jsp?catId=1317&langId=en>.

DigComp

The European Digital Competence Framework (DigComp) offers a tool to improve digital competences. DigComp describes which competences are needed today to use digital technologies in a confident, critical, collaborative and creative way to achieve goals related to work, learning, leisure, inclusion and participation in our digital society. More specifically it identifies the following five key digital dimensions: i) information and data literacy, ii) communication and collaboration, iii) digital content creation, iv) safety and v) problem solving. An interesting case on the application of DigComp can be found in Emilia Romagna and their Digital Literacy and Inclusion Project (*Pane e Internet*) initiated in 2009, with the objective of enhancing citizens' digital competence and reduce digital exclusion – focusing especially on the elderly, unemployed adults and housewives. In this program, DigComp was used as a “knowledge tool” in the training of e-facilitators, improving their understanding of the importance of digital competence for inclusion.

For more information, please see: <https://ec.europa.eu/jrc/en/digcomp>.

Source: (European Commission, 2018^[91]; European Commission, 2018^[92])

Box 7.11. DigiYouth: Estonia, Finland, Latvia and Sweden

Target group: Students aged 14-19 years old.

Intervention type: Entrepreneurship education, experiential learning programme.

Description: DigiYouth is an international student start-up programme for schools that was launched in 2018. The programme brings together 220 students from Estonia, Finland, Latvia and Sweden to engage in development of digital products or services. The students start with idea creation and formation of teams, continue with prototyping and marketing and sales, providing practical experience.

The study module on digital entrepreneurship lasts for 1.5 years (three semesters). Students meet together every six months and between the meetings, they work with their colleagues regularly using video-conferencing and collaboration tools. The programme also includes activities such as hackathons and business idea and innovation competitions.

Another important element of the project is training for teachers and mentors. The project aims to provide training to 45 teachers and mentors so that they can better support the participating students in the entrepreneurship projects. Each student is paired with an individual mentor.

DigiYouth is co-funded by the EU's INTERREG Central Baltic Programme (with funding from the European Regional Development Fund) and has a total budget of EUR 1.6 million.

Results achieved: The aim of the programme for 2020 is to have 40 cross-border start-ups created by the 220 students. It also seeks to train 45 teachers and mentors in digital entrepreneurship education.

Lessons for other initiatives: The programme provides the students with practical skills combining the development of both digital skills and entrepreneurship as well as cross-border cooperation skills.

Source: <https://www.digiyouth.eu/>

Develop tailored digital entrepreneurship training and mentoring programmes for the self-employed from under-represented and disadvantaged groups

In addition to providing digital entrepreneurship education, policy makers should also develop digital entrepreneurship training programmes to reach potential entrepreneurs and the self-employed outside of formal education. The objectives of these programmes are to develop both digital and entrepreneurship skills, typically through applied projects or a digital business start-up. These programmes offer both traditional entrepreneurship training modules that cover business planning and financial skills, as well as specialised digital modules that cover digital media skills and digital marketing. An important element of programmes should be to boost digital literacy so that potential entrepreneurs and the self-employed can understand how digitalisation can improve their business operations and increase opportunities.

Where there are a sufficient number of potential participants, tailored training programmes should be used to address the gaps in digital skills (e.g. seniors, women) and entrepreneurship skills. The use of tailored programmes will also help make the programmes more attractive to participants because many people in these groups have lower levels of self-confidence in their ability to use digital technologies (OECD, 2019^[3]; OECD, 2018^[93]).

Experiments in UK, Austria, Slovenia and Macedonia with people between the ages of 57 and 84 years old demonstrate that the use of tactile technologies and a game-based method can be effective at teaching digital skills (Blažič and Blažič, 2018^[94]). This set of experiments shows that digital skills can be acquired by those who have not used technology and have low levels of self-confidence in working with digital technologies. The keys to success in this research were to ensure that the learning was fun and to help the participants overcome the instinct to overthink what they were doing.

A critical success factor for any digital entrepreneurship training programme is the quality of the trainers. It is therefore important that policy makers also ensure that adequate support is available to ensure that trainers are well-equipped with skills and training materials. An example of a training programme for trainers is TREND (Box 7.12), which is led by *Foreningen Mikrofinans Norge* (Microfinance Association of Norway). Other project partners are located in Belgium, Germany, Ireland and Greece. The aim of the scheme is to provide support to trainers working with immigrants and refugees.

**Box 7.12. Training Refugees in Entrepreneurial Skills Using Digital Devices (TREND):
Norway, Belgium, Germany, Ireland and Greece**

Target group: Entrepreneurship trainers that work with refugees.

