



## Time to finally recognise the potential of digital start-ups

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In Germany, the number of successful technology start-ups with a novel product lags behind. Red tape is a major hindrance, and de-bureaucratisation through greater use of information and communication technologies in the public sector is required.

Start-ups have limited access to bank loans, and the conditions tend to be restrictive. Inclusion of synthetic securitisation in the new capital markets union plan could free up bank capital and broaden lending channels for start-ups.

Political parties aim to scale up venture capital investments through tax benefits to help bridge the start-up funding gap. Getting institutional investors, such as pension funds, involved in venture capital markets will speed up the process.

With Brexit, international start-ups may relocate to Germany to ensure access to the single market. Policies that make relocation easier such as lowered formalities can speed up the process.

Entrepreneurship faces a widespread culture of risk aversion in Germany. Creating a “can-do” culture to reduce the fear of failure through early-stage education is a must. Risk preferences and entrepreneurship among immigrants should be taken into account in policymaking, too.

The Nordic start-up ecosystem – where communication technology and internet infrastructure investments, safety nets and liberal values at work create a dynamic atmosphere that encourages start-up creation – provides a good example.

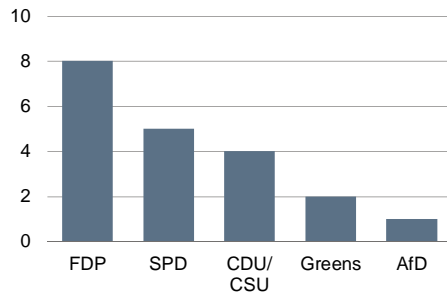


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### Not so much focus on start-ups

1

The number of times that the word "start-up" appears in political parties' programmes



Sources: Political parties' election-year programmes, Deutsche Bank Research

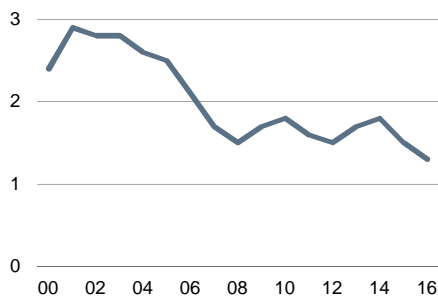
Innovative start-ups have been reshaping modern economies for more than 50 years. They are key drivers of innovative strength, new products and business models. In terms of innovative start-up activity, the US stands out as the front runner and is home to the largest and most valuable innovative start-ups in the world. For example, Microsoft and Apple, which were founded in 1970s, plus Amazon, Facebook and Google, which emerged around the millennium, are worth more than the DAX-listed companies all together. They employ thousands of individuals and make a significant contribution to the real economy. Even though Germany is home to several valuable and established manufacturing giants, only one global IT company is based there. Yet policymakers have so far paid only limited attention to measures to increase digital start-up creation. The major political parties' election campaigns are no exception (see chart 1). In the hundreds of pages of election-year party programmes, the word "start-up" comes up very rarely, at most eight times. Start-ups themselves are noticing the lack of attention: only 6% of German start-ups believe that policymakers have an interest in addressing the unique problems they face. Considering the key role of start-ups in innovative entrepreneurship and their contribution to the real economy, dialogue between start-ups and policymakers must be improved, and key points of action to increase start-up creation and activity in Germany must be identified.

