

Start-up-Barometer Germany

incl. Deep Dive States / Start-up Ecosystems

January 2019

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Deep Dive Top 7 States/Start-up Ecosystems

1 - Design of the Study

- ▶ The EY Start-up-Barometer Germany is being issued since 2014, effective 2015 twice per year
- ▶ Sources: Press releases of Start-ups or Investors, Press reporting, CB Insights

EY Contact

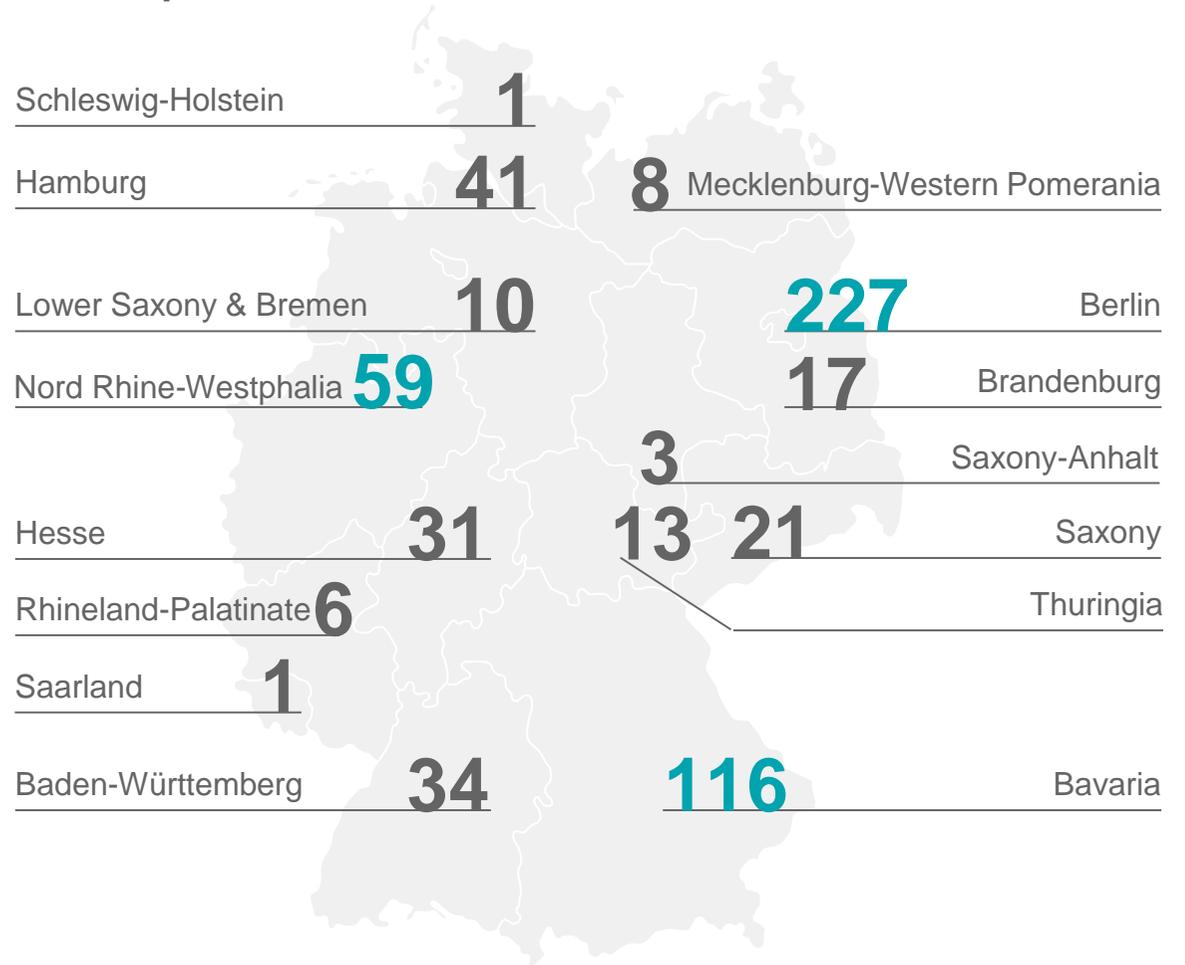


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Number of German Start-ups with venture capital financing in 2018 per state



2 - Record investments in German Start-ups - Berlin remains ahead, but Bavaria and Nord Rhine-Westphalia are catching up

German Start-ups received more money in 2018 than ever before: a total of around EUR 4.6 billion were invested in German Start-ups last year - 7 percent more than in the previous year. Furthermore the number of investments also reached a new high by 621, in comparison to the previous year with 507 transactions.

Berlin again defended the title as Germany's Start-up capital. Berlin Start-ups received a total of EUR 2.61 billion in 245 transactions last year. The number of transactions was 5 percent higher than in the previous year, while the investment volume fell by 12 percent. The reason for the decline is a smaller number of mega-transactions: In 2017 alone, the Berlin food delivery service Delivery-Hero had received EUR 808 Million from investors in two transactions - in 2018 the EUR 460 Million cash injection for Auto1 was the only comparable big deal in the capital.

Significantly more money than in the previous year were invested in Start-ups from Bavaria, Hamburg and North Rhine-Westphalia. In Bavaria, the investment volume rose by 97 percent to EUR 802 Million, in Hamburg by 138 percent to EUR 548 Million and in North Rhine-Westphalia even by 154 percent to EUR 243 Million. Bavaria and North Rhine-Westphalia also recorded a significant growth in the number of transactions: by 63 percent to 124 in Bavaria and 54 percent to 60 in North Rhine-Westphalia. In Hamburg, the number of transactions rose only slightly - by 8 percent - to 42.

These are the major results of the EY Start-up barometer 2018. Only companies younger than 10 years were

included in the research. In addition to classic venture capital investments, the study also includes cash inflows from IPOs and ICOs (Initial Coin Offerings).

For Germany as a start-up location, 2018 was another successful year. This is also reflected in the fact that the volume of pure venture capital investments even rose to record levels and in addition more and more young German companies received fresh capital.

Strong growth in medium size deals

In 2018, there were six major transactions with a volume of more than EUR 100 Million, the number was at the level of the previous year. While investments above EUR 50 Million also registered only a slight growth from 5 to 7, the number of medium-sized investments in the range of EUR 10 to 50 Million rose sharply - by 50 percent from 54 to 81.

These investments in the tens of millions enable start-ups to scale and internationalize their business models. All the more pleasing is the significant increase in such deals, which shows that a considerable number of German start-ups seem to have reached a high degree of maturity in the meantime. If investors are willing to invest such large sums of money, this shows confidence in the business model and the young entrepreneurs. This development is all the more pleasing since many of these financings are carried out both by well-known international investors and by the venture capital arms of well-known corporates. This means that further financing rounds and further growth in these start-ups are likely in the future.

The strongest growth outside of Berlin

Berlin is still the leading Start-up location in Germany - however, other states are catching up: While the number of transactions in Berlin grew only slightly, there were increasing financing rounds in Bavaria and North Rhine-Westphalia, and the investment volumes were also significantly higher than in the previous year. Although the investment volume in Hamburg also rose significantly, this was mainly due to two cash injections for the Hamburg Fashion Startup "About You" with a total value of EUR 320 Million.

Especially the start-up location Bavaria with the centre Munich is currently developing strongly and catching up with big steps. The combination of top research, enormous economic power with numerous DAX companies and a high density of venture capital investors, coupled with a high quality of life, is developing a promising dynamic.

The fact that an increasing number of young growth companies are now also receiving large sums of millions outside Berlin is a positive signal for Germany as a business location. Start-ups are playing an increasingly important role in the digital transformation of the German economy. With their innovations, start-ups give new impetus to digitalization and thus also bring about changes in established corporations. It is important that this dynamic takes place everywhere in Germany, at all major business locations. The expansion and promotion of ecosystems for start-ups in our cities and regions are correspondingly important.

2 - Record investments in German Start-ups - Berlin remains ahead, but Bavaria and Nord Rhine-Westphalia are catching up

New technologies and FinTechs increasingly in the focus of investors

Although most of the money in 2018 were invested again in E-Commerce companies, the total volume decreased by 12 percent compared to 2017, to EUR 1.66 billion euros. This segment's share of the total financing volume decreased from 42 to 36 percent.

On the other side Software & Analytic Start-ups showed a massive increase. The segment includes highly technical business models such as artificial intelligence, blockchain, virtual and augmented reality, as well as Start-ups in the fields of cloud, cyber and analytics.

The investment in this segment more than doubled compared to the previous year from EUR 295 Million to EUR 671 Million, and the number of financings increased almost equally - from 75 to 149. Therefore the E-Commerce sector, to which 102 financings were allocated, lost in the number of financings its top place in the industry comparison.

Most of the money is still invested in e-commerce business models, but we can see that an increasing number of highly innovative and technology-driven start-ups in the areas of artificial intelligence, blockchain and virtual reality are now attracting tens of millions of dollars. This is good news for Germany as a high-tech location.

The financing volume in the FinTech sector also increased strongly (by 25 percent to EUR 676 Million), as well as in the mobility sector (by 38 percent to EUR 407 Million) and in the PropTech sector (by 204 percent to EUR 184 Million). By contrast, investments in Health Start-ups (by 39 percent to EUR 317 Million) and in young media companies (by 75 percent to EUR 73 Million) declined.

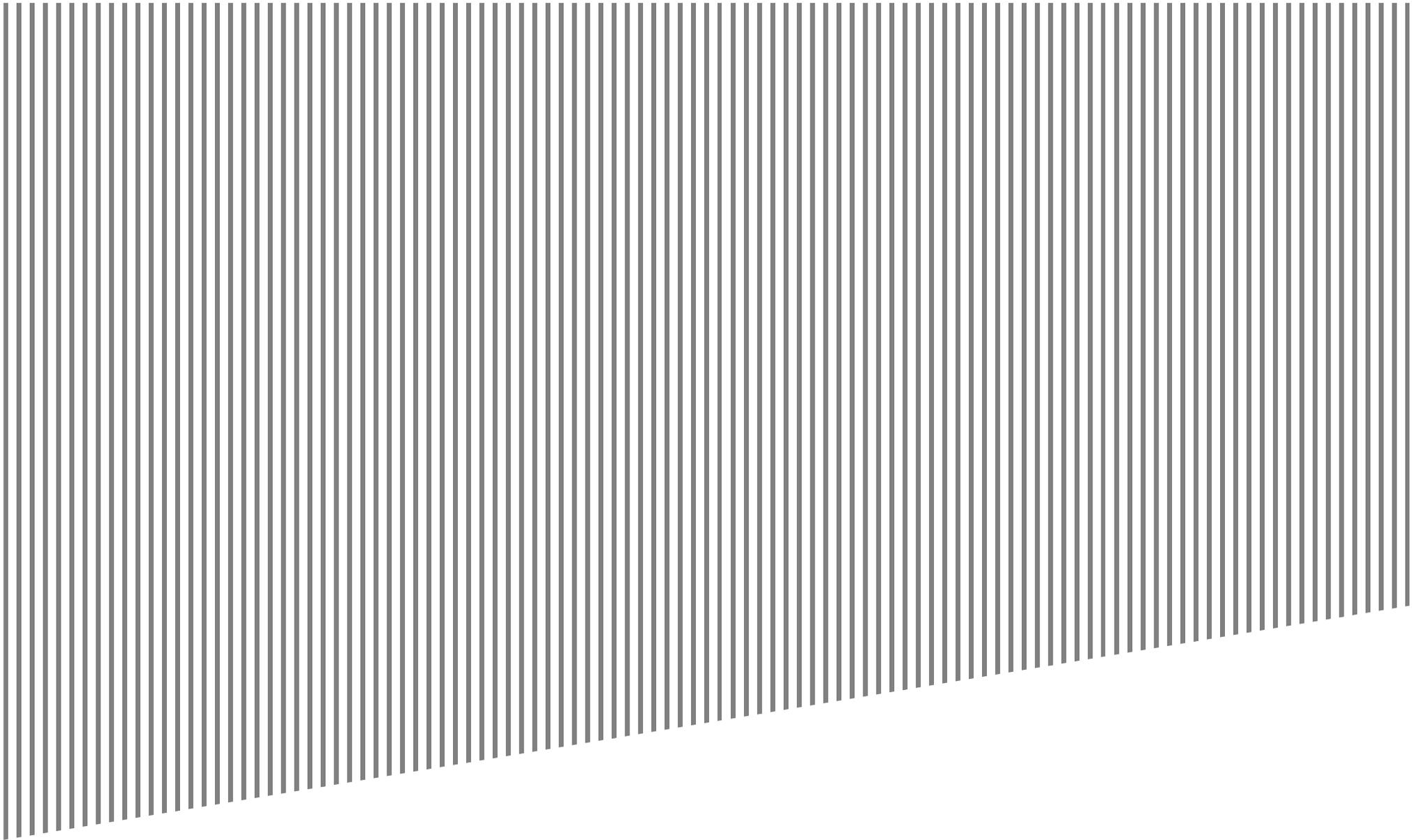
As in the year before, the biggest transactions of the past year were accounted for the E-Commerce sector. In January, the Berlin-based used-car platform Auto1 collected EUR 460 Million. In July, the Hamburg fashion Start-up About You received EUR 264 Million and in June the furniture Start-up Home24 received EUR 172 Million due to its IPO.

Initial coin offerings contributed EUR 255 Million, IPOs EUR 331 Million

For the first time, ICOs (Initial Coin Offerings) have significantly emerged as a new form of financing - despite the numerous critical voices. In total, German Start-ups got EUR 255 Million from 22 successful ICOs last year. The trend is, however, strongly declining: After 13 ICOs in the first half of the year, which contributed EUR 205 Million, only 9 transactions with an amount of only EUR 49 Million were registered in the second half of the year.

In addition, 3 Start-ups have ventured an IPO in 2018, taking a total of EUR 331 Million. In 2017, 4 IPOs in the Start-up sector had been counted, in which the Start-up companies had received EUR 794 Million.

3 - Outcome of the Study



Start-up financing rounds 2018: Number and Volume at new high

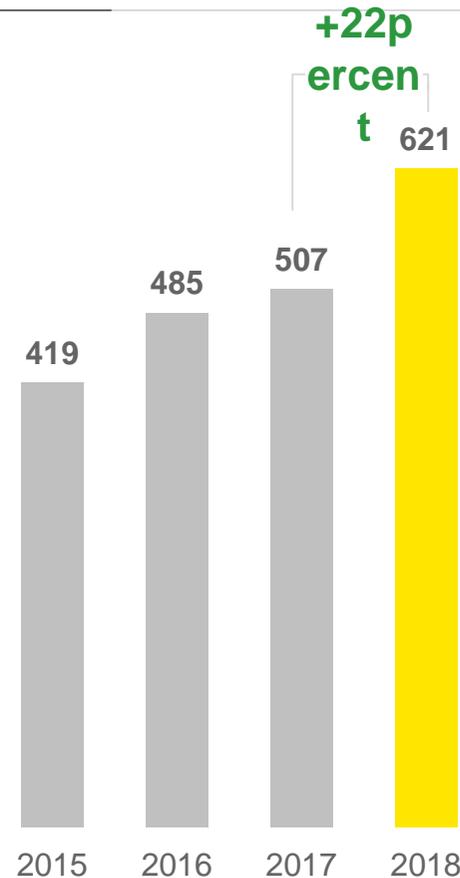


Investments in German Start-ups

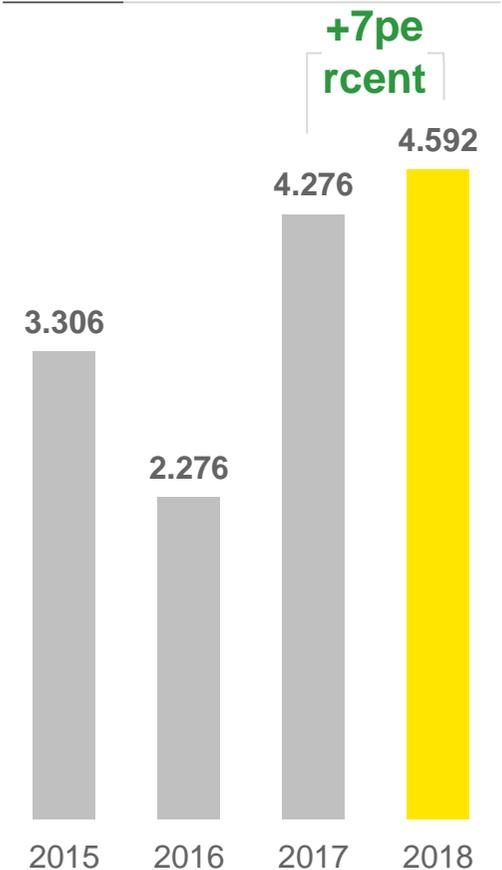
Number and volume of financing rounds in Germany

- ▶ In Germany, the number of financing rounds in 2018 increased significantly compared to the previous year: by 22 percent to 621.
- ▶ The total value of these investments increased by nearly seven percent, or EUR 316 Million, to around EUR 4.6 billion in 2018, exceeding the previous year's record level.

