Germany FinTech Landscape

Insights into the response of financial institutions to FinTechs and inter-FinTech collaboration

September 2017

Building a better working world

Executive Summary

- Germany's FinTech ecosystem remains on a healthy development path – the number of FinTechs is growing, investment volumes in FinTechs are expanding, the deal flow is rising and the average deal size is increasing.
- In 1H'2017 FinTechs in Germany raised ~ EUR 307 mn of VC funds on the back of a successful year recorded in 2016, which saw inbound VC flows reaching ~ EUR 400 mn, or roughly 40x higher than the amount raised in 2012 (EUR 10.2 mn).
- The average size of VC investments as well as the deal pipeline have also been steadily growing, reaching ~ EUR 7.3 mn and 42 deals respectively in 1H'2017 - a further testament to the rising maturity of the local ecosystem.
- Germany's FinTech landscape shows continued growth with about ~300 FinTechs in total. Berlin retains the position of the country's largest FinTech hub, serving as base of 27% of the FinTechs landscape. 25% of Germany's FinTechs are located in the Rhine-Main-Neckar region with its center in Frankfurt. This positive trend was supported by a range of FinTech initiatives launched in recent years.
- The segment focus has switched to PropTechs in 1H'2017 against the backdrop of a strong real-estate market in the country, while RegTech remains an attractive segment going forward in light of the ongoing regulation challenges confronting banks.
- In response to the growing presence of FinTechs in the market, financial institutions in Germany have been ramping up their activities aimed at dealing with the FinTech challenge. Among the top-10 largest banks, for instance, investments and collaborations have been by far the most preferred response models to date, although most of the largest banks in the country pursue a multi-response approach in dealing with FinTech.
- In the meantime, a growing number of German FinTechs has been expanding outside of their core market, either by forming partnerships and collaborating with each other, or venturing independently. Notably, more mature FinTechs have even started building their own ecosystems around the core product offering (e.g. N26 launching insurance products in cooperation with Clark, or investment products in cooperation with Vaamo etc.).
- Germany's FinTech landscape is assumed to continue to evolve into a sustainable and diverse ecosystem, underpinned by an expanding and maturing FinTech base, growing investment flows and vibrant cross-segment FinTech activity.

FinTech in Germany
Facts and figures – snapshot 2017

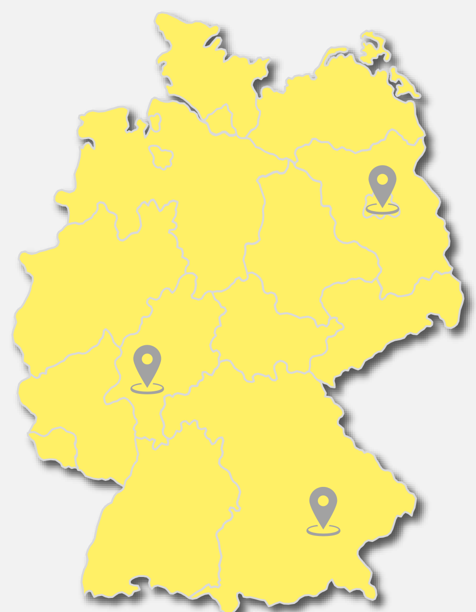
FinTech Adoption*
35%
FinTech users as a percentage of the digitally active population

~ 42%
of FinTechs have B2B-oriented business models

295
FinTechs active in Germany**

~ € 307 mn****
raised by German FinTechs in 1H'2017

~ € 7.3 mn
avg. deal size of investments into German FinTechs in 1H'2017



~ 67%
of FinTechs are located in the 3 FinTech hubs

3
major FinTech hubs in Germany (Berlin, RMN***, Munich)

42
VC investment deals concluded in Germany in 1H'2017

€ 110 mn
largest equity investment in a German FinTech

~50%
FinTechs were founded in the last 3 years

> 13K
employed in the FinTech sector

~40x
increase in funding flows from 2012 to 2016

* EY FinTech Adoption Index 2017
** subject to our selection criteria (see our methodology on pg. 31)
*** Rhine-Main-Neckar region spearheaded by Frankfurt
**** subject to our methodology (see pg. 31 for details)

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Contents

1. FinTech landscape: structuring FinTech activity

Structuring FinTech activity
FinTech Segments

- In analyzing FinTech activity we find it insightful to split FinTechs into several groups, based on the domain of the financial services value chain they focus on. We refer to these groups as FinTech '**segments**'. In this report we identify **10 FinTech segments** (see diagram below).
- Depending on the degree to which FinTechs focus on the 'fin' (products/services) or the 'tech' (technology) part, we further group FinTech segments into '**Core FinTechs**' and '**Enabling FinTechs**'.