### Less red-tape, more start-up creation

### Number of start-up founders down

2

% of working age population



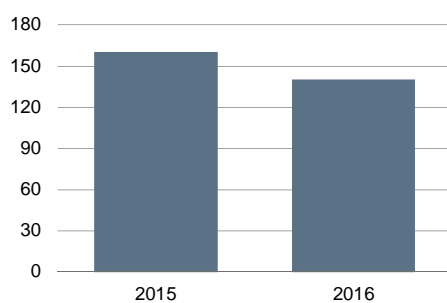
Sources: KfW, Deutsche Bank Research

A snapshot of new entrepreneurial activity provides first insights into start-up creation in Germany. In doing so, chart 2 presents the ratio of newly self-employed individuals to the working-age population.<sup>1</sup> In 2016, around 1.3% of Germans (or 675,000) became self-employed to start a new venture. This is down from 1.5% in 2015, and considerably below the 2000–2014 average of 2.1%. Of course, not all newly created businesses or self-employed individuals have a strong technology and innovation focus. During economic downturns, for example, entrepreneurial activity is strongly motivated by unemployment or low income. Other individuals, however, may have an explicit business idea aimed at filling a market niche that is not necessarily technology related. With a view to both factors, a strong downward trend has been observable in recent years. Considering record-low unemployment rates and the strong macroeconomic backdrop in Germany, it is not necessarily surprising to see fewer individuals looking for new ventures.

### One fifth of start-ups have digital focus

3

in thousands



Sources: KfW, Deutsche Bank Research

Individuals who were self-employed or founded new ventures with a digital focus accounted for around 140,000 start-ups in Germany in 2016, down from 160,000 in 2015.<sup>2</sup> These start-ups<sup>3</sup> offer services in software development, web design, IT consultancy, online retail, web portals or applications for mobile phones. They could have notable growth potential, as their business models are easily scalable (e.g. once a smartphone application is programmed, it can be used by thousands of individuals). Yet these ventures usually have low survival rates, and many of them become insolvent after a short time. Industry estimates indicate a survival rate of only 10% for technology start-ups. What is more, the products or services from these innovative start-ups are not always novel. Only 16% of these new businesses in Germany offer a product or service that qualifies as a novelty on regional, German or international markets. Even though the absolute number of technology start-ups might seem high at first glance, the number of successful technology start-ups with a novel product is

<sup>1</sup> The numerator of the ratio refers to individuals who became self-employed 12 months prior to the survey.

<sup>2</sup> Data availability limits an analysis for a longer time span.

<sup>3</sup> The term "start-up" refers to both newly self-employed individuals and newly founded ventures. See 4th German start-up Monitor 2016 press conference presentation.



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therefore probably only a fraction of the absolute number and may even be on the decline.

The question is: could politics contribute to boosting start-up creation in Germany? Recent survey responses indicate that start-ups see bureaucracy and a high level of regulation as being very cumbersome.<sup>4</sup> Of course there is some degree of sample selection in survey responses, and regulatory barriers could be an EU-wide problem. That being said, starting a business takes ten days in Germany, compared with five days in the UK. There are seven procedures to be completed, compared with only four in the UK. When it comes to the ease of starting a new business, the World Bank ranks Germany 114th out of 190 countries, but ranks the UK 16th. Other euro area countries rank significantly higher as well, with Ireland coming in 10th, Belgium 17th, the Netherlands 22nd and France 27th. As a result, red tape does not necessarily appear to be an EU-wide impediment and instead seems to be more specific to Germany.

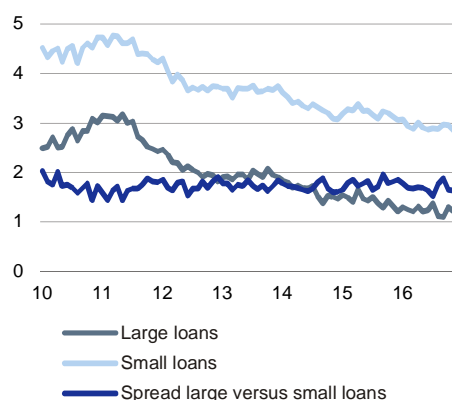
In view of the dampening role of red tape, the major political parties are aiming to reduce excessive bureaucracy for start-up creation and have included such measures in their election-year programmes. That said, the political parties afford a different priority to de-bureaucratisation. The Social Democratic Party of Germany (SPD) and the Free Democratic Party (FDP) have identified de-bureaucratisation as a cardinal issue and propose measures for doing so. The Christian Democratic Union (CDU) and Christian Social Union (CSU) also aim to reduce bureaucracy, but give other factors, such as the provision of skilled employees for start-ups and financing alternatives, higher priority. In reducing the bureaucratic burden on start-up creation, it is important to keep in mind that the new era of start-ups is already familiar with technology. Therefore, the greater use of information and communication technologies – such as online procedures to deal with business creation steps, relevant permits and taxation – will improve efficiency and contribute to de-bureaucratisation.