Number



Value in EUR Million



Number and volume with the highest value for a second half of the year

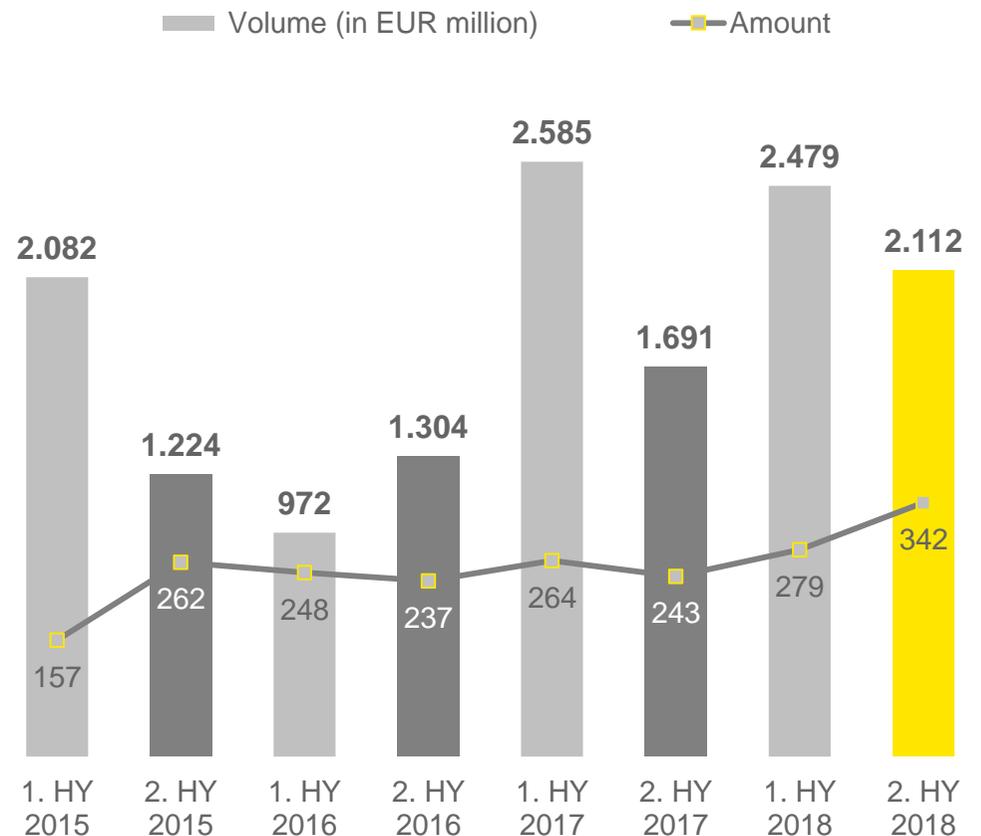


Investments in German Start-ups, from 2015 to 2018

Numbers and Volumes (in EUR Million)

Number and volume of financing rounds per half year

- ▶ In the second half of 2018, the deal volume rose by around 25 percent or EUR 421 Million to the highest level in a second half of the investigation period compared to the same period of the previous year. However, it remained around 15 percent below the level of the first half of the year.
- ▶ The number of financings increased by 41 percent compared to the same period of the previous year and with a number of 342 even reached the highest half-year value since 2015.



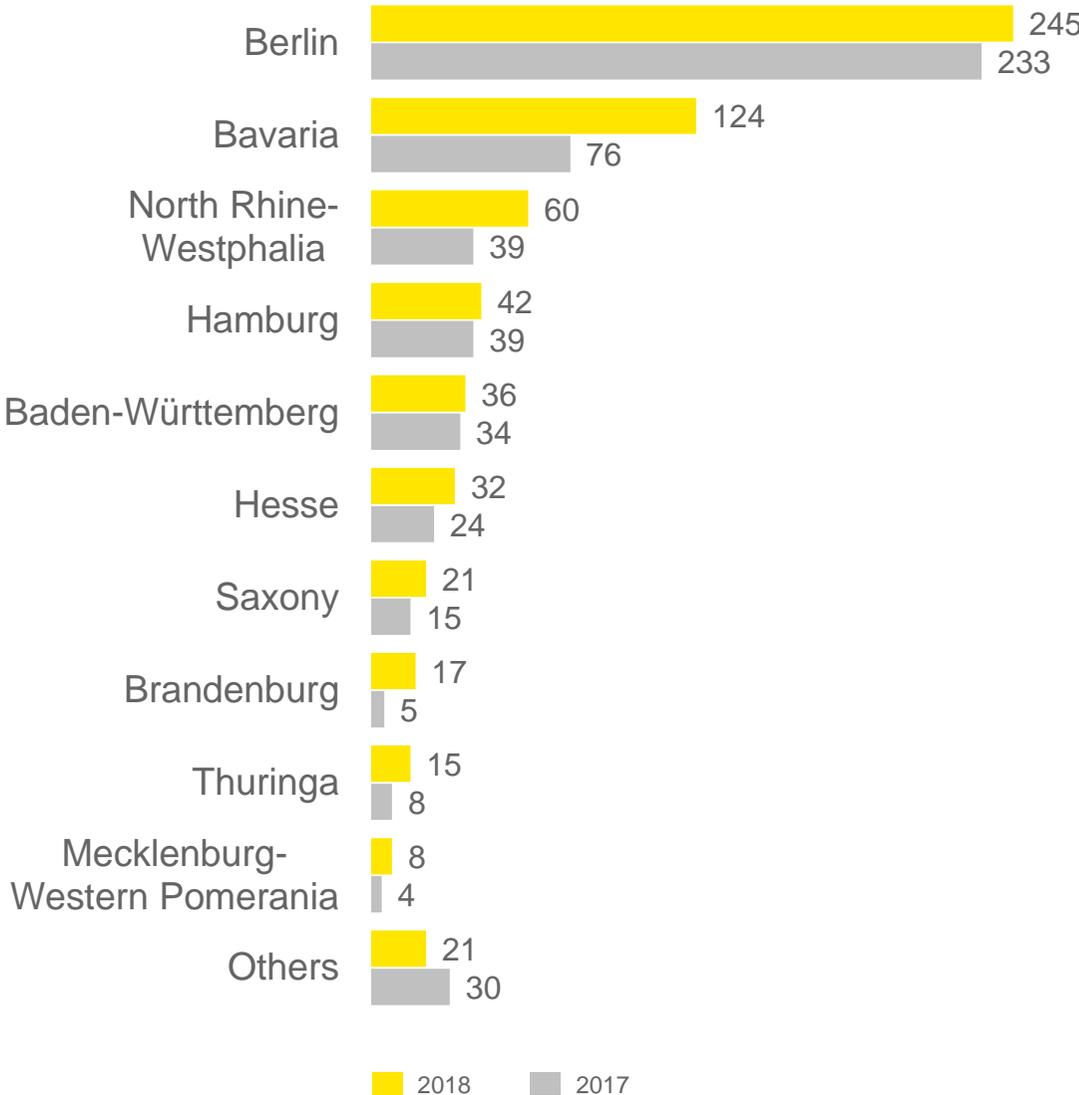
Berlin, regarding the number of Deals, again clearly ahead of Bavaria, North Rhine-Westphalia



Investments in German Start-ups 2018 and 2017

Amount of rounds of financing per state

- ▶ Berlin was once again the hotspot of the German Start-up scene in 2018: 40 percent of all listed financing rounds in the country were assigned to Berlin based companies
- ▶ Bavaria was able to maintain its second place in the number of deals from the previous year and recorded at least twice as many deals as the third-placed North Rhine-Westphalia and nearly three times as many deals as Hamburg with its fourth place
- ▶ All states in the top 10 recorded an increase in the number of deals compared to the previous year.



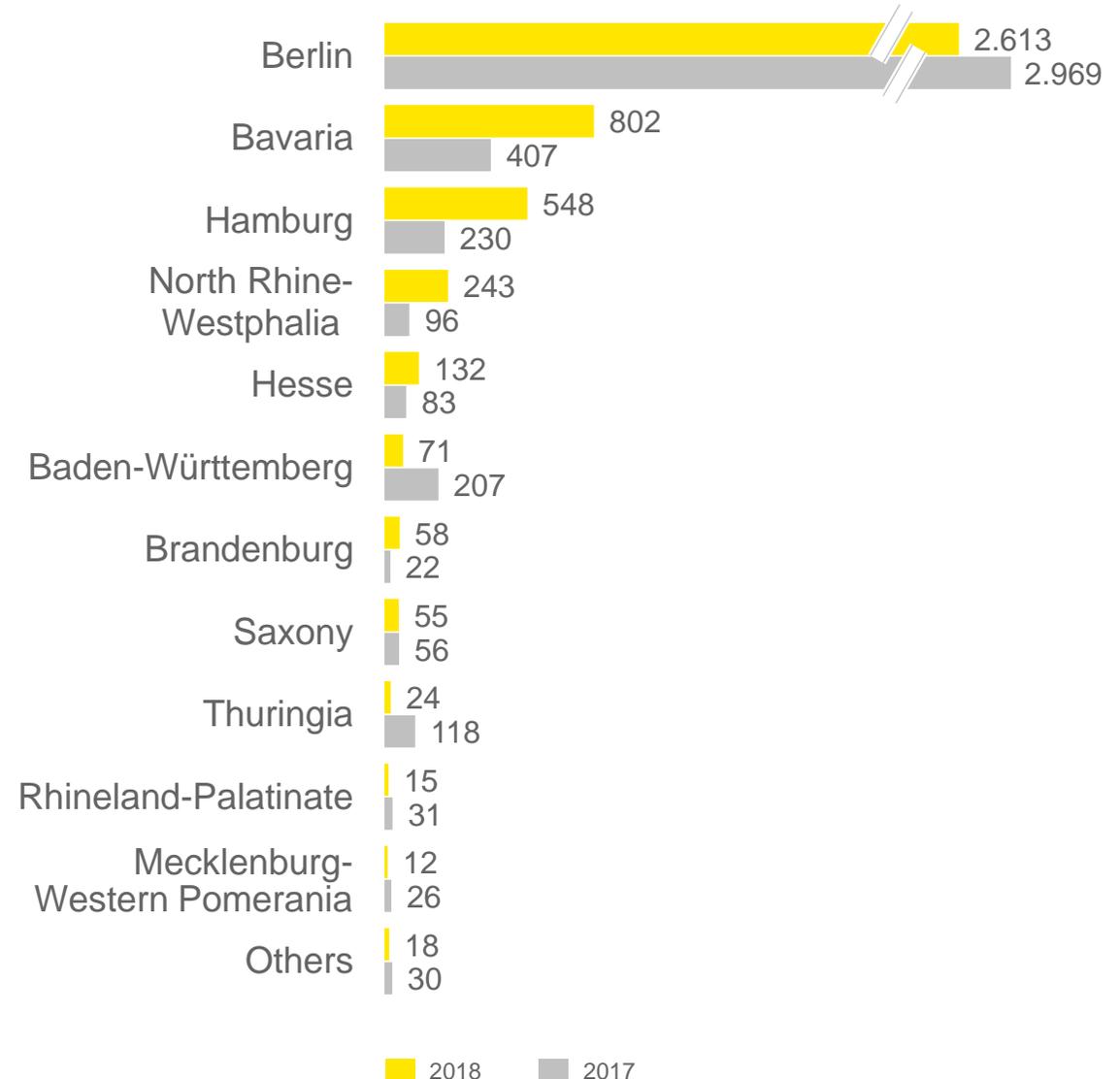
Berlin also as the Hotspot regarding the deal volume – but Bavaria and Hamburg are catching up



Investments in German Start-ups 2018 and 2017

Financing amounts per state (Information in EUR Million)

- ▶ As in the previous year, Berlin Start-ups were by far the largest in attracting capital compared to the states: More than every second Euro (57 percent) was invested in Berlin in 2018.
- ▶ With a market share of 17 percent, Bavaria ranks second ahead of Hamburg, which will bring it to a market share of 12 percent in 2018. Both states can significantly increase their market share compared to 2017, while Berlin is recording a decline.



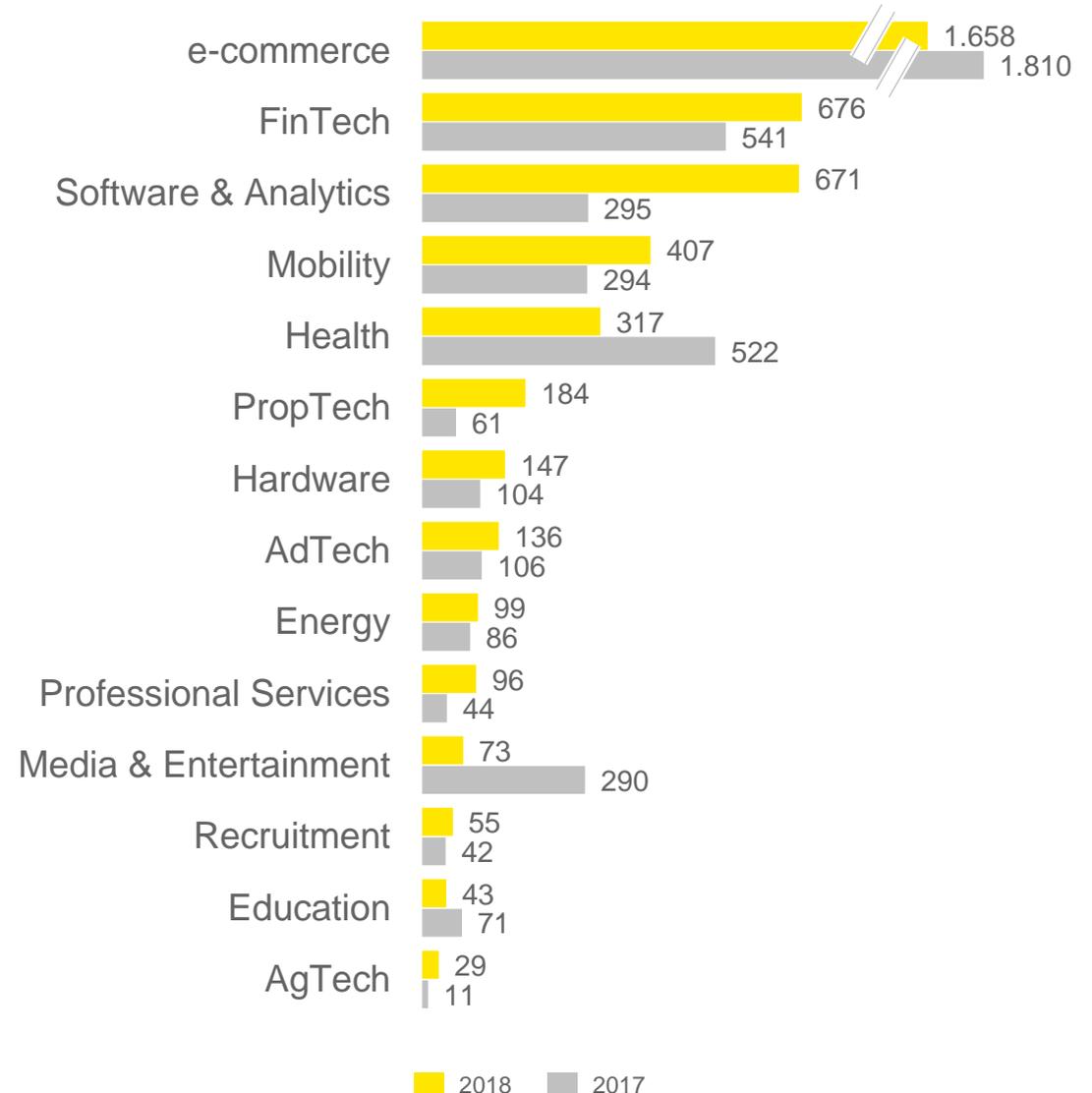
Industries: Most investment capital flows into E-Commerce



Investments in German Start-ups, 2018 and 2017

Financing amounts per industrie (Information in EUR Million)

- ▶ As in the previous years, most of the money in 2018 was invested in E-Commerce. However, the investment volume fell compared to the previous year.
- ▶ Second place goes to FinTech, ahead of Software & Analytics. Both sectors generated more capital than in the previous year, with Software & Analytics showing a particularly strong growth in 2018.



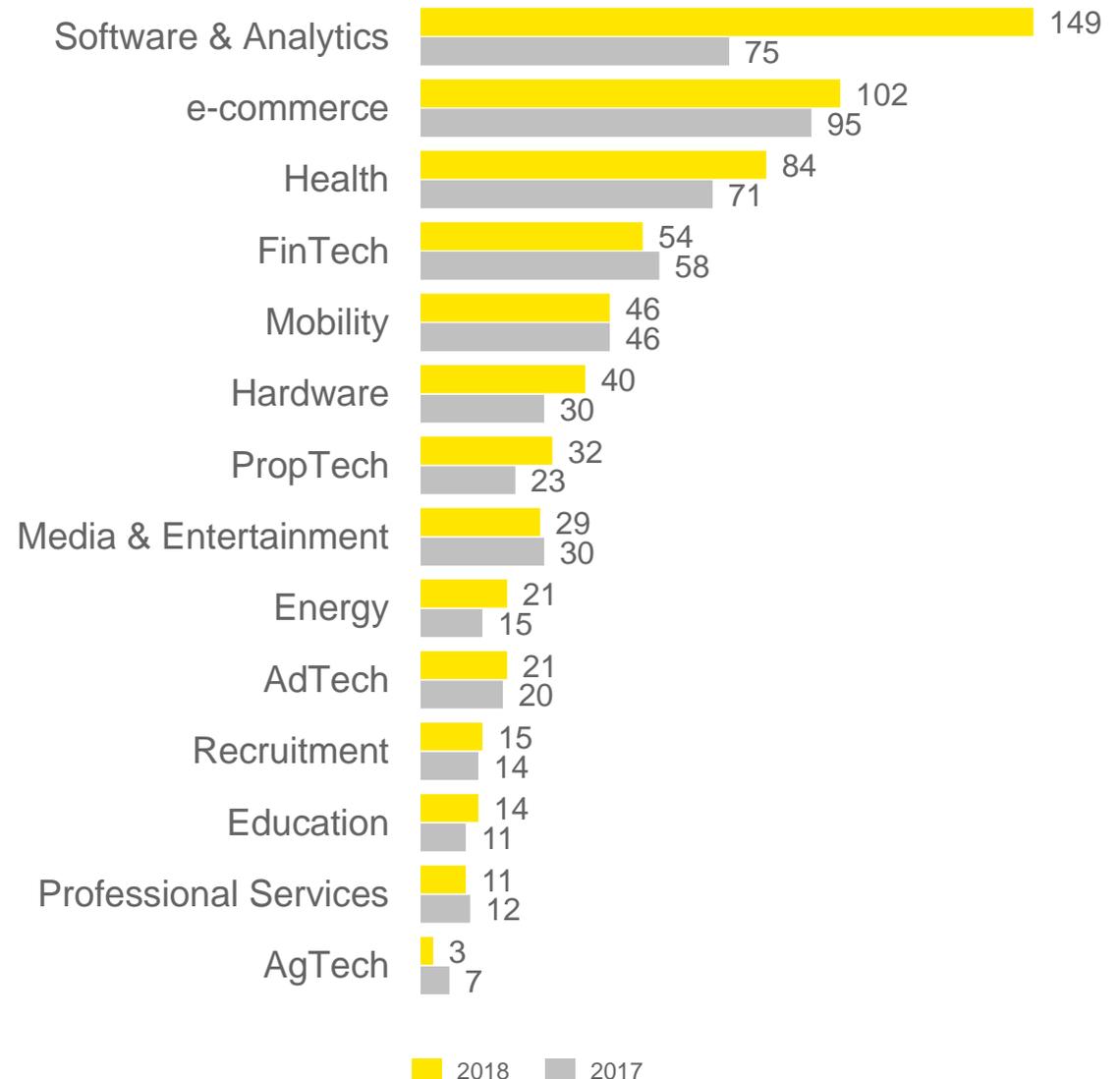
Most financing rounds in Software & Analytics



Investments in German Start-ups, 2018 und 2017

Amount of financing rounds per sector in Germany

- ▶ For the first time in the investigation period, the Software & Analytics sector combined most of the financing rounds in 2018: Compared to 2017, the number has almost doubled from 75 to 149. With SaaS, Artificial Intelligence, Virtual Reality, Blockchain, Cloud, Cyber Security, and Data Analytics, this area includes startups in the field of new technology.
- ▶ In second place is E-Commerce, ahead of the Health sector. Both sectors also gained more financing rounds in 2018 than in the previous year.