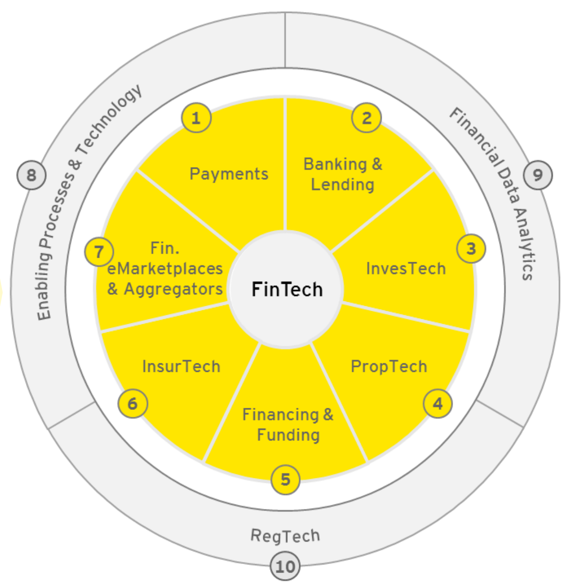
I Core FinTechs

- more 'fin' than 'tech' -

- Core FinTechs are companies focusing directly on the *provision of financial services/products* (loans, account services, saving and investment products) to end-users
- Core FinTechs provide financial services or products (rather than simply engage in providing technology solutions), and are thus more product-focused
- Typically operate B2C-focused business models

1 2 3 4 5 6 7

FinTech Activity



II Enabling FinTechs

- more 'tech' than 'fin' -

- Enabling FinTechs are companies with business models geared to *enabling the provision of financial services*, rather than those that are directly engaged in such provision themselves
- Enabling FinTechs are more tech-driven and typically do not have their own portfolio of financial products / services
- An Enabling FinTech is only then considered a FinTech, when the focus of its business activities is primarily on financial services
- Business models are typically B2B-oriented

8 9 10

Note: we have refined the methodology underlying Germany's FinTech landscape and investments into FinTechs in comparison to our previous studies. This leads to a smaller absolute number of FinTechs and a change in the segmentation structure. Please refer to our methodology chapter for more details (p. 31).

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2. Germany’s FinTech landscape: investment trends, hub activity, and segment dynamics

Germany's FinTech landscape – investment trends

Rising fund inflows, expanding deal pipeline and growing deal size point to a healthy investment environment for FinTechs

FinTech landscape in Germany: investment flows

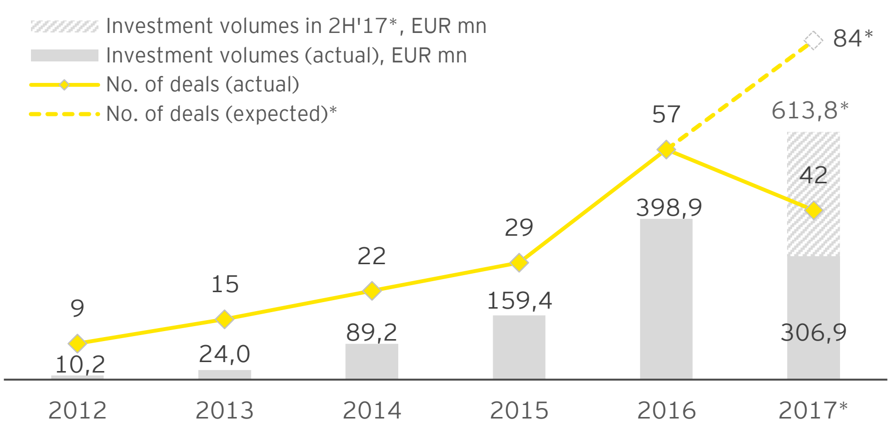
- Judging by its investment profile, Germany's FinTech ecosystem remains on a healthy development path – the deal flow is growing, the average deal size has increased and investment volumes continue to expand.
- In 1H'2017 FinTechs in Germany raised ~ EUR 307 mn on the back of a successful year recorded in 2016, which saw VC inflows reaching roughly EUR 400 mn.
- Average deal size has also steadily increased, reaching ~ EUR 7.3 mn in 1H'2017 - a further testament to the rising maturity of the local ecosystem as well as to growing investor confidence in local FinTechs.
- Overall, against the background of markets' exuberance over FinTechs, in the period 2012-2016 total investment in German FinTechs swelled by almost 40x from EUR 10.2 mn to EUR 398.9 mn.
- At the current pace investments into FinTechs in Germany are on track to record another year of strong inflows.