### Synthetic securitisation to ease bank lending

Small loans still considerably more expensive in Germany

4

interest rate for new bank loans in %



Sources: ECB, Deutsche Bank Research

A crucial step in successful start-up creation is securing their post-founding funding. During their early years, start-ups are typically occupied with establishing their business and observing their market environment. They usually incur fixed costs of investment without meaningful revenue generation and positive cash flows. Due to the information asymmetry surrounding start-ups' business models and the absence of a financial track record and/or collateral, external funding alternatives are rather limited for start-ups.<sup>5</sup> In contrast to favourable financing conditions for non-financial corporations in Germany in general, German start-ups therefore face funding problems.<sup>6</sup> This is evidently reflected in survey responses: 16% of German start-ups reported that they lacked capital for funding or had difficulty accessing bank credit in 2016. For those bank loans that are granted, interest rates are higher for start-ups (see chart 4). For example, interest rates on large loans (larger than EUR 1 m) stood at 1.3% in Q1 2017, compared with 3% on small loans (up to EUR 0.25 m). The spread between the two has remained fairly constant at around 1.8% since the height of sovereign crisis. Undoubtedly, there could be a risk premium for lending to smaller firms. However, measures that partly offload credit risk from bank balance sheets can improve bank loan availability at attractive conditions.

<sup>4</sup> See 4th German start-up Monitor 2016 press conference presentation.

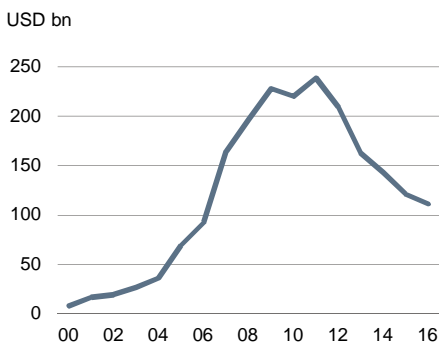
<sup>5</sup> Traditional forms of capital market financing are out of scope for start-ups due to size restrictions.

<sup>6</sup> See KfW (2017).



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European securitisation market for small loans is broken **5**

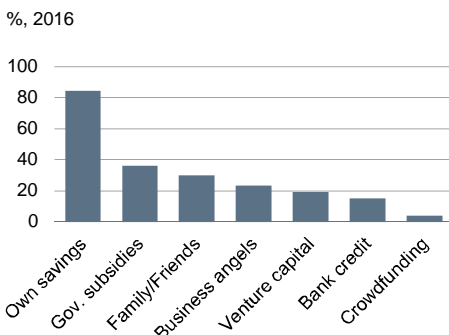


Sources: SIFMA, Deutsche Bank Research

One of the most efficient ways of removing credit risk from banks' balance sheets and freeing up capital is the securitisation of loans. But the securitisation market for small loans has been broken since the crisis (see chart 5). After reaching a peak of USD 240 bn in 2011, outstanding volumes came down significantly to USD 112 bn in 2016. Seeing the potential of securitisation, the European Commission included the revival of safer and more transparent securitisation markets in the capital markets union action plan, where agreements have already been reached in trilogues. New measures cover only true sale securitisations, though, and exclude synthetic securitisations where credit risk is passed on to capital markets via credit derivatives. In Germany, synthetic securitisations are especially utilised as capital management tools by smaller credit institutions, like savings banks and cooperative banks. What is more, KfW's Promotional Mittelstand Loan Securitisation platform provides a solid example where synthetic balance sheet securitisations have been a useful and robust credit risk transfer tool.<sup>7</sup> The more widespread use of synthetic balance sheet transactions in Germany could therefore be considered by political parties to broaden lending channels to start-ups. One way of doing this is equal treatment of synthetic and true sale securitisations in the new capital markets union framework.