Intervention type: Entrepreneurship training for trainers.

Description: TREND is an initiative that provides training to support staff that work with refugees so that they can be better supported in business creation and self-employment. The objectives of the initiative are to provide trainers with attractive tools using mobile learning techniques and linking trainers and refugees using mobile and web applications.

Launched in 2017, the first stage of the project (for six months) included a mapping exercise to identify relevant tools and methods of providing entrepreneurship training to refugees. This mapping would be the basis of developing training material and tools for entrepreneurship trainers.

TREND is funded by the European Union and is part of the European Commission's Erasmus+ adult learning programme. It is expected to run for three years. The consortium is led by Norway's *Foreningen Mikrofinans Norge*, and other members are the Academy of Entrepreneurship (AKEP) (Greece), Iepscf Jemappes (Belgium), KulturLife GmbH (Germany) and Dun Laoghaire Institute of Art, Design & Technology (Ireland).

Results achieved: The work of the consortium is ongoing and the support materials for entrepreneurship trainers are under development.

Lessons for other initiatives: The initiative is innovative in that it aims at training the trainers of refugee entrepreneurs by using modern digital technology.

Source: (The Academy of Entrepreneurship -- AKEP, 2019^[95])

Further, business incubators and accelerators are another common method for supporting digital entrepreneurs. While many are operated by the private sector and non-profit organisations, there are a small number of publicly-operated incubators and accelerators operating in the EU (OECD/EU, 2019^[96]) as well as some that are operated by public-private partnerships.

Improve access to resources for the creation of digital businesses and the digitalisation for the self-employed

Enhance access to and improve the affordability of digital technologies

Many women, immigrants, youth and seniors are not connected to the internet, which prevents them from participating in the digital economy. Public national or regional broadband plans, public tenders and (municipal) networks provided through private-public partnerships, as well as the promotion of competition and private investment, coupled with the design and implementation of suitable regulations can help enhance both access and affordability, particularly in rural areas (OECD, 2018^[93]).

Access-related policies could be coupled with group-specific targets, particularly for women and seniors. While this approach is frequently included in national broadband plans, innovation plans or digital agendas of about half of the countries worldwide, more countries could use this approach (OECD, 2018^[93]).

Improve access to digital entrepreneurship networks for under-represented and disadvantaged groups

One of the benefits of the digital economy is that access to resources such as start-up finance and networks are democratised, allowing easier access to the resources to more people. Barriers and market failures that make it difficult for women, immigrants, youth, seniors, the unemployed, and people with disabilities to access resources are inter-related. Those with low levels of digital entrepreneurship skills will have difficulties identifying funding opportunities and convincing investors and lenders that they will be successful. Similarly, those with small or inefficient networks will also be ineffective at identifying resources (Halabisky, 2015^[97]). It is therefore important to do more to build entrepreneurship networks and clubs (Alakaleek and Cooper, 2018^[78]).

Digital entrepreneurs are likely to be comfortable using digital networks and platforms, but networks for digital entrepreneurs do not necessarily need to be online. There are several examples of business associations or networks for digital and internet businesses (e.g. Internet Merchants Association in the US, Singapore Online Business Association, Korea Mobile Internet Business Association), but this appears to be more common in North America and Asia than in the EU. These organisations typically organise workshops and conferences for their members. Policy makers can help to promote such networks during support programmes so that participants are aware of them and the potential benefits that they hold.

It is also possible to support or organise digital networks. These types of networks hold great potential because they eliminate physical distances between entrepreneurs and offer many of the key characteristics of traditional networks, e.g. trust-based connections with other entrepreneurs. Little is known about the effectiveness of online networks but they offer a potentially important opportunity for policy because of their low-cost structures. However, these types of networks require active animation and likely need to be complemented with face-to-face interactions to keep members engaged (OECD/EU, 2015^[98]).

Improve access to finance for digital entrepreneurship

Use targeted small grants and financial awards in combination with training

Many countries have established direct financial support (e.g. business R&D and innovation grants, institutional funding for public research) to promote research and innovation in key areas for the digital transformation of industry (Planes-Satorra and Paunov, 2019^[99]). These are often awarded through calls from enterprise agencies. Entrepreneurs can apply according to the eligibility criteria. An example of this type of mechanism are the Competitive Start Funds that are distributed by Enterprise Ireland. Criteria vary for different calls and they typically focus on specific sectors or target groups such as women (OECD/EU, 2016^[100]).

Another approach are award programmes, which provide both recognition and financial support. An example of a growing awards programme is the EIT Awards (Box 7.13), which recognise innovative and digital entrepreneurs, including recent graduates and women. Financial support varies across the different categories. While these types of awards programmes can also support the development of an entrepreneurial culture, they are likely less effective for supporting new start-ups since the awards are given based on achievements, which new start-ups likely have not yet had.