Top FinTech funding deals in 1H'2017

FinTech	Location	Segment	EUR mn
1. Kreditech	Hamburg	Banking & Lending	110,0
2. Scalable Capital	Munich	InvesTech	30,0
3. Raisin	Berlin	eMarketplaces & Aggregat.	30,0
4. solarisBank	Berlin	Enabling Processes & Tech.	26,3
5. simplesurance	Berlin	InsurTech	19,2
6. ottonova	Munich	InsurTech	15,0
7. Spotcap	Berlin	Banking & Lending	14,0
8. SwipeStox	Hamburg	InvesTech	12,5
9. Exporo	Hamburg	PropTech	8,0
10. bezahlt.de	Berlin	Financing & Funding	5,5

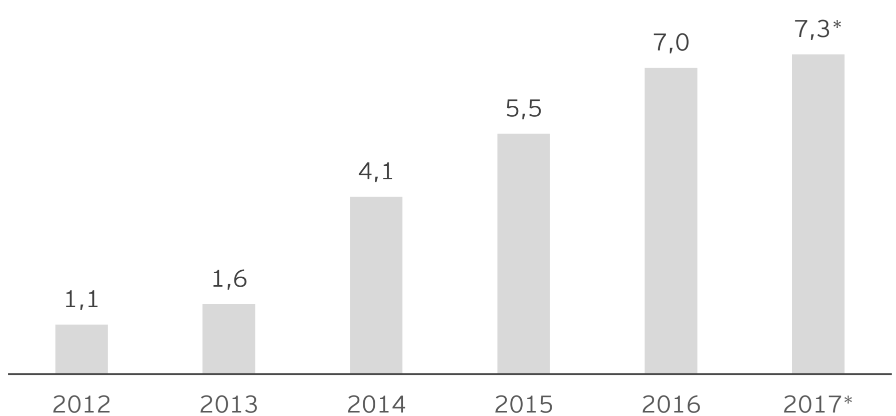
Note: deals refer to single funding rounds and include FinTechs that meet our FinTech selection criteria (see our methodology); amounts represent equity-linked investments
Source: EY Horizon Scanner, crunchbase, deutsche-startups.de

Investment in German FinTechs: volumes and deals



*Note: original data provided in USD, converted at the average ECB EUR/USD reference exchange rate for the corresponding period; *projected based on 1H'17 values*
Source: CB Insights (as of 25.08.2017), see our methodology

Investment in German FinTechs: average deal size

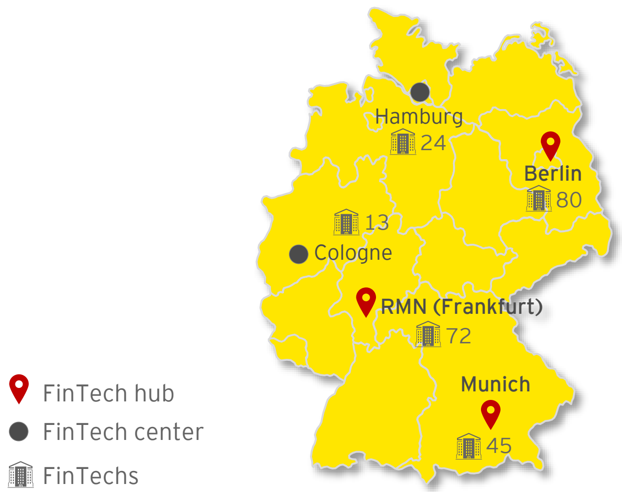


*Note: we have revised our methodology for tracking investments into FinTechs – for details please refer to the methodology section of this report. *projected based on 1H'17 values*
Source: CB Insights (as of 25.08.2017)