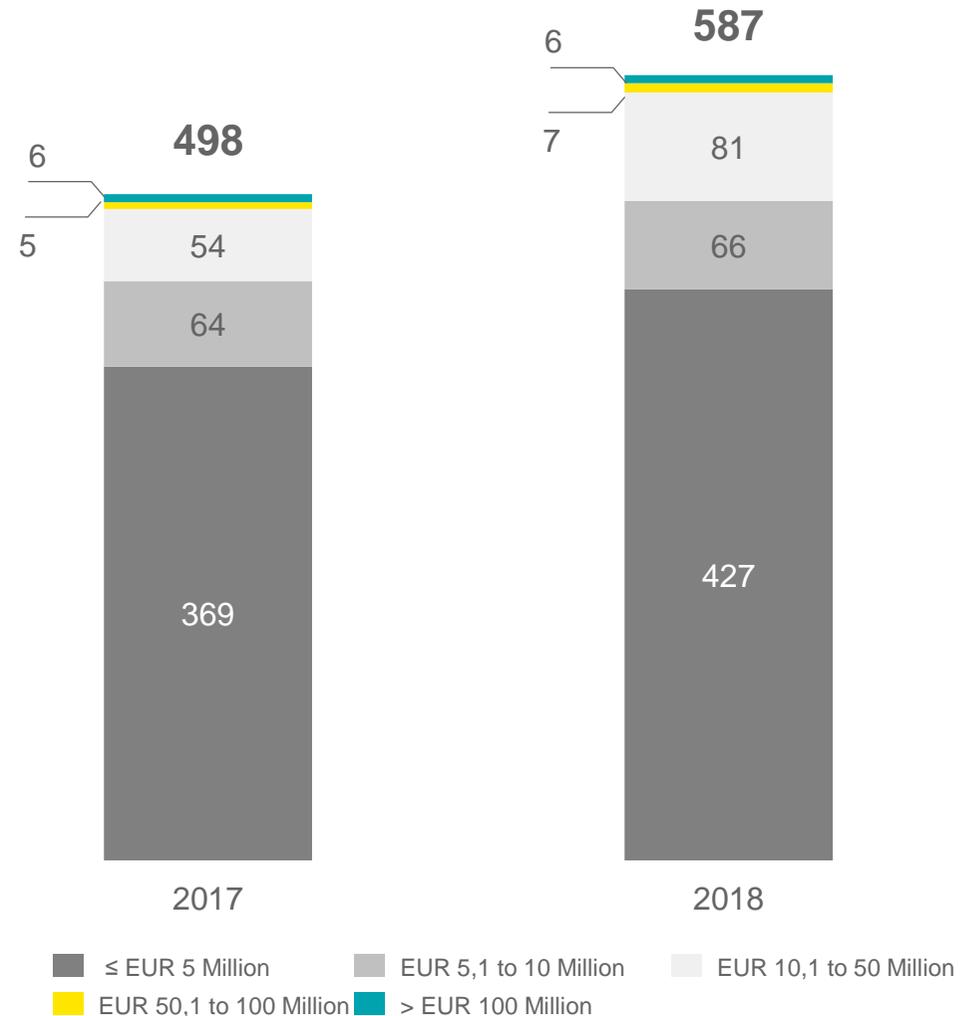
Significantly more medium-sized financings



Investments in German Start-ups

By size classes, number of financing rounds in the mentioned size class¹

- ▶ The number of small and medium-sized deals (up to EUR 10 Million) increased by 14 percent compared to the previous year, and the number of larger deals (between EUR 10 and 50 Million) even by 50 percent
- ▶ The number of large deals (more than EUR 50 Million) has also increased once more - from 11 to 13.



¹ In total, in 2018 (2017) 613 (507) financings were counted, but only 579 (498) transactions include information on the financing volume.

Auto1 with the biggest round of financing

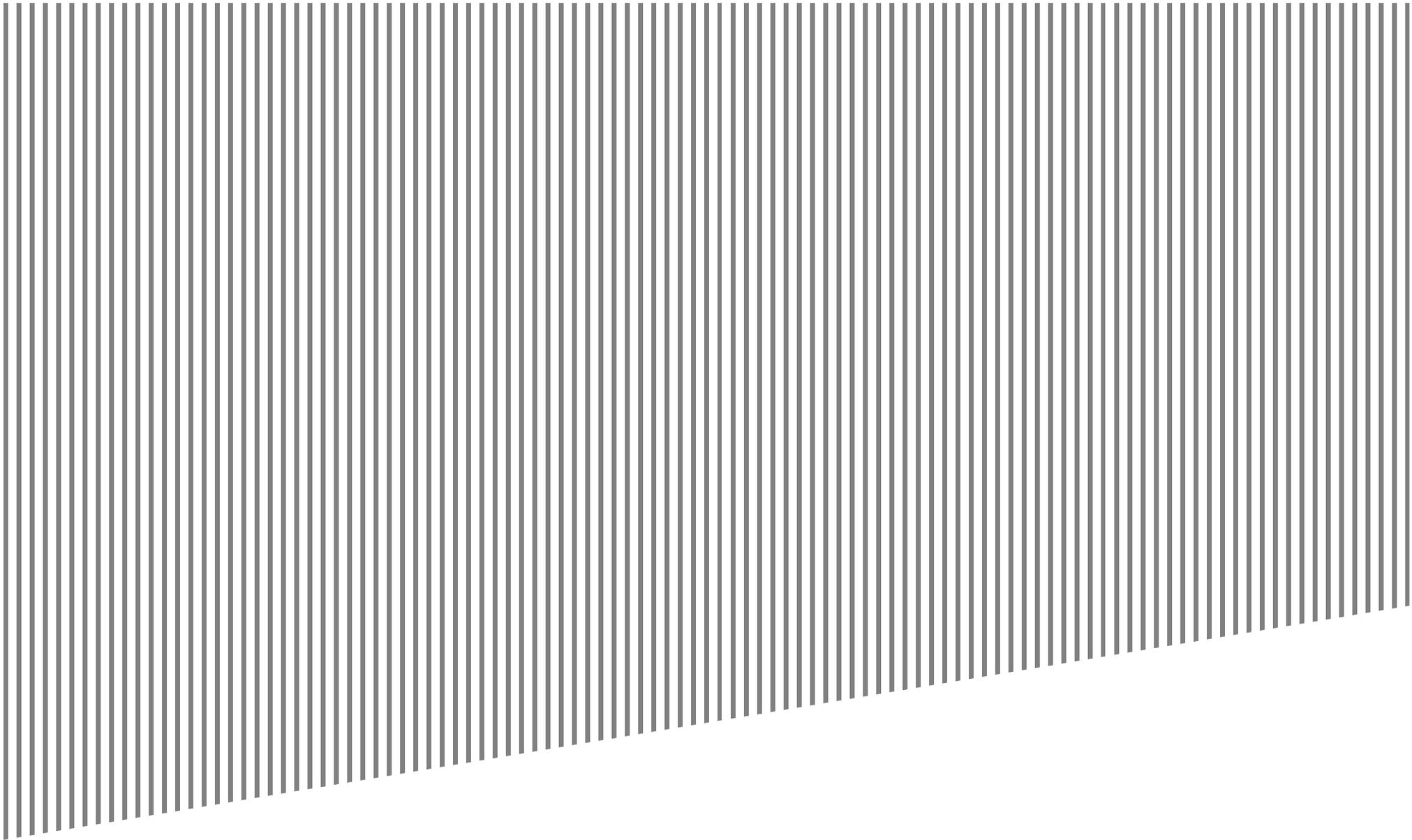


Top-5-Investments in Germany in 2018

| Company | Month | Financing amount in EUR Million | State |
|-----------|---------|---------------------------------|---------|
| Auto1 | January | 460 | Berlin |
| About You | July | 264 | Hamburg |
| Home24* | June | 172 | Berlin |
| GoEuro | October | 132 | Berlin |
| N26 | March | 132 | Berlin |

* IPO

4 - Deep Dive Industries



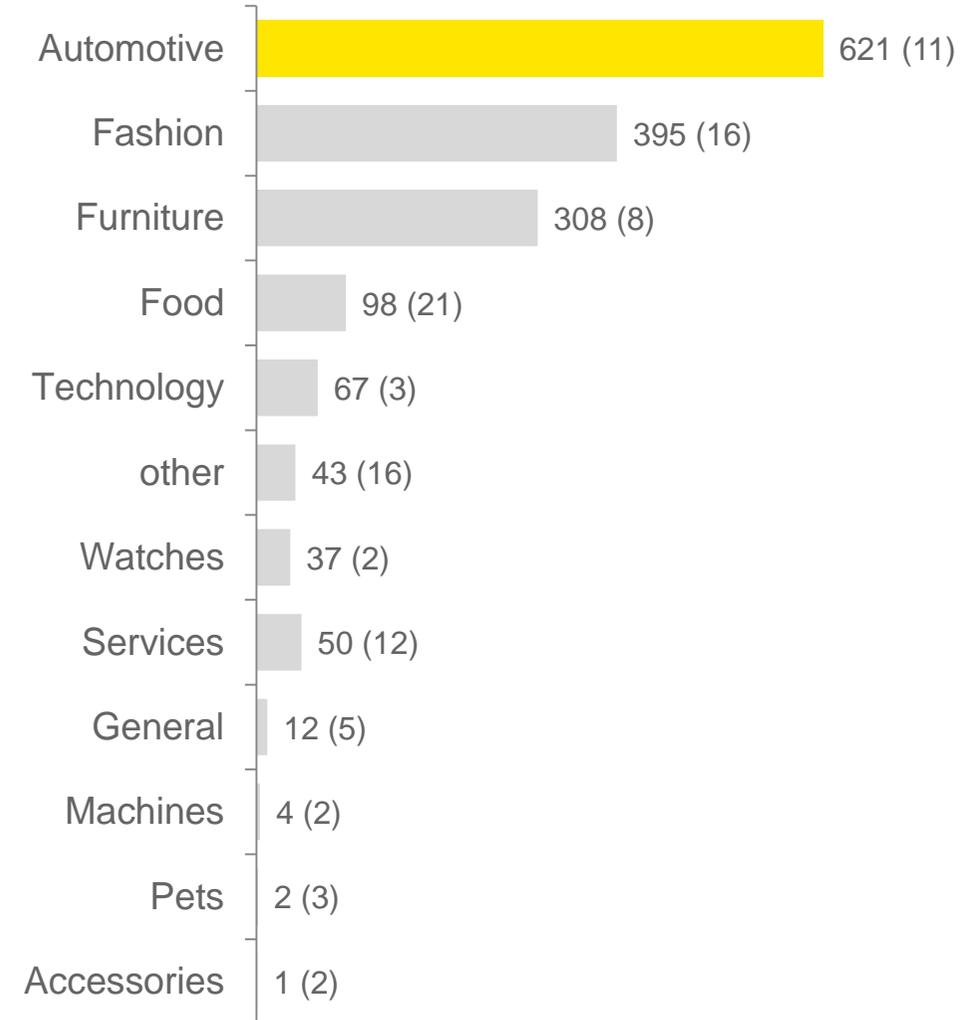
Detailed analysis E-Commerce: Automotive in front of Fashion with the highest investment capital



Investments in E-Commerce in Germany, 2018

Financing amount per sub-sector
(Information in EUR Million), in brackets:
Amount of rounds of financing

- ▶ Unlike in previous years, when most of the investment capital in the E-Commerce sector was invested in food startups, in 2018 most of the money went into **Automotive startups**: EUR 621 Million were invested in 11 rounds of financing, whereby EUR 460 Million were accounted by a single deal (Auto 1).
- ▶ In second place is the Fashion sector in front of the Furniture. Food finished only in fourth place in 2018, but combined most of the financing rounds.



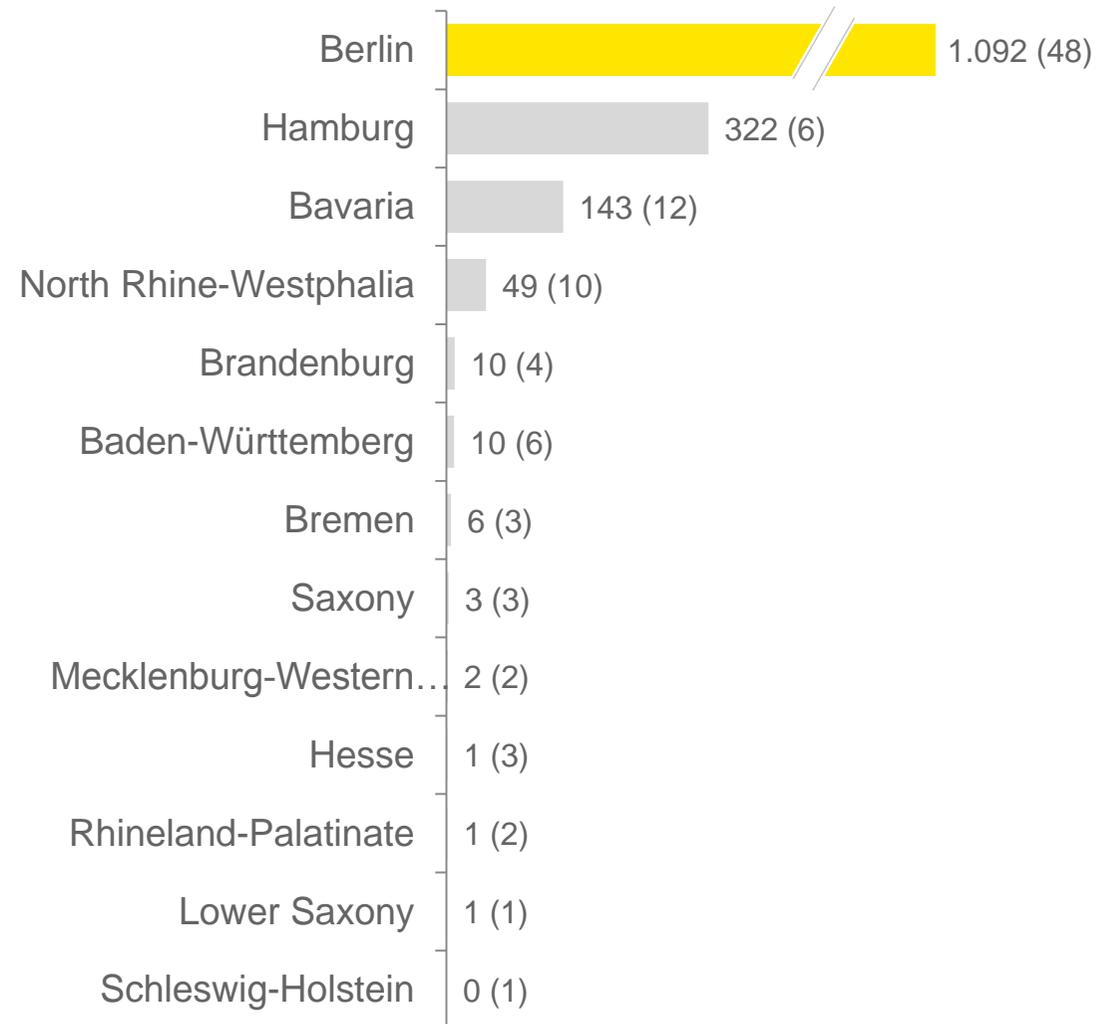
E-Commerce: Berlin far ahead of the rest of the republic



Investments in E-Commerce, 2018

Financing amount per state (Information in
EUR Million), in brackets:
Amount of rounds of financing

- ▶ As in the previous year, **Berlin** recorded by far the highest volume of deals in E-Commerce and by far the highest financing volume in 2018: Around, 67 percent (EUR 1.1 billion) of the EUR1,638 Millions invested in E-Commerce went to capital city Start-ups.
- ▶ In second place is Hamburg, ahead of the two territorial states of Bavaria and North Rhine-Westphalia.