Box 7.13. EIT Awards

Target group: Innovators, digital entrepreneurs and women entrepreneurs.

Intervention type: Award with cash prizes.

Description: The European Institute of Innovation & Technology (EIT) is an independent body of the European Union set up in 2008 to deliver innovation across Europe. It has established “Innovation Communities” with leading business, education and research organisations to find solutions to various global challenges. EIT seeks to empower innovators and entrepreneurs through various programmes.

One programme is the EIT Awards, which promote and support innovation and entrepreneurship by showcasing innovative entrepreneurs, including young graduates and women. Each of Innovation Community selects two nominees for the following categories:

1. The EIT CHANGE Award recognises graduates of EIT education programmes who spur innovation and entrepreneurship, inspiring change for a sustainable future.
2. The EIT INNOVATORS Award recognises teams from our Innovation Communities that develop high-impact products and services for a sustainable future.
3. The EIT VENTURE Award recognises successful start-ups and scale-ups that have been supported by the EIT’s Innovation Communities through dedicated business creation and acceleration programmes.
4. The EIT WOMAN Award recognises the outstanding achievements of women entrepreneurs and leaders from our Innovation Communities.

Results achieved: In 2018, 38 nominees were selected across the four categories, of which 42% were women. Seven of the nominees had projects that were digital technologies and another seven were about sustainable energy. The other nominees were worked on healthy living, climate change, raw materials and sustainable food. The total prize money awarded in 2018 was EUR 140 000.

Lessons for other initiatives: The structure of the awards programme is essentially a very short integrated programme. Nominees receive pitch training, then pitch their project to the jury and winners receive a cash prize. The process provides both valuable experience and exposure and visibility.

Source: (European Institute of Innovation & Technology, 2019^[101])

Leverage crowdfunding platforms to improve access to debt and equity

Crowdfunding is becoming a major channel for entrepreneurs to raise debt and equity financing for the start-ups. This type of fundraising is relevant for inclusive entrepreneurship because some of the entrepreneurs’ disadvantages can be masked by the platform (e.g. lack of self-confidence), which greatly reduces the likelihood of facing discrimination. In addition, low intermediation costs can make crowdfunding a much cheaper source of finance than microfinance institutions or bank loans. These platforms

can also benefit from “activist choice homophily”, where groups such as women want to support each other and so they invest in each other as a way to counter industry trends (Greenberg and Mollick, 2017^[42]).

A key role for policy in helping to exploit the opportunities of crowdfunding for entrepreneurs from disadvantaged and under-represented groups is provision of information and advice about this financing mechanism to entrepreneurs in the target group. This is particularly important since crowdfunding is a very new market and entrepreneurs are not always up-to-date with the latest evolutions in business finance. Policy makers also need to keep up with developments in crowdfunding to ensure that the regulatory environment is appropriate and provides sufficient investor protection. Information on business projects is limited to what entrepreneurs are willing to disclose, whereas more structured and homogenous information requirements would help investors make a better choice. Finally, the support of equity-based crowdfunding should also encourage the parallel development of senior investors (e.g. business angels) and secondary markets to secure exit options for people investing in equity through crowdfunding platforms.

There are a growing number of crowdfunding platforms that are used to support inclusive entrepreneurship, and many of these involve public sector partners. One example is the Goteo crowdfunding platform in Barcelona, Spain (Box 7.14), which is largely aimed at digital, science and cultural entrepreneurs. The platform is operated by a non-profit foundation with public partners that provide financial support for many of the services offered. However, one of the most important contributions of the public sector is to provide credibility to the platform, which was made it more attractive to entrepreneurs and funders.

Box 7.14. Goteo, Barcelona, Spain

Target group: Entrepreneurs with projects in the areas of technology, design, science, communication, culture, education, and the environment.

Intervention type: Local crowdfunding platform that uses a model based on rewards and donations.

Description: Goteo started in 2011 by a non-profit foundation with co-funding from the local government. It is a crowdfunding platform that helps entrepreneurs raise funding by seeking donations or by offering rewards to funders. The platform also offers a range of other services, including coaching, workshops on crowdfunding and communication, match-funding tools and communication support for campaigns.

Entrepreneurs can list their projects in two rounds of crowdfunding. They have the option to use match-funding schemes that allow funders to provide funding as a “matcher”. This means that they contribute EUR 1 for each EUR 1 that is donated, up to a maximum of EUR 100 per individual donation. The project must receive the minimum crowdfunding goal in order to receive the matching funds. If financial objectives are not met in the first round, the entrepreneurs can re-list their project for a second round. The maximum length of each round of funding is 40 days.