### Venture capital investments crucial but alone not enough

German start-ups' main funding channel: Own savings\* **6**

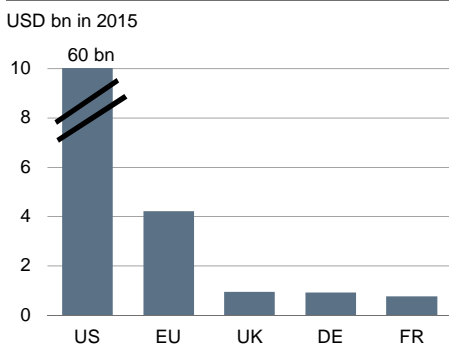


\*Multiple responses possible

Sources: ESM, Bundesverband Deutsche Startups, Deutsche Bank Research

Against a backdrop of limited loan availability, 80% of start-ups cited own savings as the main funding channel for their venture in Germany (see chart 6). A further 36% named public support in the form of governmental subsidies. Entrepreneurs that tap external financing turn mainly to family and friends, business angels or venture capitalists, as mentioned by 20% to 30% of start-ups. Crowdfunding, an innovative form of financing via online platforms, is rather negligible, and only 4% of start-ups utilise this type of funding. Among the external funding alternatives, the positive role of venture capital (VC) in the development and governance of start-ups has been pointed out in particular by observers.<sup>8</sup> Indeed, VC providers are usually experts in the sectors they invest in and therefore are able to evaluate start-ups' business models more accurately and reliably than other potential investors. What is more, they usually actively monitor the new firms and provide advice and experience if necessary.

Low venture capital investment in the EU **7**



Sources: OECD, Deutsche Bank Research

Notwithstanding the pivotal role of VC investments, volumes in the EU and in Germany are subdued compared with those in the US (see chart 7). In 2015, for example, VC investments stood at an immense USD 60 bn in the US, compared with only USD 1 bn in Germany. In this respect, an increase in VC investments to finance early-stage start-ups is of paramount importance in Germany. This view is shared by political parties and included in their election-year programmes. Both the FDP and CDU/CSU aim to boost VC investments by granting tax benefits for VC investments in start-ups. The FDP in particular provides a clear road map for doing so. While recognising the role of VC investments, the SPD is somewhat less clear in its guidelines. More important than tax benefits, though, is getting institutional investors, such as pension funds and insurance companies, involved in venture capital markets. Indeed, VC investments took off in the US with a policy permitting greater market involvement by institutional investors in the late 1970s. Only the FDP seems to identify this key correlation and aims to make it easier for institutional investors to participate in VC markets. But VC alone is not sufficient for early-stage financing. Raising funds through online platforms, or crowdfunding, has been gaining popularity in recent years, too. In 2015, crowdfunding provided EUR 270 m in financing in Germany. Crowdfunding allows start-ups to advertise

<sup>7</sup> See Kaya (2017) for a detailed analysis on different types of synthetic securitisations.

<sup>8</sup> See Hellmann and Puri (2002).



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their business to a larger pool of investors, which increases the likelihood of getting funding. Only the FDP proposes making crowdfunding less complicated and more attractive for potential investors and start-ups alike. However, it does not provide any concrete measures on how to do so.

Political parties seem to have identified the start-up funding gap and realised the benefits of VC investments in closing this gap. However, concrete measures to boost VC are lacking in election-year programmes, and the role of institutional investors is being largely overlooked. What is more, innovative forms of funding such as crowdfunding have by and large been neglected by political parties.