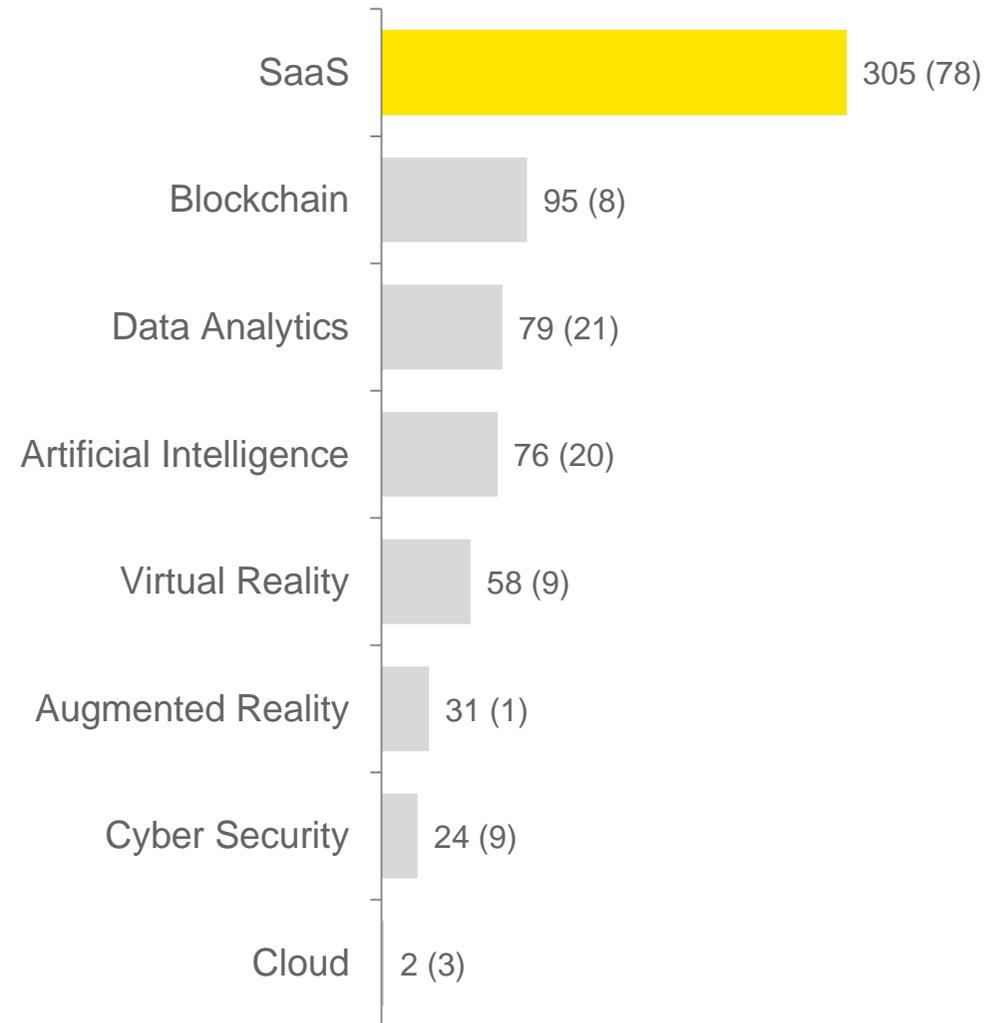
Detailed analysis Software & Analytics: Software as a Service attracts the most investment capital



Investment in Software & Analytics, 2018

Financing amount per sub-sector
(Information in EUR Million), in brackets:
Amount of rounds of financing

- ▶ Within Software & Analytics, the Software as a Service segment recorded the highest volume of deals last year as well as the largest investment volumes, followed by the subsectors Blockchain, Data Analytics and Artificial Intelligence.
- ▶ Compared to the previous year, the invested capital in blockchain Start-ups has tenfold from 9 to EUR 95 Millions.



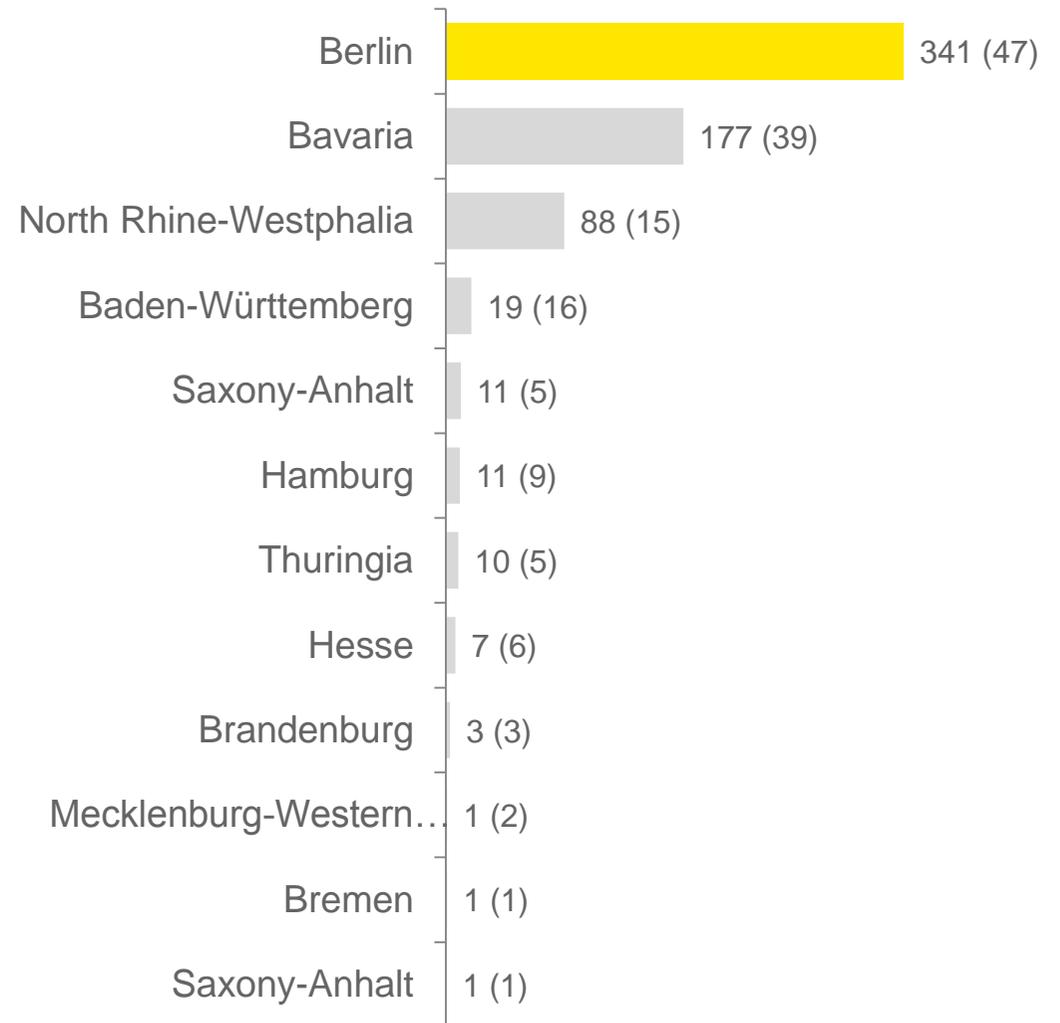
Software & Analytics: Berlin Start-ups receive the most, followed by Bavarian



Investments in Software & Analytics, 2018

Financing amount per sub-sector
(Information in EUR Million), in brackets:
Amount of rounds of financing

- ▶ Berlin Start-ups recorded the highest number of deals in 2018 and with EUR 341 Million also the highest inflow of investment capital in the sector of Software & Analytics.
- ▶ Followed by Bavarian software companies in second place, which brought in 39 financing rounds on a total investment of EUR177 Millions.



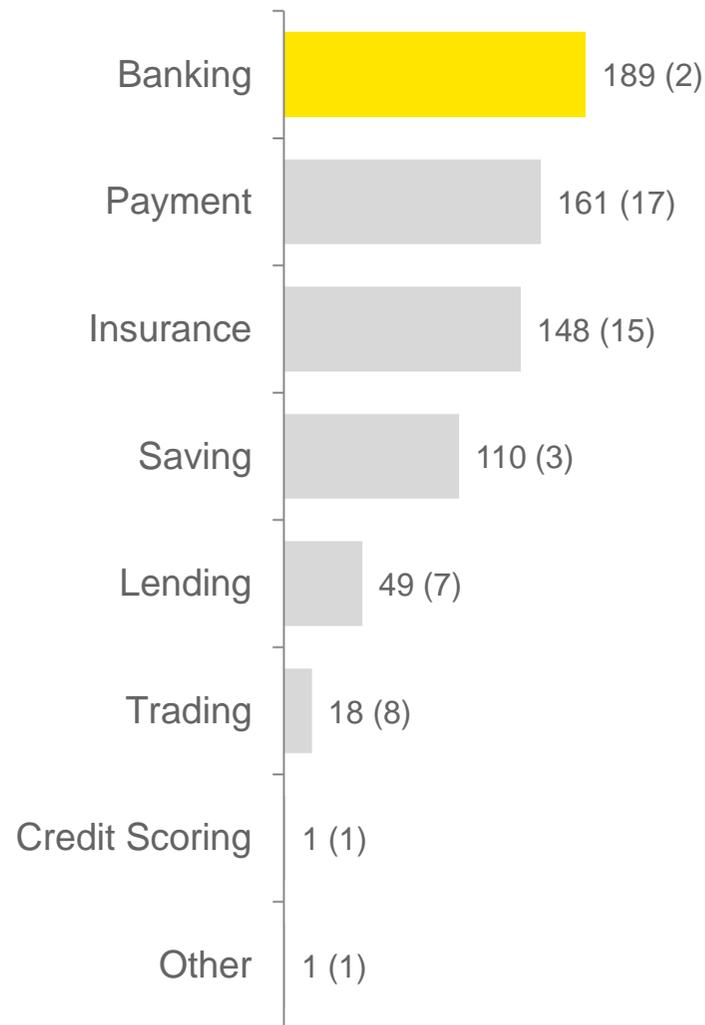
FinTech: Banking and Insurance attracting the most of the investment capital



Investments in FinTech in Germany, 2018

Financing amount per sub-sector
(Information in EUR Million), in brackets:
Amount of rounds of financing

- ▶ In the FinTech sector, the Banking segment recorded the largest inflow. They raised EUR 189 Millions of investment capital in just two rounds of financing.
- ▶ Ranks two and three are followed by the Payment and Insurance sub-sectors, which achieved an investment volume of either EUR 161 Million and EUR 148 Million.
- ▶ The Lending segment, which had the most investment capital (EUR 249 Millions) in the previous year, received only EUR 49 Millions in 2018.



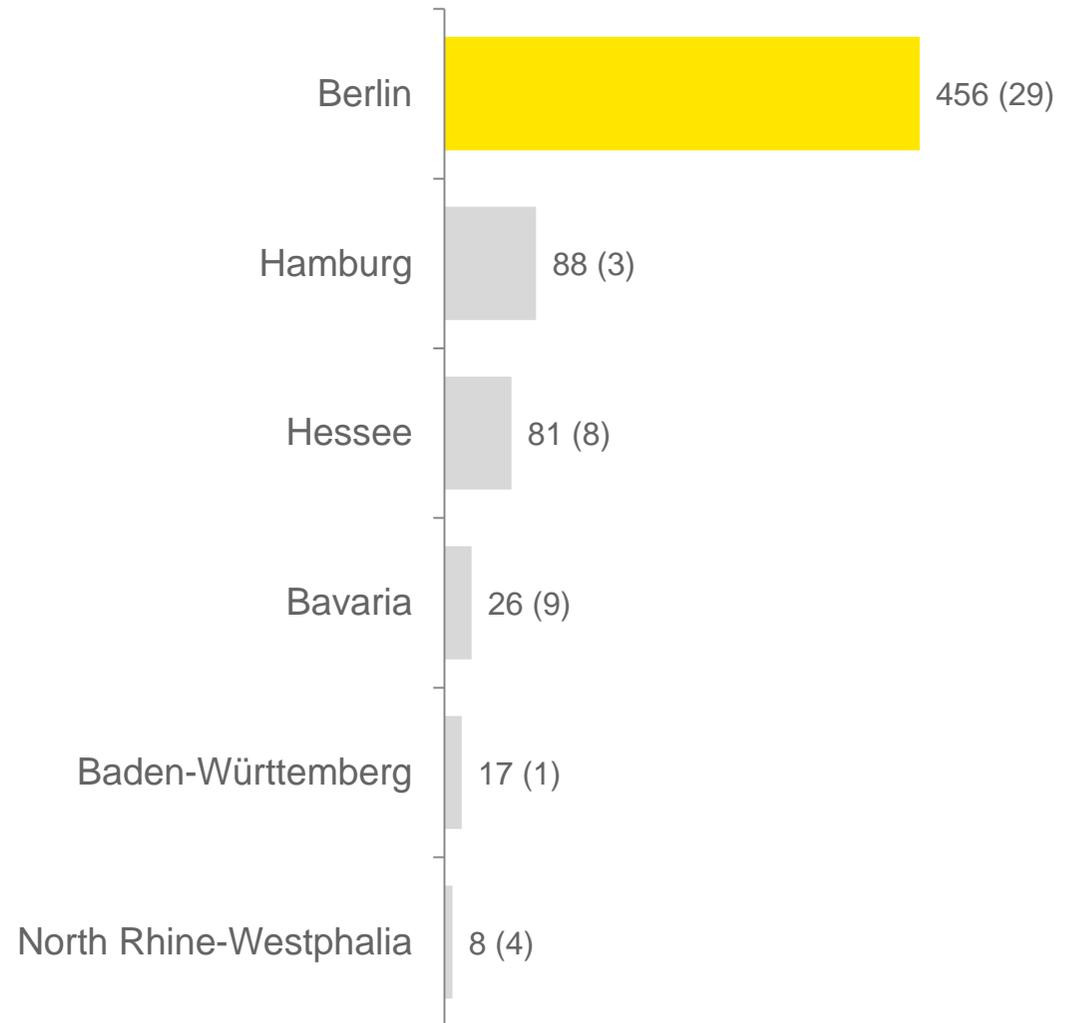
FinTech: Berlin clearly ahead of Hamburg and Bavaria



Investments in FinTech in Germany, 2018

Financing amount per sub-sector
(Information in EUR Million), in brackets:
Amount of rounds of financing

- ▶ FinTech companies in Berlin received a total of EUR 456 Millions in fresh capital in 29 financing rounds in 2018 – that makes 68 percent of the total amount which was invested in this area in Germany last year.
- ▶ Hamburg's FinTech Start-ups recorded an inflow of EUR 88 Millions in only 3 rounds of financing.



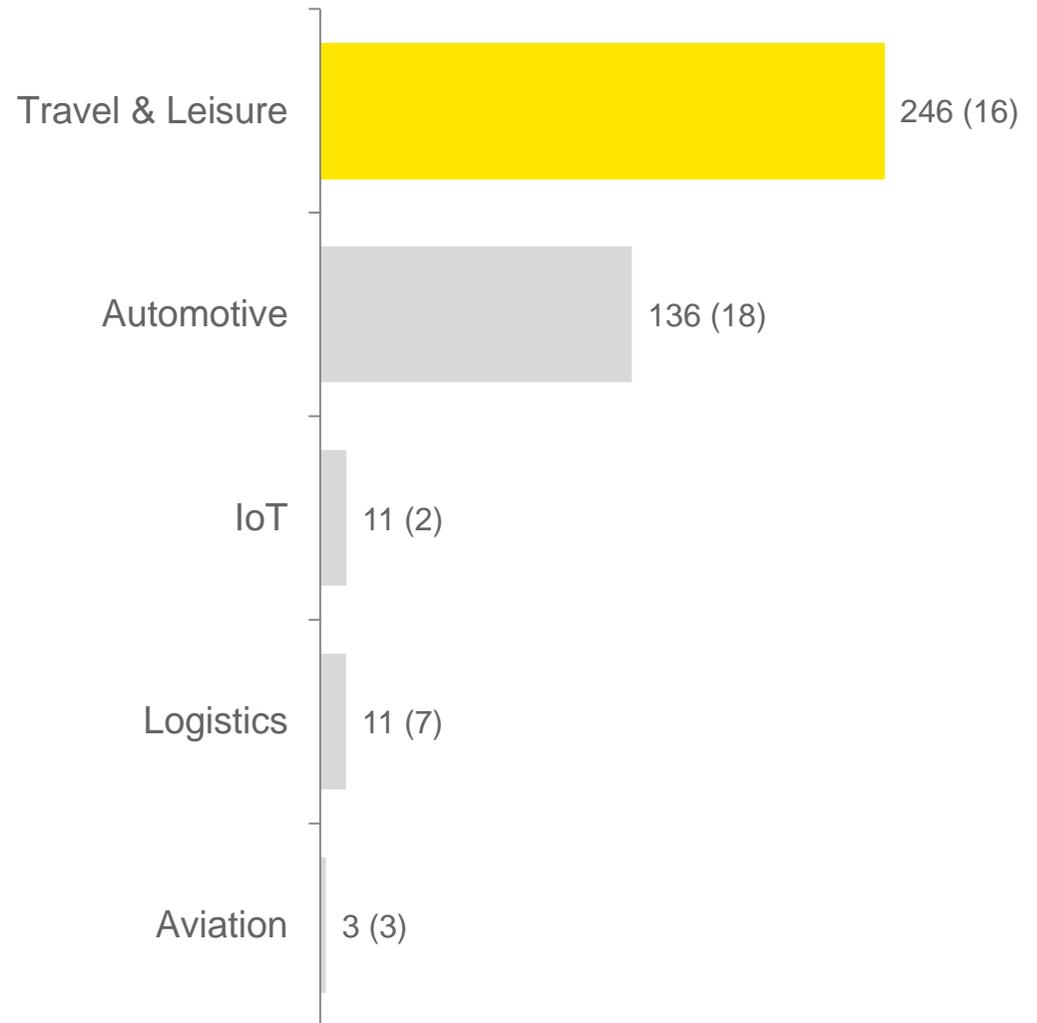
Detailed analysis Mobility: Travel & Leisure ahead of Automotive



Investments in Mobility in Germany, 2018

Financing amount per sub-sector
(Information in EUR Million), in brackets:
Amount of rounds of financing

- ▶ In the area of mobility, 94 percent of the total amount of invested capital was assignable to the two subsectors Travel & Leisure (60 percent) and Automotive (34 percent).
- ▶ In the sub-sector Travel & Leisure alone EUR 132 Million were spent on on big deal (GoEuro).