An example of a successful project on the platform is *Pose men marxa Som Mobilitat a Barcelona* (“We launch *Som Mobilitat* in Barcelona”), which is an online car sharing platform. The entrepreneurs ran a 12 week campaign and successfully raised EUR 31 975. Prior to launching the campaign, the entrepreneurs completed the programme *La*

Comunicadora, which is operated by the Goteo Foundation. One of the keys to success for the entrepreneurs was their ability to use the platform to build their network and to promote their business.

Results achieved: Between 2011 and 2018, the platform has collected more than EUR 6 million for project funding from more than 84 500 backers. The overall funding success rate is 75%.

Lessons for other initiatives: The partnership of the local government is viewed as a critical element. First, the financial support is important offering coaching and workshops. Second, the engagement of the public sector brings legitimacy to the platform, which helps attract projects and investors. In addition, the platform has stringent reporting requirements that allow funders to closely track project, which helps boost trust among the community of funders and entrepreneurs.

Source: (European Crowdfunding Network, 2018_[102])

Conclusions

Digital entrepreneurship can facilitate business creation for many individuals because it often has lower barriers to entry than traditional entrepreneurship. Thus, many argue that there is potential for digital entrepreneurship to help “level the playing field” in entrepreneurship, making it more inclusive. However, there is a growing body of research that suggests that many barriers faced by entrepreneurs from disadvantaged groups carry over into the digital economy, including difficulty access financing due to low levels of savings and collateral, low skill levels (both digital and entrepreneurship skills), and small and ineffective entrepreneurship networks. Moreover there are strong social and cultural factors that negatively influence the potential for digital entrepreneurship by some groups such as women and seniors.

But caution is needed in encouraging digital entrepreneurship as a means of addressing exclusion because socially constructed disadvantages often appear to be reproduced within the digital context (Cook et al., 2019_[37]; Pappas et al., 2018_[40]; Martinez Dy, Martin and Marlow, 2018_[28]). Many new entrants are encouraged by very positive messaging about the potential of digital entrepreneurship but have little realistic potential for success and no “plan B” (Martinez Dy, Martin and Marlow, 2018_[28]). Nonetheless, there are strong gender gaps in digital entrepreneurship and seniors are greatly under-represented given that they are a large and growing population.

Policy should do more to address some of the broad issues, including addressing gender and age gaps in basic digital skill levels, boosting the self-confidence of young girls in STEM fields and improving increase access to the internet and digital business support services, particularly in rural areas. More could also be done to harmonise regulations across EU Member States so that digital entrepreneurs have fewer barriers to operating across countries. While these actions will help improve the environment for digital entrepreneurship, more tailored support is needed to help the self-employed from under-represented and disadvantaged groups in adopting digital technologies to improve their business and also to support new digital business start-ups by these groups.

Tailored policy actions are needed to support digital entrepreneurship, particularly for women, youth and seniors. Currently, most schemes focus on boosting digital and entrepreneurship skills, improving access to resources and facilitating access to finance for

women and youth. This is consistent with targeting support at those who have the greatest levels of digital skills. However, there is also a rationale for doing more to support seniors in digital entrepreneurship since they are a large and growing population of entrepreneurs and most have the capability to acquire basic digital skills that could help them in digital entrepreneurship. Regardless of the group targeted, the scale of policy action needs to be aligned with the scale of market failures and take-up of support initiatives.

Many of the public initiatives that support digital business creation among disadvantaged and under-represented groups are new, and some announced ones have not started yet. Therefore, there is a lack of evaluations on such initiatives. Policy makers must do more to strengthen definitions about the digital economy and digital entrepreneurship, and improve data collection to better inform policy and regulations.

Notes

¹ The COLLEEM survey contains a direct measure of service provision via platforms by the respondents in 14 EU countries. It asks whether the respondent has ever gained income from different online sources, among which there are two corresponding to labour service platforms: "providing services via online platforms, where you and the client are matched digitally, payment is conducted digitally via the platform and the work is location independent, web-based" and "providing services via online platforms, where you and the client are matched digitally, and the payment is conducted digitally via the platform, but work is performed on-location".

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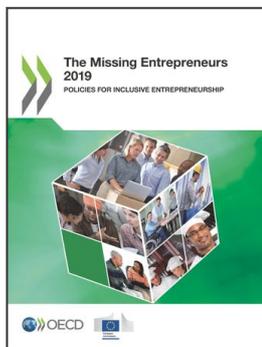
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