### Brexit is an opportunity for the German start-up scene

Start-up characteristics	8
<b>Start-up headquarters (% of total)</b>	
Berlin	17
Rhine-Ruhr	14
Stuttgart-Karlsruhe	9
Munich	7
Hanover/Oldenburg	7
Hamburg	6
<b>Employees</b>	
Average # of employees	14
% of other EU employees	19
% of non EU employees	12

Sources: ESM, Bundesverband Deutsche Startups, Deutsche Bank Research

In the cities where start-ups are located, they contribute to employment, real wage growth and productivity. In Germany, Berlin is the technology start-up capital. To be specific, 17% of start-ups had their headquarters in Berlin in 2016. Indeed, Berlin offers a number of lucrative features for starting an innovative business, such as a large pool of skilled experts, a comparatively low cost and high standard of living, and a vibrant cultural scene. Nevertheless, other regions and cities are gaining momentum and challenging Berlin's leading role. For example, 14% and 9% of start-ups have their headquarters in the Rhine-Ruhr and Stuttgart/Karlsruhe metropolitan regions respectively. Munich and Hamburg are also on their way to becoming important start-up hubs. With a view to demographics, innovative start-ups in Germany usually have multiple founders. In fact, three out of four of start-ups have more than one founder. Including the founders themselves, they employ 14 employees on average, with 5 to 8 employees in their early years and over 150 employees in their later years. With 50% younger than 34 years old and around one-third having a bachelor's degree, the founders are mostly young and educated individuals.<sup>9</sup> Start-ups have an international employee profile, too. For example, 19% and 12% of employees are from other EU countries and non-EU countries respectively. Brexit is creating new opportunities for the already international and somewhat concentrated German start-up landscape. To keep their access to the single market, international entrepreneurs will probably establish businesses in Germany or relocate existing start-ups to the country. Relocation of VC investment funds will improve the funding backdrop for German start-ups, too.

With regard to relocation after Brexit, soft factors such as international schools and cultural offerings, as well as a large pool of young, skilled experts, argue the case for Berlin. Seeing this potential, the FDP in particular is quite active in trying to attract London-based start-ups to Berlin. That being said, drawbacks relating to legal and regulatory issues could create bottlenecks in attracting international start-ups. The first steps of relocation, such as legal matters and the day-to-day running of the business, could prove particularly complicated for international start-ups. Policies to make relocation easier, such as fewer formalities, could speed up the process. Granting relocated start-ups tax advantages is a double-edged sword. Without an EU-level framework, a race to the bottom of the corporate tax ladder should be avoided. Although national governments are responsible for tax rules, they should satisfy certain requirements such as ensuring fair competition within the EU.

<sup>9</sup> Women founders are underrepresented in the German start-up landscape. According to estimates, only 14% of start-up founders are women. By comparison, around 75% of women are employed in general. Moreover, females earn 25% less than male start-up employees. The parties' election-year programmes overlook gender inequality in start-up demographics. Even though it is difficult to pinpoint why women are underrepresented in the start-up landscape, identifying the problem and establishing working groups to come up with potential solutions would be a first step.





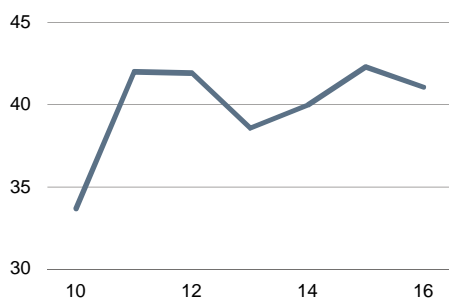
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### A change in risk culture is necessary

Fear of failure hinders business creation

9

% of individuals who say that fear of failure is preventing them from starting a business