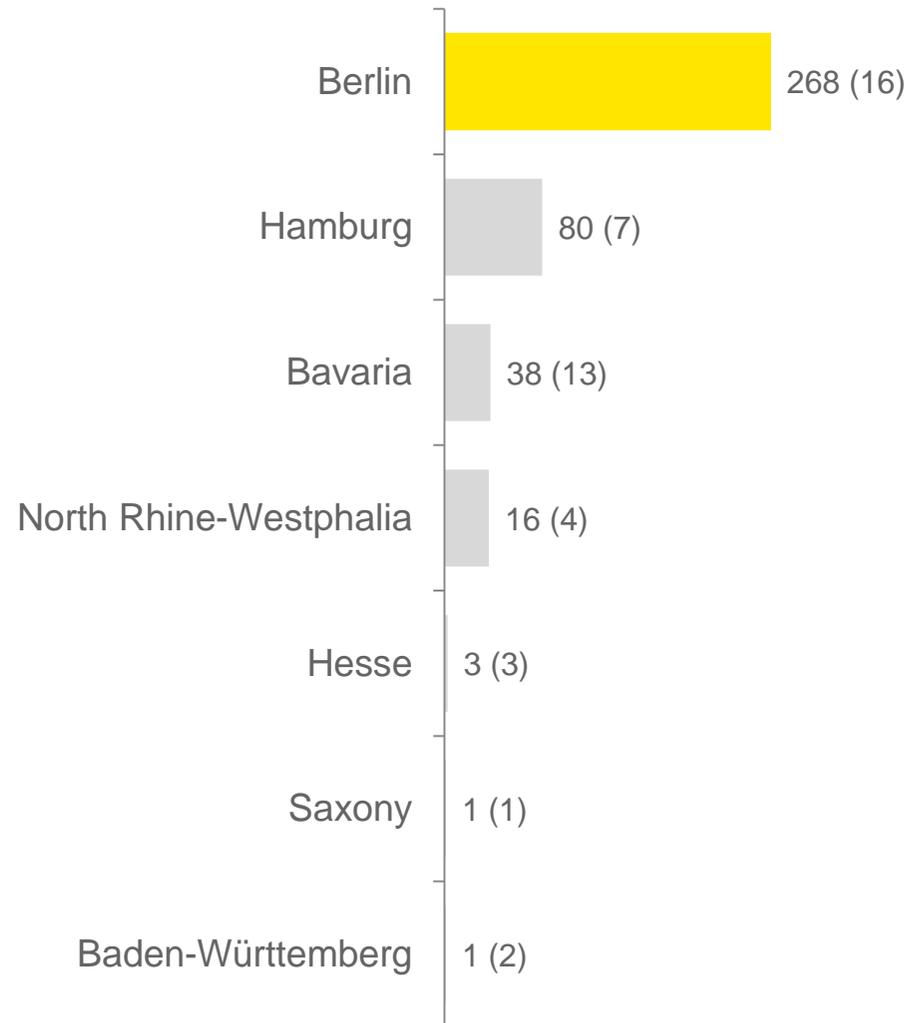
Mobility: Berlin startups receive the most - followed by software companies from Hamburg



Investments in Mobility in Germany, 2018

Financing amount per sub-sector
(Information in EUR Million), in brackets:
Amount of rounds of financing

- ▶ In 2018, **Berlin** Start-ups received around 66 percent of the capital invested in mobility in Germany.
- ▶ **Hamburg** Start-ups made it to 20 percent.



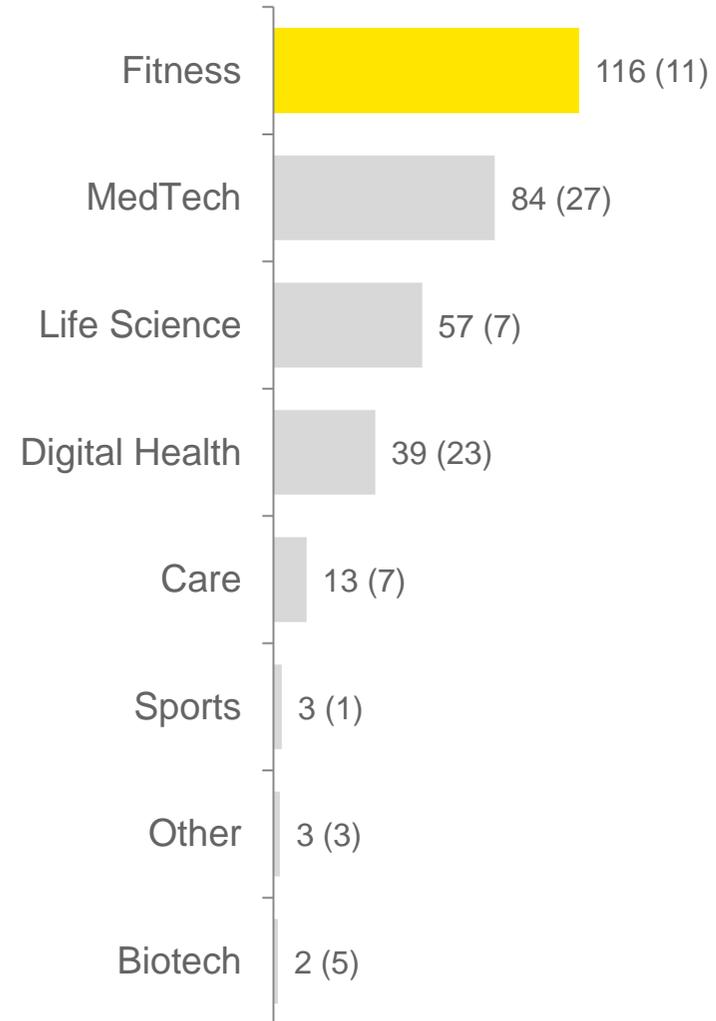
Detailed analysis Health: Fitness ahead of MedTech and Life Science



Investments in Health in Germany, 2018

Financing amount per sub-sector
(Information in EUR Million), in brackets:
Amount of rounds of financing

- ▶ In Health, the Fitness Segment attracts the most investment capital of EUR 116 Million, followed by the MedTech, Life Science and Digital Health sectors.
- ▶ Most rounds of financing were found in MedTech, followed by Digital Health.



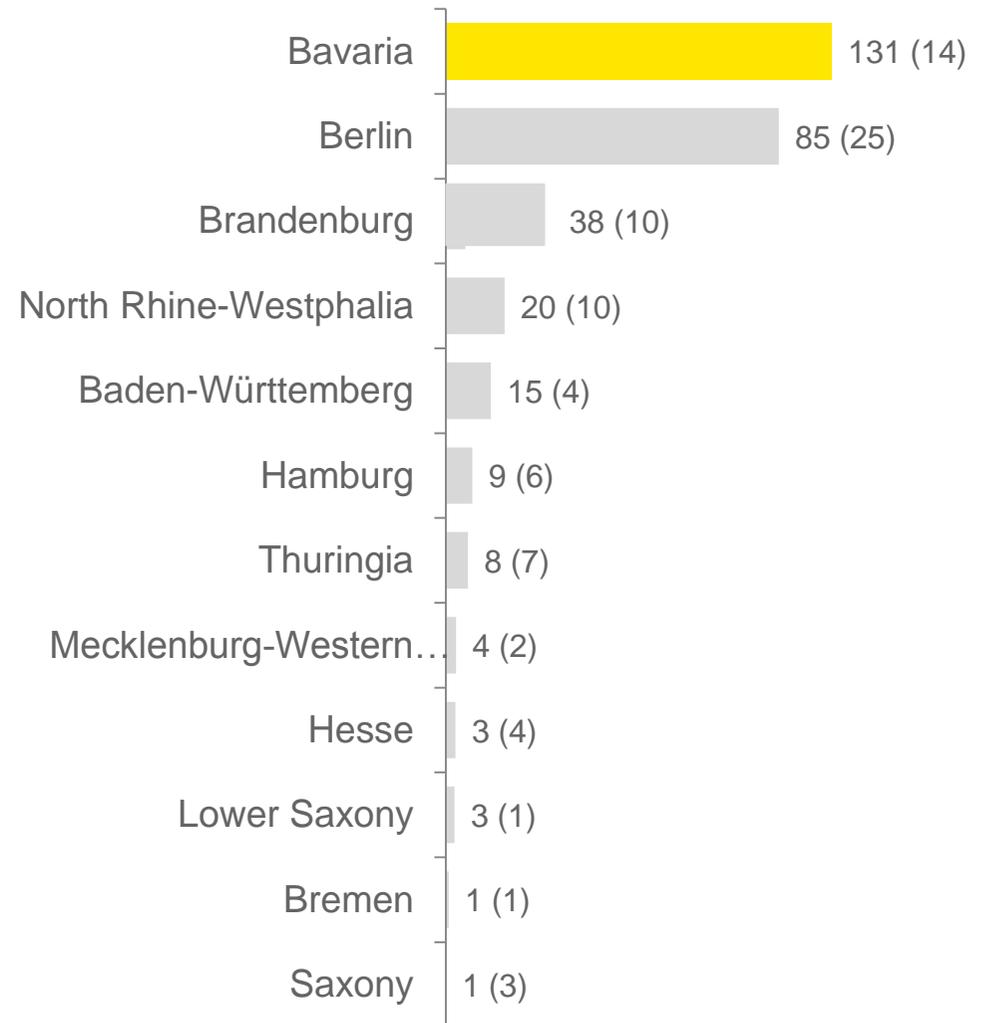
Health: Bavaria shortly ahead of Berlin



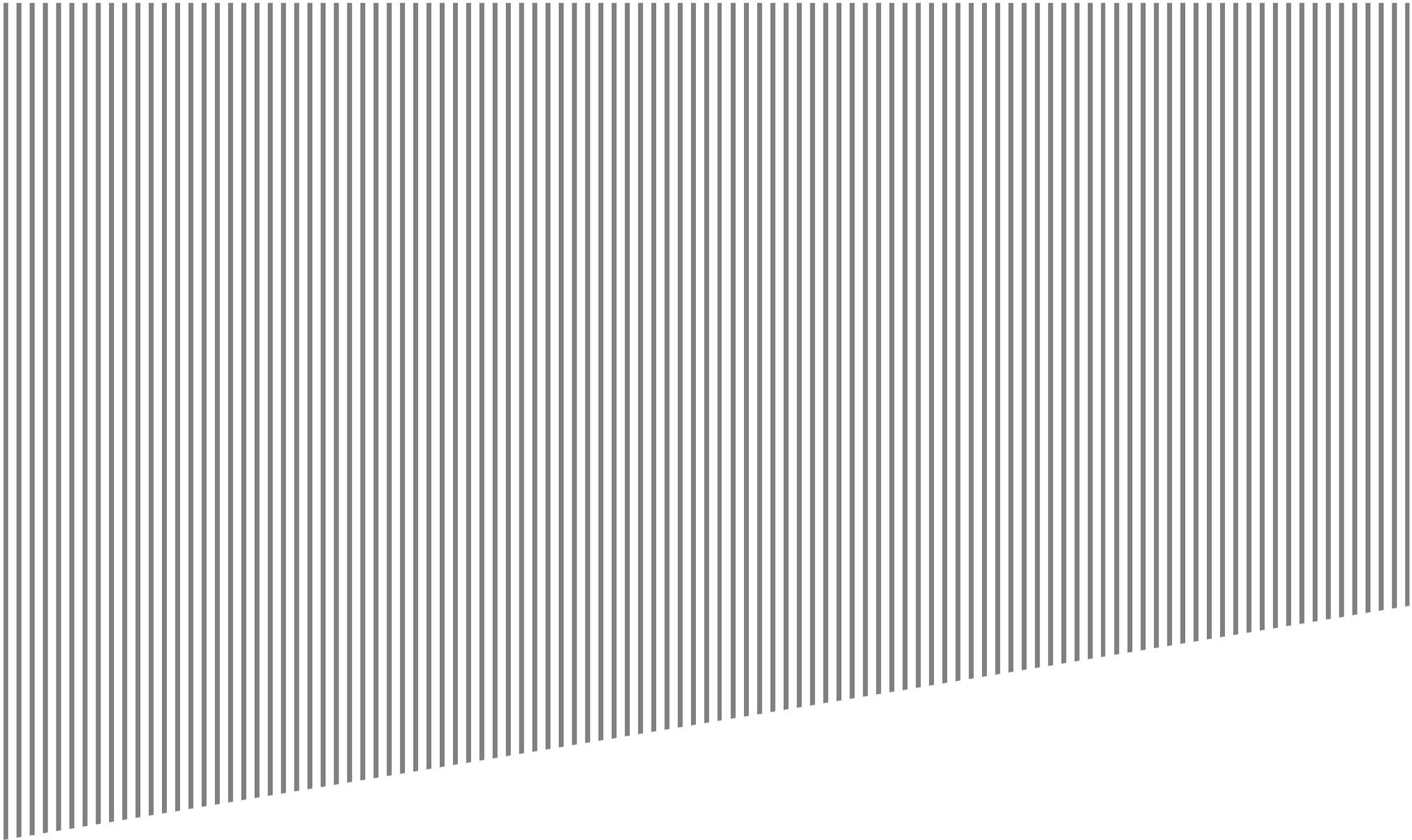
Investments in Health in Germany, 2018

Financing amount per sub-sector
(Information in EUR Million), in brackets:
Amount of rounds of financing

- ▶ Although most deals in the Health sector were registered in Berlin, Bavaria had the highest investment volume: a total of EUR 131 Millions flowed in the Health sector. Berlin Start-ups in comparison made it to EUR 85 Millions.
- ▶ Overall, Bavarian and Berlin Start-ups combined a market share of 68 percent.



5 - Deep Dive Top 7 States/Start-up Ecosystems



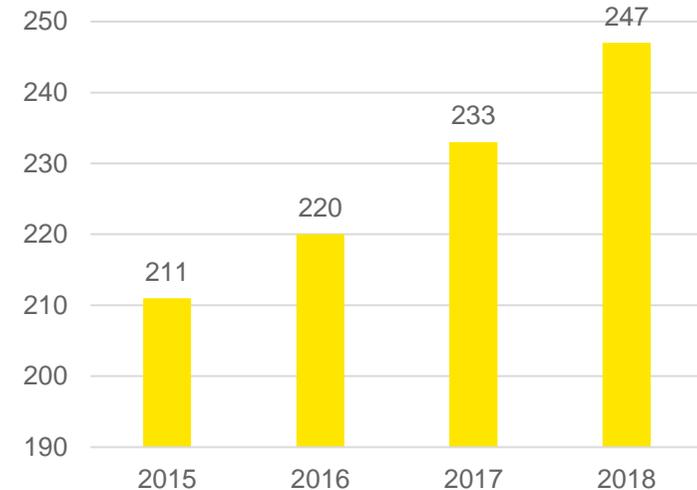
Top 7 States/Start-up Ecosystems: No. 1: Berlin (1/2)



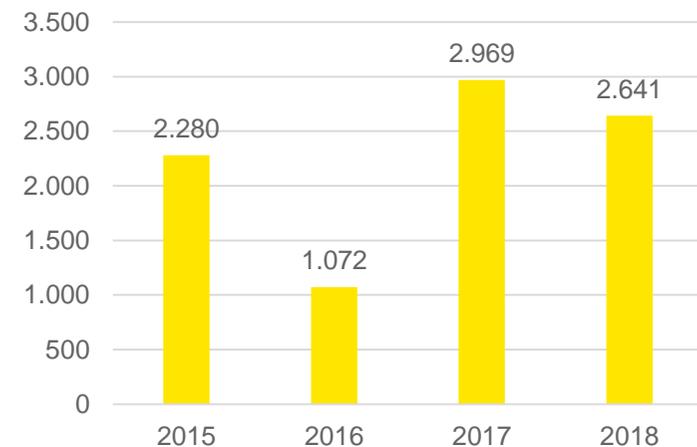
Berlin continues to be the German start-up capital

- ▶ In 2018, Berlin defends its undisputed top position as a start-up capital in Germany. The Berlin start-ups raised EUR 2.6 billion (previous year: EUR 3.0 billion) in capital. This means that 58 percent of all financing ended up in Berlin. However, this also means a decline of 18 percent compared to the previous year with a share of 76 percent, which was mainly due to the mega deal at Delivery Hero, which could not be repeated in 2018.
- ▶ With 247 financing rounds and EUR 2.6 billion in capital received in 2018, Berlin still had twice as many financing rounds and more than three times the volume of the second-placed Bavaria.
- ▶ **Ecosystem:** The Berlin start-up ecosystem benefits from its large international talent pool, which is attracted by the city, which is particularly attractive for young talents, the still relatively low rents, the huge cultural offerings and the international openness of Berlin. In addition, the HU, the FU and the TU are joined by a total of 3 of Germany's top 10 universities with many entrepreneurship programs, almost 30 research institutes and the absence of competitors from the old economy.
- ▶ The Berlin Start-up Ecosystem is the undisputed No. 1 in the number of Co-Working Spaces, Accelerators and Incubators, Start-up Events, VCs and other donors as well as Business Angels in Germany.
- ▶ **Others:** In 2018, Siemens AG decided to set up a start-up campus for over EUR 600 million on the old Siemens site in Spandau, while the Code University of Applied Sciences opened a campus in Berlin.

Number of financing rounds



Volume of financing rounds
(in EUR Million)



Top 7 States/Start-up Ecosystems: No. 1: Berlin (2/2)



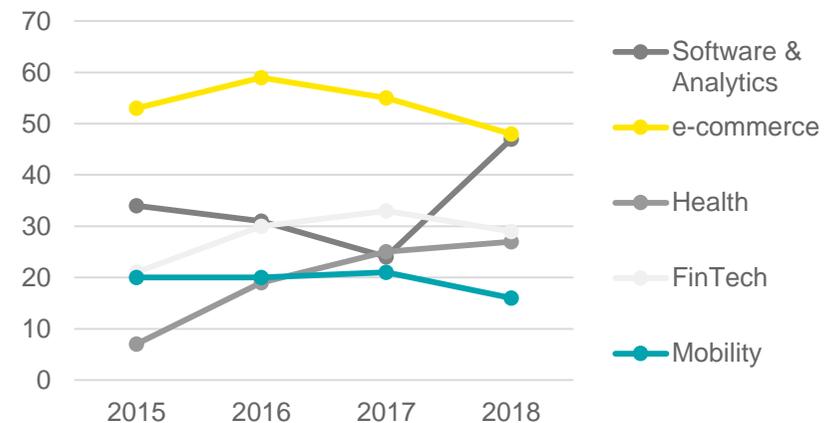
E-Commerce ahead in value, new technologies in number

- ▶ The E-Commerce and FinTech sectors continue to receive the largest financing, which is due to the capital-intensive B2C business model. However, the sale of Delivery Hero's German business to its largest competitor is not the only sign of a trend towards concentration in these two segments.
- ▶ More than 2/3 of all financing over EUR 10 million went to Berlin start-ups in 2018, which is a strong indication of further growth through international expansion and further large financing rounds.
- ▶ The high number of financing deals for new technologies shows Berlin's future: Almost half of the AI start-ups in Germany are based in Berlin, which is now also considered the blockchain capital of Europe.

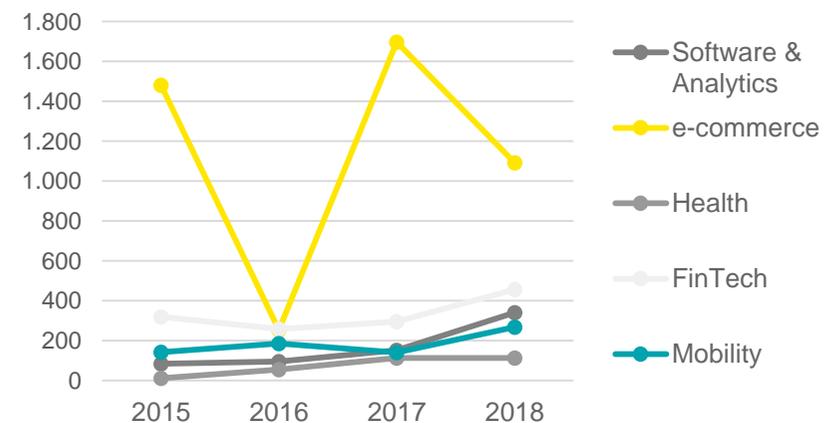
Top-5-Investments in 2018

| Company | Financing amount (EUR Million) |
|---------------|--------------------------------|
| Auto1 | 460 |
| home24 | 173 |
| N26 | 132 |
| GoEuro Travel | 132 |
| Envion | 86 |

Top 5 Industries - Number of financing rounds



Top 5 Industries - Volume of financing rounds (in EUR Million)



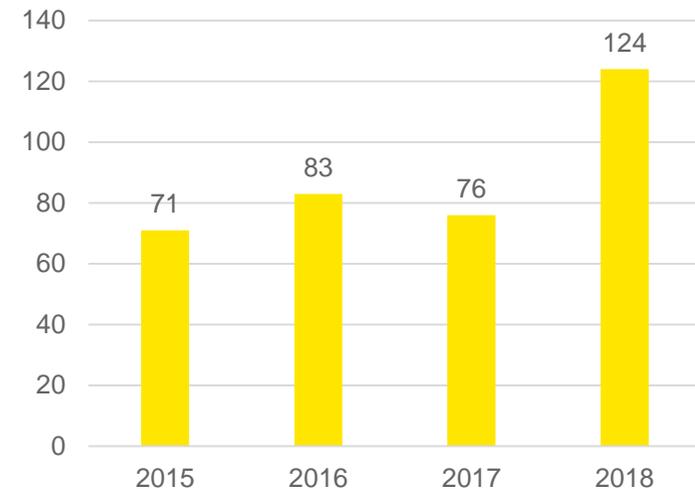
Top 7 States/Start-up Ecosystems: No. 2: Bavaria (1/2)



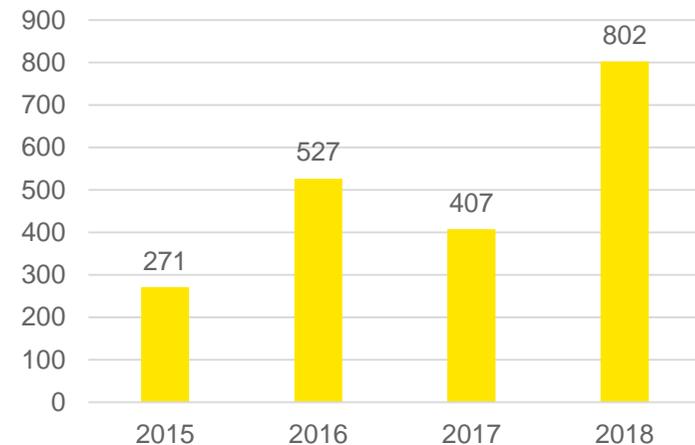
Bavarian start-ups to grow strongest in 2018

- ▶ With a total financing volume of EUR 802 Million (previous year: EUR 407 Million) and a market share of 18 percent, Bavaria ranks second in Germany, ahead of Hamburg. While the financing volume almost doubled, the number of financing transactions rose by 63 percent.
- ▶ **Ecosystem:** With a share of more than 90 percent of the financing sum, Munich including its surroundings (region of Munich) is by far Bavaria's most important start-up ecosystem, in which around 15 percent of all German start-ups are located. Munich's particular strength lies in its university landscape, which, together with the TU and LMU, is the No. 1 in Germany, as is the number of entrepreneurship programs. Munich is also home to numerous technology and start-up centers, over 17 research institutions and ranks second behind Berlin in terms of the number of donors, business angels and accelerators/incubators and third in terms of co-working spaces behind the Rhine/Main region. With the Bits & Pretzels and the DLD 2 of the most important digital conferences of Germany take place in Munich.
- ▶ As the location of seven DAX corporations, numerous medium-sized companies and international technology giants such as Google, Amazon, Microsoft and Intel, Munich is one of the most important economic centers in Germany. With increasing digitalization, cooperation between start-ups and established companies is becoming increasingly important. Munich provides a very good environment for networking.
- ▶ Munich is also one of the most attractive cities in Germany in terms of quality of life, which is why students like to stay in Munich after their studies and find their way into business or into start-ups.

Number of financing rounds



Volume of financing rounds
(in EUR Million)



Top 7 States/Start-up Ecosystems: No. 2: Bavaria (2/2)



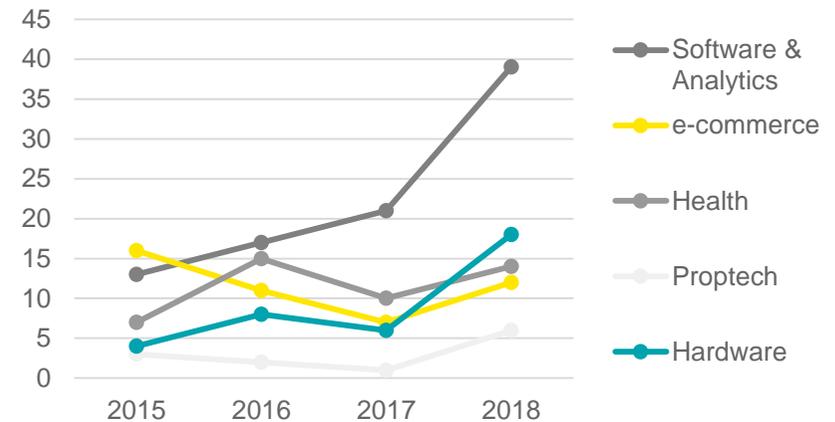
Bavaria's start-up company strongest in high-tech sector

- ▶ Bavaria's high-tech start-ups account for almost 1/3 of the total, with 40 out of 124 financings, including SaaS models, AI and Data Analytics business models. These start-ups account for 1/5 of the financing volume and are all at a relatively early stage due to the relatively new technologies.
- ▶ The 4 largest financings received with Westwing (IPO/ e-commerce), Sonnen (Energy) as well as Design Offices and tado° (Prop-Tech) well-known start-ups for their further growth and expansion.

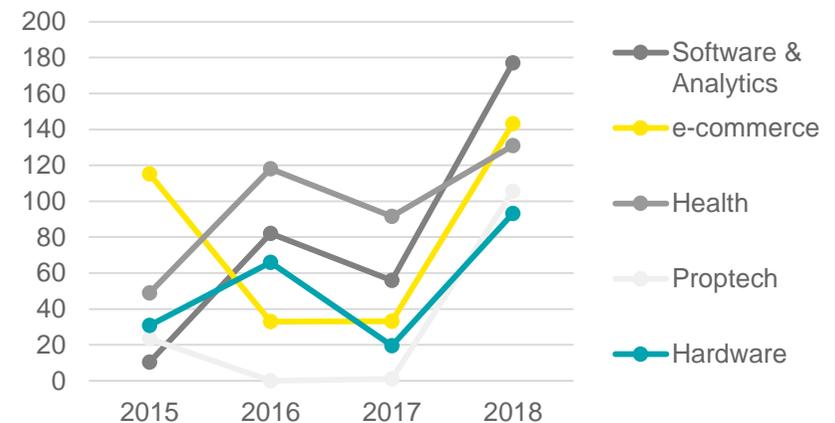
Top-5-Investments in 2018

| Company | Financing amount (EUR Million) |
|------------------------|--------------------------------|
| Westwing Home & Living | 114 |
| Sonnen | 60 |
| Design Offices | 60 |
| tado° | 43 |
| Celonis | 41 |

Top 5 Industries - Number of financing rounds



Top 5 Industries - Volume of financing rounds (in EUR Million)



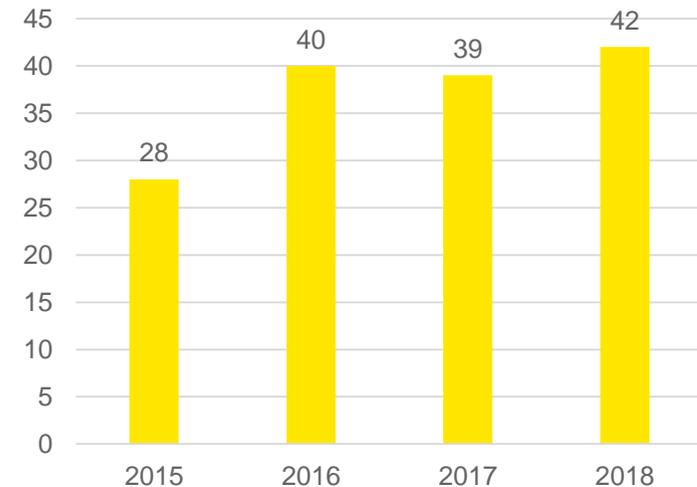
Top 7 States/Start-up Ecosystems: No. 3: Hamburg (1/2)



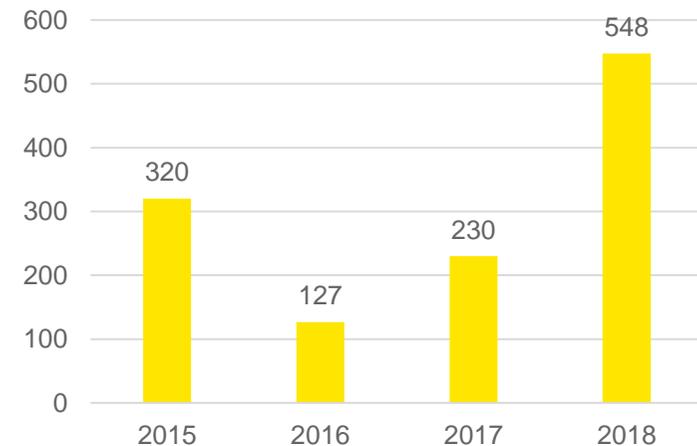
Hamburg holds 3rd place behind Munich, but NRW is catching up

- ▶ In terms of the number of financing rounds, Hamburg start-ups have increased only slightly compared to previous years and are thus in fourth place in Germany behind North Rhine-Westphalia. However, the financing volume in the Hanseatic city was more than twice as high as in the previous year due to the financing rounds of the fashion start-up About You (EUR 548 million).
- ▶ Ecosystem: According to the Economist, Hamburg is the only German metropolis to rank among the ten most livable cities in the world. Approximately 17percent of all German start-ups have their headquarters here. The Hamburg economy has many strengths, but especially in trade with the Otto Group, Beiersdorf etc., the digital and media industry with publishers such as Gruner and Jahr, der Spiegel etc., the creative and financial industries with over 130,000 employees, the aviation industry with Airbus and especially the logistics industry with the port, shipping companies and the Digital Hub Logistics of the Federal Ministry of Economics with over 30 companies from the logistics sector.
- ▶ The Hamburg start-up ecosystem holds a top position in the number of accelerators and incubators as well as VCs, business angels and serial entrepreneurs, including such well-known names as Lars Hinrichs (XING), Heiko Hubertz (Bigpoint) and Stephan Uhrenbacher (Qype, 9flats). Hamburg's large start-up events such as the Reeperbahn Festival or the Digital Marketing & Media Summit reflect the sectors of start-ups. But neither the high and research landscape including the number of entrepreneurship programs or CoWorking Spaces occupy a top position in Germany.

Number of financing rounds



Volume of financing rounds
(in EUR Million)



Top 7 States/Start-up Ecosystems: No. 3: Hamburg (2/2)



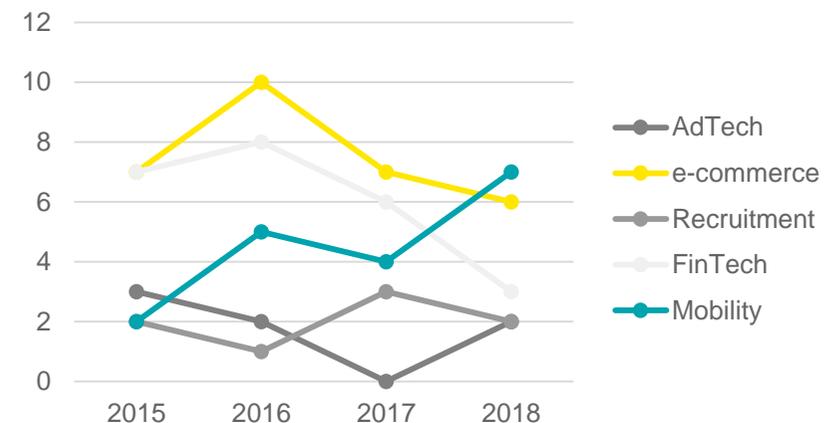
Broad start-up offering in Hamburg

- ▶ Hamburg offers a very wide range of start-ups. Among the most successful financings of the last 5 years, e-commerce and FinTech have regularly performed the strongest, followed by Mobility, in which travel platforms in particular have been successful.
- ▶ Start-ups from the AdTech, Recruiting and Logistics sectors, which are so important for Hamburg, also play a consistently important role here, however at a much lower level than, for example, in Berlin or Bavaria.
- ▶ The five largest transactions relate to the fashion start-up About You, which was included in the Unicorn group, as well as start-ups from the FinTech and Mobility segments with a travel and carpooling platform.