Sources: OECD, Deutsche Bank Research

Perceptual factors have a significant influence on business creation.<sup>10</sup> A high degree of risk aversion or fear of failure (one of the most common worries) could prevent potential entrepreneurs from starting a new venture. Since failure is stigmatised and viewed as something very negative, potential loss of self-image and self-respect can lower the intrinsic motivation to entrepreneurship. In Germany, individuals seem to be fearful of the obstacles and risks associated with founding a firm. In 2016, 41% of individuals who otherwise would have started a business avoided doing so due to fear of failure, up from 33% in 2010. In a sample of 64 countries, Germany ranks in the last quartile in terms of individuals being discouraged by fear of failure. Of course, some individuals are more risk averse than others and thereby look for more stable professional alternatives. That said, the general lack of a risk-taking culture and dispositional preference for certainty over uncertainty give rise to many lost opportunities. What is more, failure is an inherent part of entrepreneurship and innovation. Successful start-up founders are not necessarily excessive risk-takers but are usually those who learn from their failures.

Measures that create awareness for the fact that failure is an inherent part of start-up creation can help boost start-up activity. There are already initiatives to do so, such as the “Learning from Failure in a collaborative Entrepreneurship network (LIFE)” at the EU level and the “Junior Programme” in Germany. These programmes can be expanded to develop a wider “can-do” culture at an earlier stage. A largely neglected aspect is the potential of individuals with migration backgrounds in entrepreneurial activity. Indeed, academic research points out that immigrants – especially those without significant networks of family, friends or fellow countrymen – tend to be less risk averse. This is because they may face difficulties in gaining access to the regular labour market or come from cultures which are characterised by high numbers of self-employed individuals. They are therefore usually more enthusiastic about starting a new venture even though they may have hardly any savings.<sup>11</sup> Reaching immigrants who are interested in founding a company and equipping them with the necessary information on starting and running a venture in Germany can motivate these individuals and prove beneficial to start-up creation.

### A look at the Nordic start-up ecosystem

In Europe, Scandinavia has a flourishing start-up scene. According to estimates, Sweden is home to the highest percentage of unicorn start-ups per capita globally, while Finland has been a significant hub for gaming start-ups. There are three main factors that explain the success story of northern European countries: 1) Technology infrastructure is extremely advanced in Scandinavia. There are high-speed internet connections, even faster than in the US. Among citizens, internet usage and computer literacy are very high. All this gives Scandinavia a natural attraction for digital entrepreneurs. 2) Scandinavia has one of the best social welfare systems and an egalitarian social safety net. Economic security and subsidies allow Scandinavian entrepreneurs to take greater risks and be creative. Thanks to free education and diverse investments in schooling, Scandinavian society is well educated and highly proficient in English. With English as their main language, Scandinavian start-ups are able to reach an international client base, even though the local client base is not particularly large. 3) Liberal values, such as non-hierarchical and informal workplaces, attract young, innovative individuals. These values give rise to more

<sup>10</sup> See Minniti and Arenius (2005).

<sup>11</sup> See Röhl (2016).



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open entrepreneurial networks and contribute to the dynamism of the start-up landscape.

The main takeaways from the Nordic start-up ecosystem are that communication technology and internet infrastructure investments, safety nets and liberal values at work create dynamism in the start-up landscape. To achieve this in Germany, barriers to competition in communication services should be reduced. Subsidies for high-speed internet technologies and liberalising the issuance of SIM cards could be the first steps.<sup>12</sup> Germany has a strong safety net similar to Scandinavia. Yet the social security contributions of low-income individuals (probably the start-up founders in their early years) could be revisited. Early childhood education with a particular focus on new technologies will help familiarise society with technology, too.

### Concluding remarks

Start-ups are not only the key drivers of innovative strength, but they also revamp existing business models and accelerate adjustments in current production chains. Considering the significant demographic change (i.e. a rapidly ageing society), increased spending on public health and a growing old age dependency ratio in the labour force, high start-up creation and activity in Germany could be associated with tremendous benefits. However, more action and support are needed to overcome the roadblocks that hinder start-up creation.

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<sup>12</sup> See OECD (2017).



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