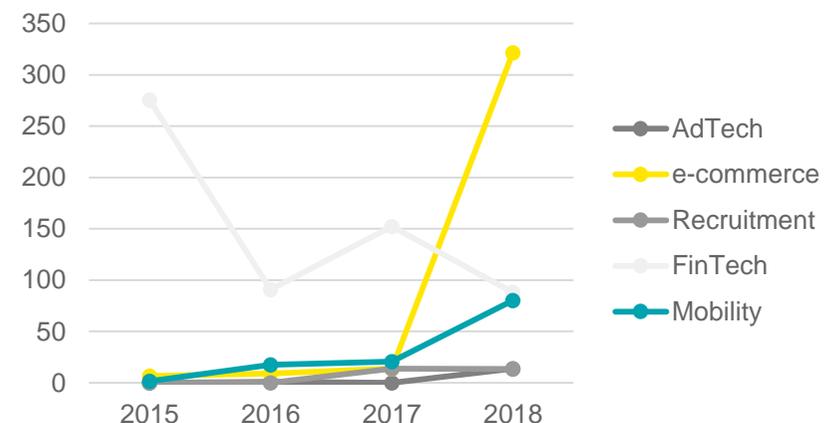
Top-5-Investments in 2018

| Company | Financing amount (EUR Million) |
|-------------------|--------------------------------|
| About you | 264 |
| Deposit Solutions | 88 |
| About you | 56 |
| Dreamlines.de | 45 |
| WunderCar | 26 |

Top 5 Industries - Number of financing rounds



Top 5 Industries - Volume of financing rounds (in EUR Million)



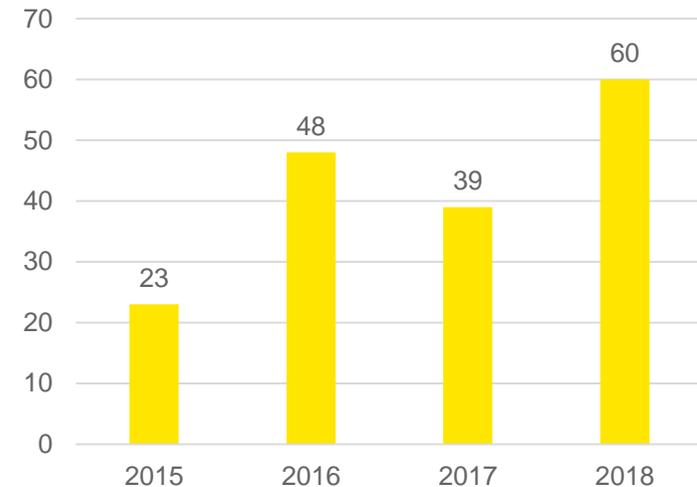
Top 7 States/Start-up Ecosystems: No. 4: North Rhine-Westphalia (1/3)



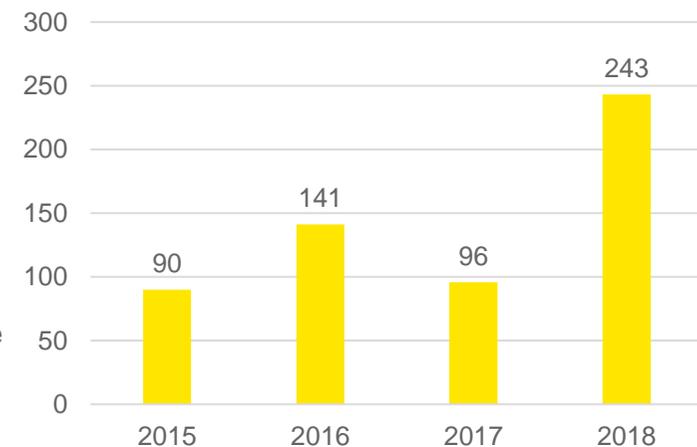
NRW – broad based and with a lot of power on the leap forward

- ▶ Something is moving in NRW. The number of transactions recorded rose by 53 percent, the value of transactions even by 153 percent and thus contributed to the most successful start-up year in NRW. This means that NRW now ranks third in the number of financing transactions in Germany. The success is not based on a few large transactions but on an increasing number of medium-sized and small financings from a very large number of locations. NRW start-ups receive many offers and support from politicians and established companies.
- ▶ Ecosystem: Unlike Berlin, Munich or Hamburg, NRW can not be considered as a cohesive start-up ecosystem due to its size. The 60 start-ups that received funding in 2018 come from a total of 20 cities, of which start-ups from Cologne (23), Dusseldorf (6) Aachen (6), Bonn (3), Essen (3) were most successful.
- ▶ On closer analysis, regional ecosystems have emerged in NRW, including Cologne, Düsseldorf and Aachen, which can be counted among the top start-up ecosystems in Germany.
- ▶ Cologne: With 23 financing transactions and a volume of EUR 107 million, Cologne would occupy 7th and 6th place respectively among the German federal states in 2018 alone. Cologne is one of the most important business locations with important companies in the automotive, media, health research, insurance and tourism sectors. For many years, Cologne's universities have occupied a leading position in Germany, especially in the field of economics. Of the almost 100,000 students, more than 2/3 stay in Cologne after their studies, which underlines the popularity of the city/region.

Number of financing rounds



Volume of financing rounds
(in EUR Million)



Top 7 States/Start-up Ecosystems: No. 4: North Rhine-Westphalia (2/3)



NRW – broad based and with a lot of power on the leap forward

- ▶ One of the strengths of the Cologne region expanded in Bonn is the high number of venture capital firms, whereby the number of corporate VCs with Telekom, Post, Rewe, DuMont as well as the state-owned High Tech start-up fund stands out. Cologne also performs very well in terms of the number of Co Working Spaces as well as Accelerators and Incubators with 4th place in Germany. The City of Cologne supports the development of the ecosystem with the Digital Hub Cologne, which is intended to network established companies even better with start-ups.
- ▶ With the Pirate Summit, Cologne is enjoying one of the most successful, craziest and hottest events of the German start-up scene in the middle of summer.
- ▶ **Aachen:** Aachen and Düsseldorf share second place in NRW with 6 financings each, with Aachen doing much better in 2018 with an investment volume of EUR 34 million than Düsseldorf with EUR 9 million.
- ▶ With its approximately 250,000 inhabitants and 47,000 students, Aachen is one of the smaller start-up ecosystems in Germany. The RWTH Aachen University, which is ranked 7th in the QS World Ranking, is the center and decisive factor for the success of Aachen. The RWTH's start-up center, the Entrepreneurship Chair and the good start-up support are the drive for a strong start-up culture among students and scientists. Mostly technology-oriented start-ups from the B2B sector are founded - the fashion start-up Navabi is the exception. 50 percent of the financing recorded in 2018 went to the Health sector, including MedTech companies in particular.
- ▶ The positive development of the start-ups is accompanied by very active local seed and other funds, active business angels and a pleasingly high number of co-working spaces.
- ▶ **Düsseldorf:** The start-up scene in the state capital Düsseldorf has also developed very successfully in recent years with its many start-ups, even though the neighbouring metropolis Cologne is home to twice as many start-ups and in 2018, with 23 financings, had more than three times as many financings as Düsseldorf with only 6.
- ▶ The Düsseldorf-based start-ups cover a wide range of areas, from e-commerce/fashion and AdTech to IOT, AI and travel start-ups. The best-known names in the region are Trivago (one of the best-known German start-ups after Exit alongside Zalando), Auxmoney and the online kitchen shop Springlane.
- ▶ Düsseldorf has a large number of established companies. More than 20 of them each employ over 5,000 people, including such well-known names as METRO, Ceconomy with Media Markt and Saturn, Henkel, ERGO Versicherung, Rheinmetall, GEA and the fashion houses C&A as well as Peek & Cloppenburg, Adecco or Vodafone and Douglas.
- ▶ There is also a well-developed VC scene, many credit institutions including NRW Bank with its start-up development arm and well-known business angels such as Trivago founder Rolf Schrömgies or Roland Oetker, to name just two.
- ▶ The Düsseldorf Economic Development Agency is unfolding strong activities with the Start-up Week and the NKF Summit, which took place for the first time in Düsseldorf in 2018. Düsseldorf's university and research landscape, on the other hand, cannot keep up with other locations, which has no positive effects on the talent pool.

Top 7 States/Start-up Ecosystems: No. 4: North Rhine-Westphalia (3/3)



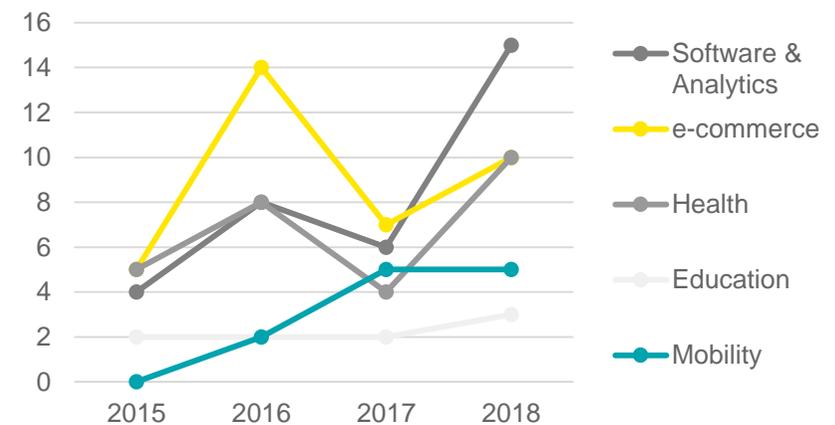
New technologies and e-commerce from 5 different locations ahead

- ▶ Particularly in the area of new technologies, the start-up location NRW has taken a major step forward, overtaking the e-commerce sector in 2018. After all, 8 start-ups received double-digit financing, of which 3 each came from the e-commerce sector and new technologies, which proves the investors' great confidence in the local start-ups.
- ▶ With the Cologne luxury watch dealer Chronext, Cologne has a showcase start-up that has also achieved fame far beyond its national borders. LeanIX and Instana are internationally successful SaaS start-ups from Bonn and Solingen. Even Flaschenpost from Münster proves that it is possible to establish successful companies in smaller eco-systems, as does Navabi from Aachen in an e-commerce niche for Plus-Size Fashion.

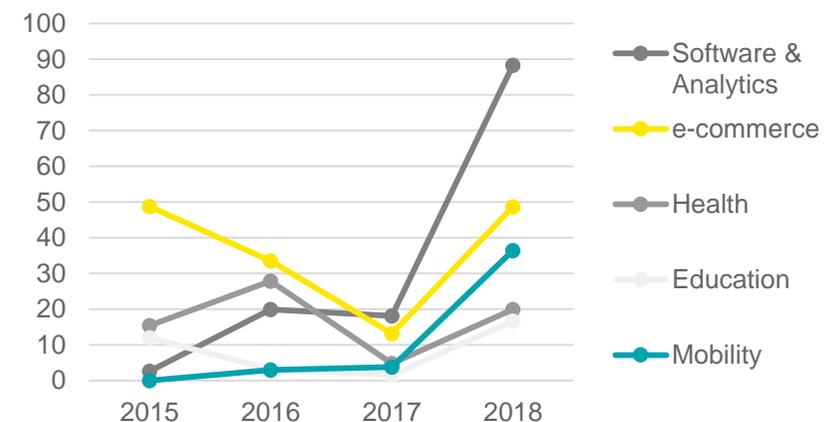
Top-5-Investments in 2018

| Company | Financing amount (EUR Million) |
|--------------|--------------------------------|
| Chronext | 28 |
| LeanIX | 26 |
| Instana | 26 |
| Flaschenpost | 20 |
| Navabi | 15 |

Top 5 Industries - Number of financing rounds



Top 5 Industries - Volume of financing rounds (in EUR Million)



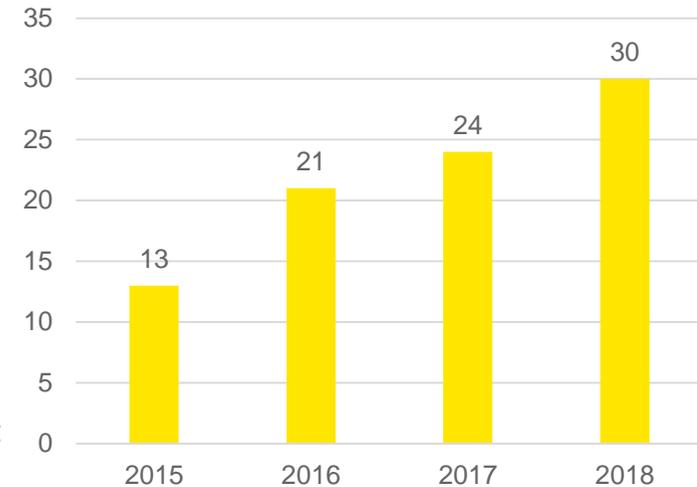
Top 7 States/Start-up Ecosystems: No. 5: Hesse (1/2)



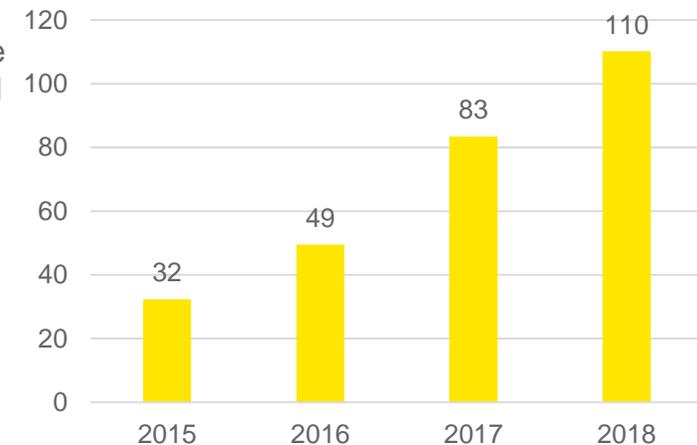
Hesse increases number and volume of transactions already in 5th year

- ▶ For 5 years now, both the number of financing rounds and their overall value have been rising continuously in Hesse. 22 of the 30 financings have been received by Frankfurt start-ups. The financing rounds are distributed among start-ups in the areas of FinTech (7), Software (6), Health (4) and e-commerce (3).
- ▶ Ecosystem: Within Germany, the Rhine-Main metropolitan region with its 5 million inhabitants is considered one of the most attractive regions with one of the strongest start-up ecosystems in Germany. Rhine-Main has a high industrial density and is also a center of the IT and telecommunications industry as well as of mechanical engineering and vehicle construction. Frankfurt is an important international financial center with the four largest German banks and the most important German stock exchange. The international airport makes Frankfurt accessible to an international audience.
- ▶ The outstanding talent pool contributes to the strength of the start-up ecosystem due to the high number of students at the universities in Frankfurt, Darmstadt, Mainz and Wiesbaden, the total of 7 Entrepreneurship Professorships and a total of 16 research institutions.
- ▶ With over 30 venture capital companies and the largest business angel club with over 150 members, Rhein-Main holds a leading position in the area of capital and support in Germany. In terms of the number of office spaces offered by Co-Working Spaces, Frankfurt even ranks second in Germany, just behind Berlin. Besides Berlin, Frankfurt is the second FinTech location of the Digital Hub Initiative of the Federal Ministry of Economics and Technology. Its flagship is the TechQuartier, which is excellently supported by all established financial players in the region.

Number of financing rounds



Volume of financing rounds
(in EUR Million)



Top 7 States/Start-up Ecosystems: No. 5: Hesse (2/2)



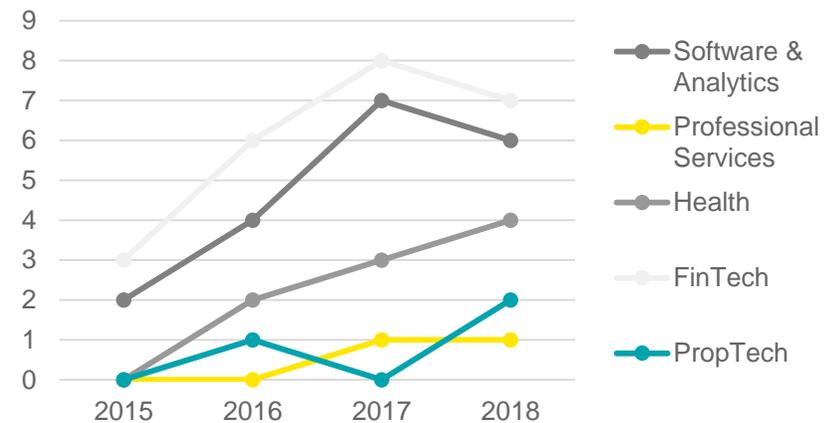
FinTechs in the lead, but only narrowly and below the high expectations

- ▶ In Hessen, the areas of FinTech, Software & Analytics and Health have dominated for years. The 3 largest financing rounds combined a volume of EUR 84 million or $\frac{3}{4}$ of the total capital for Hessian start-ups, which means an average volume of only EUR 1 million for the remaining 27 financing rounds.
- ▶ With Savedroid, however, a Frankfurt start-up with an ICO has received one of the most spectacular financings in the entire year 2018. Crypto Savings and the creative savings model were much discussed in financial circles. Clark.de is a Frankfurt company from the InsurTech division and Geld-für-Flug.de is a Wiesbaden start-up that refunds travelers the ticket prices for cancelled flights within 24 hours.

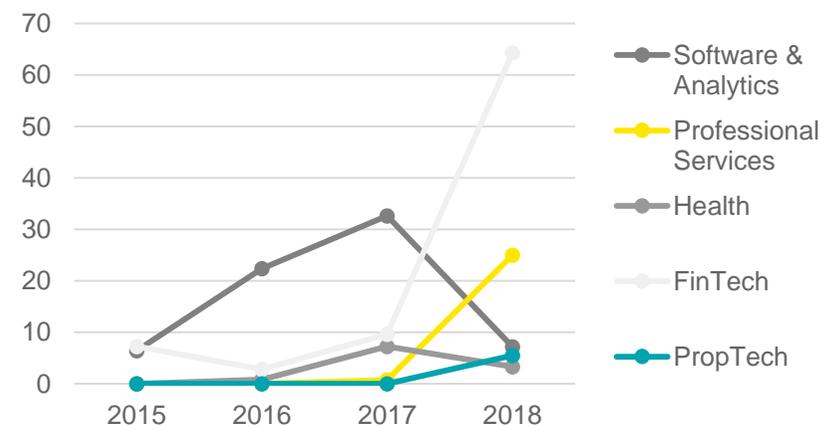
Top-5-Investments in 2018

| Company | Financing amount (EUR Million) |
|------------------|--------------------------------|
| Savedroid | 35 |
| Geld-für-Flug.de | 25 |
| Clark.de | 24 |
| Acomodeo | 5 |
| Acellere | 2 |

Top 5 Industries - Number of financing rounds



Top 5 Industries - Volume of financing rounds (in EUR Million)



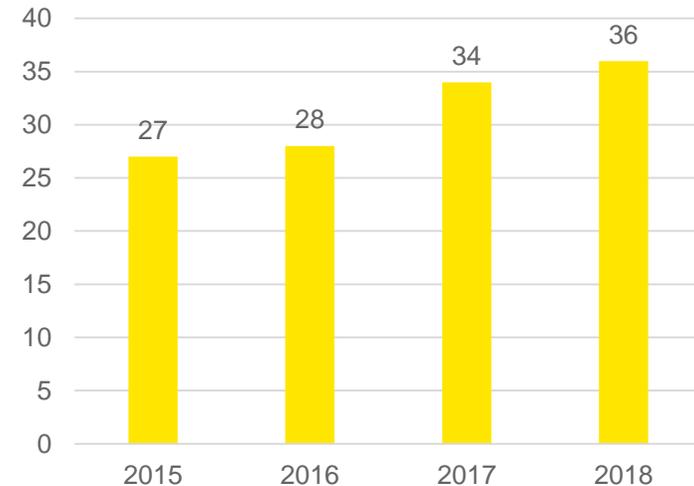
Top 7 States/Start-up Ecosystems: No. 6: Baden Württemberg (1/3)



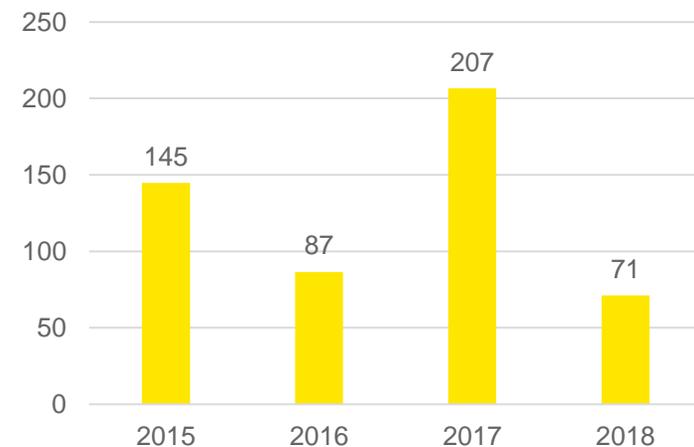
The stronghold of B2B start-ups - exciting start-up scene and 3 start-up centers

- ▶ In Baden-Württemberg (BW), too, the number of financing transactions is already increasing in the fourth year. However, due to a very large transaction in the previous year, the volume declined in 2018 to the level of 2016.
- ▶ **Ecosystem:** Similar to NRW, BW has several start-up centers. Nine start-ups from Stuttgart and Karlsruhe received funding, and seven rounds from the Rhine-Neckar metropolitan region around Mannheim/Ludwigsburg, Heidelberg and Walldorf. Unique in the whole of Germany: Almost $\frac{3}{4}$ of all start-ups are B2B start-ups, of which a large number require little or no financing, which is why the high start-up potential of the region is not fully expressed by the number and amount of financing alone.
- ▶ **Stuttgart:** Particularly in the Stuttgart region with large, established companies such as Daimler, Bosch, Porsche, Mahle, Trumpf, Dürr and Holtzbrinck as well as the large number of medium-sized and family-run companies, start-ups have ideal partners, customers and/or investors in the immediate neighbourhood. In no other German ecosystem is the cooperation between industry and start-up companies as important as in the Stuttgart region, although start-ups from other regions are also attracted to the southwest. 7 research institutes and numerous entrepreneurship and new KI professorships ensure that the region remains a European innovation stronghold through young, innovative entrepreneurs. The start-up scene in Stuttgart is extremely lively due to many events and receives very good support from public sponsors or start-up competitions.

Number of financing rounds



Amount of financing rounds
(in EUR Million)



Top 7 States/Start-up Ecosystems: No. 6: Baden Württemberg (2/3)



The stronghold of B2B start-ups - exciting start-up scene and 3 start-up centers

- ▶ With the startup Autobahn from Daimler, the start-up GmbH from Bosch with its incubator in Ludwigsburg as well as the start-up platform "grow" or the CODE_n from GFT, the major players in particular understood early on that innovation through cooperation with start-ups is a promising way of shaping digital transformation. This is also evidenced by the high number of investments made by corporate VCs such as Daimler, Bosch, Trumpf or Holtzbrinck in start-ups from all over the world and the increasing number of intrapreneurship programs. Within the framework of the Digital Hub Initiative of the Federal Ministry of Economics, Stuttgart was chosen as the digital hub for the "Future Industries" sector. The well-known Stuttgart start-ups include Moovel (local transport App/Daimler), Autoneter (car sharing App/Drivy), BVB Innovate (batteries) and MyCleaner or Waschpakete (car wash) start-ups from the automotive sector. In addition, Mädchenflohmart (e-commerce), Regiohelden (regional marketing) or Anydesk (video) start-ups from other, non-industry relevant sectors.
- ▶ **Karlsruhe** is the second start-up stronghold in BW, but with different signs than Stuttgart. Similar to Aachen with the RWTH, the Karlsruhe Institute of Technology KIT dominates the research landscape, which leads to many start-up spin-offs from the KIT. One of the strengths of the start-up ecosystem is the very close cooperation between KIT, regional industry, politics and associations. It is not without reason that Karlsruhe was chosen as the hub for artificial intelligence within the framework of the Digital Hub Initiative of the Federal Ministry of Economics and Technology. Karlsruhe impresses with short distances, a very close network, greater visibility of start-ups as well as ideas and innovations on an international level. With the surprisingly high number of accelerators, incubators and co-working spaces, Karlsruhe is on a par with the megacity of Cologne. Overall, the Karlsruhe ecosystem occupies a top position (not only) in Germany due to its concentration on high-tech/software/big data and AI. Exciting Karlsruhe high-tech start-ups include ArtiMinds Robotics (robot programming), Kinemic (gesture control), Otego (thermogenerators), e-volo (Multicopter) or Eyezag (eyetracking). One of the most established start-ups is Blue Yonder (AI solutions for retail), which was taken over by Otto in 2018.
- ▶ The ecosystem of the **Rhine-Neckar** metropolitan region with Mannheim/Ludwigsburg, Heidelberg and Walldorf was boosted in 2018 by the choice of the "Chemistry and Health" digital hub, in which more than 40 partners from industry and research are involved. The region around Mannheim is characterized by strong companies such as BASF, Roche, ABB, Bilfinger, Caterpillar, Fuchs, Südzucker or Freudenberg as well as SAP in Walldorf. Heidelberg and Mannheim both have top German universities as well as 9 research institutions and the German Cancer Research Center (Heidelberg). There is a similar number of co-working spaces in the region as in Munich, with an above-average number of venture capitalists. Well-known start-ups from Mannheim are Stocard (FinTech) or Studybees (Learning), in Heildeberg spin-offs from local universities and research institutions.

Top 7 States/Start-up Ecosystems: No. 6: Baden Württemberg (3/3)



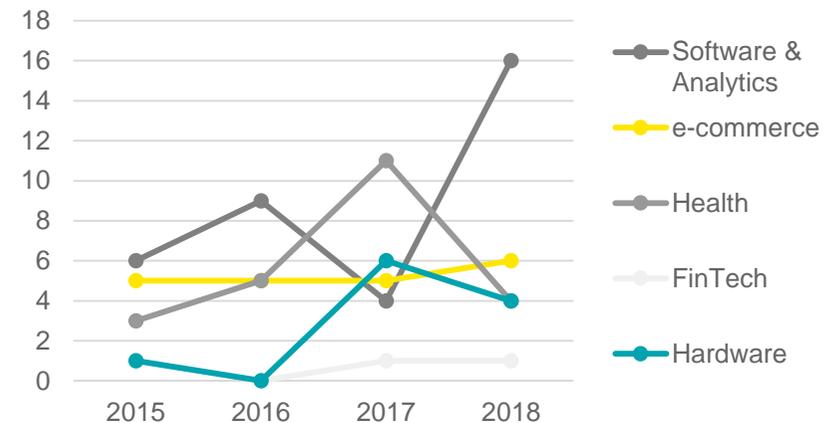
High-tech start-ups in BW on the way up

- ▶ The number of investments in high-tech start-ups has risen rapidly, with financing in the areas of AI, VR and Data Analytics going to Karlsruhe as expected and Software as a Service financing moving more towards Stuttgart and Mannheim. Two major financing deals in the Health/Life Science segment in the previous year resulted in a very high transaction volume, which was no longer recorded in 2019.
- ▶ The largest financings in 2018 were made with Stocard, a Mannheim-based start-up (customer cards in smartphones), and Acousia Therapeutics, a Tübingen-based start-up in the health/life science sector. In addition, the well-known Stuttgart start-ups Anydesk (video technology) and Mädchenflohmarkt, the platform for Second Hand and Vintage.

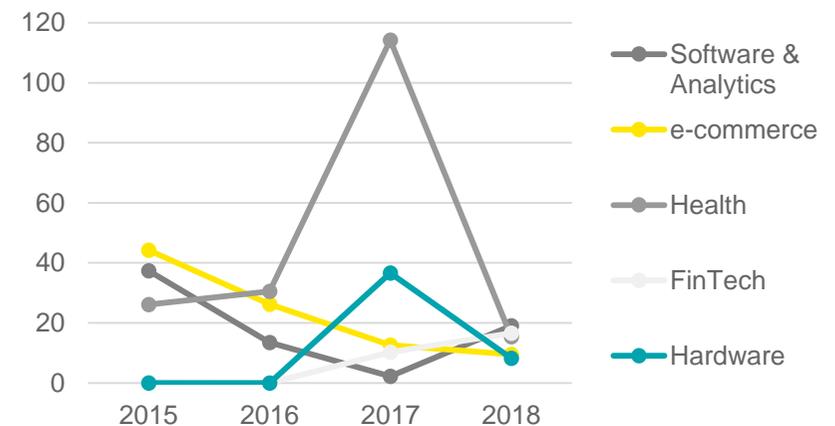
Top-5-financing rounds in 2018

| Companies | Financing amount (EUR Million) |
|----------------------|--------------------------------|
| Stocard | 17 |
| Acousia Therapeutics | 10 |
| AnyDesk | 7 |
| Discoveryg | 6 |
| Mädchenflohmarkt | 5 |

Top 5 Industries - Number of financing rounds



Top 5 Industries - Volume of financing rounds (in EUR Million)



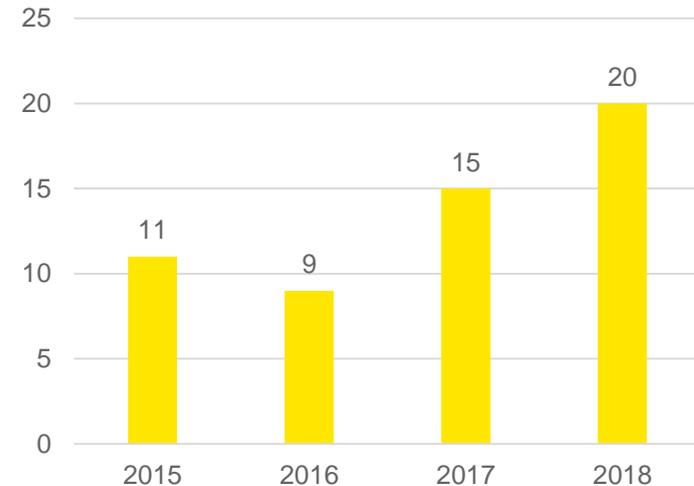
Top 7 States/Start-up Ecosystems: No. 7: Saxony (1/2)



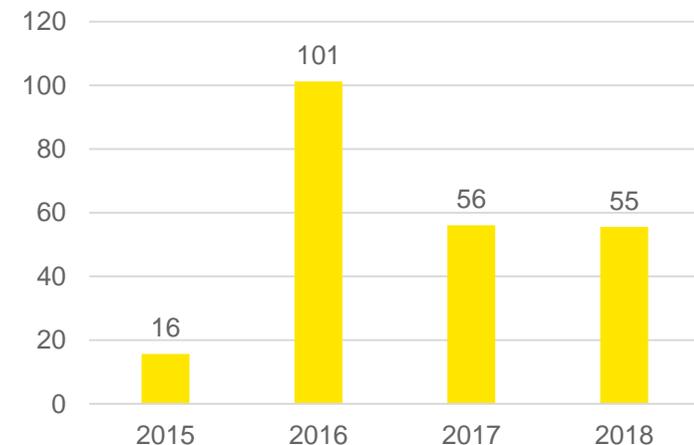
Dresden high-tech start-ups in Silicon Saxony and Leipzig with great potential

- ▶ Since 2016, the number of financing transactions by Saxon start-ups has risen steadily. After all, 12 out of 20 financings went to start-ups from Dresden, 5 went to Leipzig. The two cities together form the "Smart Systems & Smart Infrastructure" digital hub of the Federal Ministry of Economics and Technology, with Dresden managing the areas of hardware, software and connectivity and Leipzig managing the areas of energy, smart cities, e-health and cross-sectional technologies.
- ▶ **Ecosystem Dresden:** Dresden impresses with its high technology, especially in the fields of microelectronics, nanotechnology and life science. Due to its excellent technical university, its more than 17 public and private research institutions, it has a very good talent pool and, with Infineon, Global Foundries or Novaled etc., numerous international high-tech employers with a high demand for well-trained talents and very low unemployment. Compared to similar ecosystems such as Aachen and Karlsruhe, however, renowned business angels, VCs, co-working spaces as well as incubators and accelerators seem to exist just as under-proportionally as a strong and dynamic network, also supported by the public sector...
- ▶ **Ecosystem Leipzig:** Leipzig is the fastest growing city in Germany with a high quality of life and is especially popular with young people. Compared to Dresden, the start-up scene in Leipzig appears to be more dynamic due to the higher number of events, stronger network activities and co-working spaces and has developed very positively in recent years. Leipzig has 4 Entrepreneurship Professorships, besides the University of Leipzig with HHL a very start-up affine institution as well as a total of 10 research institutes. However, there is a lack of well-known companies in the area as well as large financing - even though Spreadshirt was one of the first and best-known start-ups to be founded in Leipzig.

Number of financing rounds



Amount of financing rounds
(in EUR Million)



Top 7 States/Start-up Ecosystems: No. 7: Saxony (2/2)



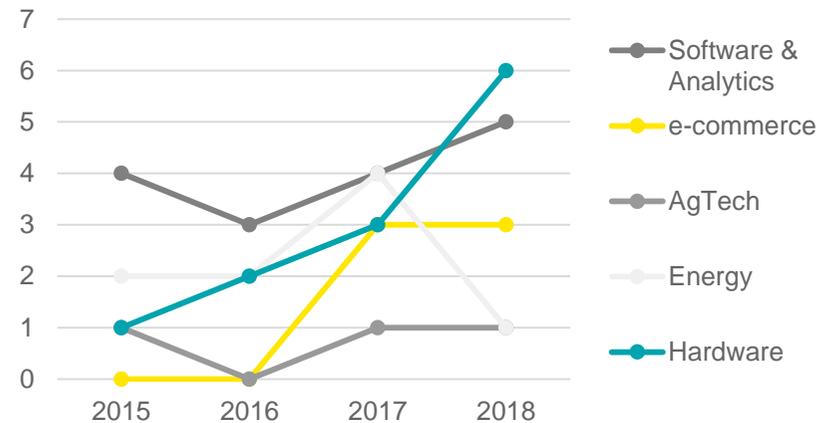
Dresden high-tech start-ups in Silicon Saxony and Leipzig with great potential

- ▶ Dresden's high-tech start-ups in the hardware and software sector were by far the most successful in Saxony in 2018, which also represents the state's strengths. A not inconsiderable part of the start-ups concerned spin-offs, in particular the TU Dresden, which brought processes developed there onto the market. Leipzig start-ups, on the other hand, are insignificant for the 2018 balance sheet - they accounted for a total of less than 10 million euros of fresh capital.
- ▶ 4 of the 5 top financings concerned start-ups from Dresden, but from very different sectors. Cloud & Heat Technologies (computer center container), Novihum (AgTech - Humus production), Wandelbots (Robotics) and 3-5 Power Electronics (Wafer Technology). Staffbase from Chemnitz on the other hand offers an app for employee communication.

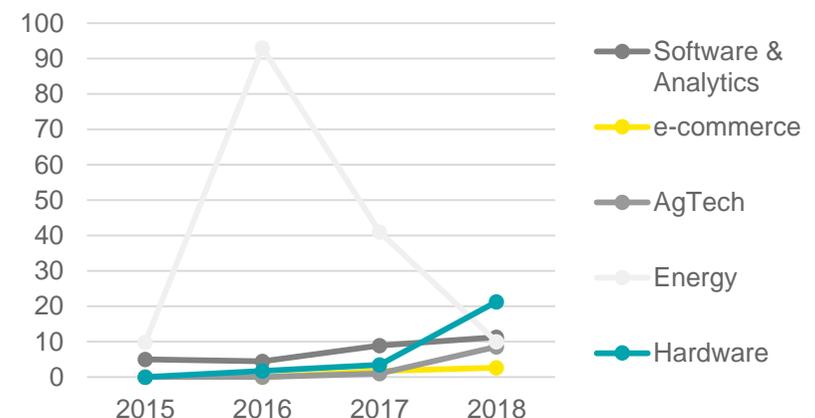
Top-5-financing rounds in 2018

| Companies | Financing amount (EUR Million) |
|---------------------------|--------------------------------|
| Cloud & Heat Technologies | 10 |
| Novihum | 8 |
| Staffbase | 8 |
| Wandelbots | 6 |
| 3-5 Power Electronics | 5 |

Top 5 Industries - Number of financing rounds



Top 5 Industries - Volume of financing rounds (in EUR Million)



EY | Assurance | Tax | Transactions | Advisory

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