Germany's FinTech landscape – hub activity

The FinTech universe has grown continuously to ~300 FinTechs

Geographic hotspots of FinTech activity in Germany



Note: only cities which are home to at least 10 FinTechs are shown

FinTech landscape in Germany: hub activity

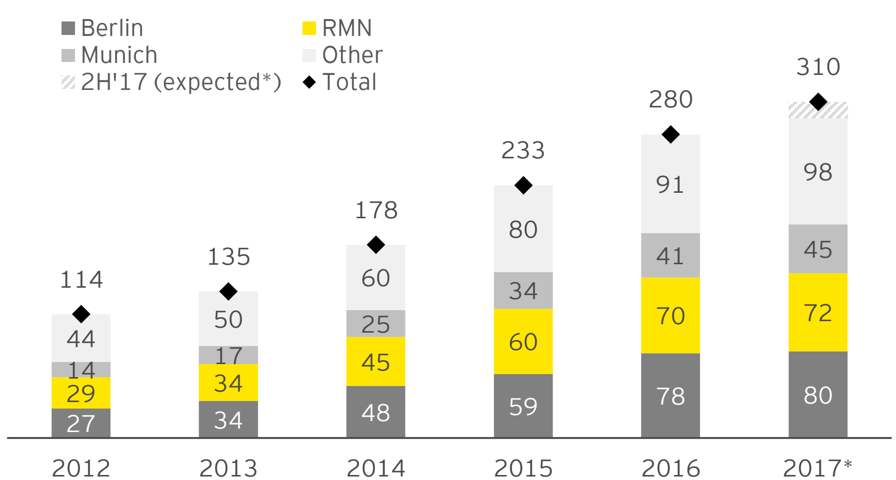
- Germany's FinTech scene continued to grow in 1H'2017, expanding to 295 FinTechs from 280 in 2016 (+5.4%). Based on this pace, the FinTech universe may reach 310 FinTechs by the end of this year.
- There has been little change in the geographic concentration of FinTech activity in Germany. The country's FinTech landscape remains dominated by 3 hubs – Berlin, the Rhine-Main-Neckar region (spearheaded by Frankfurt) and Munich, which serve as base for more than two thirds (197) of local FinTechs.
- Two other notable hotspots of FinTech activity have emerged in Hamburg (24) and Cologne (13), which together account for another roughly 13% of the landscape. The remaining 21% (61) are sprawled across 45 cities throughout the country.
- The RMN region led by Frankfurt has made considerable progress to date in positioning itself as the country's leading destination for FinTechs, launching a range of measures** which are set to increase its attractiveness as a FinTech hub going forward (see next page).

Germany's FinTech hubs: short profiles

Hub	Bus. model focus	Segment focus	Total FinTechs	New FinTechs*
1. Berlin	B2C	1. Payments 2. Banking & Lending	80 (27%)	2
2. RMN**	B2B	1. Enabling Processes & Technology 2. InvesTech	72 (25%)	2
3. Munich	B2B / B2C	1. InvesTech 2. Enabling Processes & Technology	45 (15%)	4
4. Other cities	B2B / B2C	1. Financing & Funding 2. Payments	98 (33%)	7

*Note: * FinTechs founded in 1H'2017; ** RMN – Rhine-Main-Neckar*
Source: EY analysis

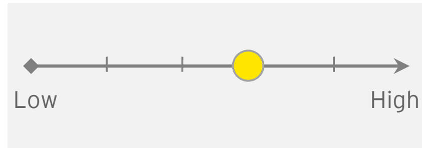
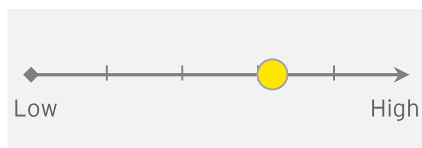
Germany's FinTech universe: breakdown by hub



*Note: *projected based on 1H'17 values; ** for more details see our previous study ("German FinTech landscape: opportunity for Rhine-Main-Neckar", Nov. 2016)*
Source: EY analysis

Germany's FinTech landscape – the Rhine-Main-Neckar hub

The Rhine-Main-Neckar region continued to make solid progress towards the title of Germany's leading FinTech hub

Success factor	Description	Progress in 2017	Key initiatives
1 **Funding**	▪ Access of FinTechs to broad investor base ▪ Availability of funding to FinTechs		▪ The region has launched TFH III Technologiefonds Hessen GmbH in 2016 to invest in innovative companies ▪ Although financing support has increased over years, its availability remains the region's weakest link ▪ International investors interested in European FinTechs remain mostly focused on ecosystems in London and Berlin
2 **Partners**	▪ Access of FinTechs to established market players ▪ Cooperation and collaboration with financial institutions		▪ Collaborations and cooperation activities of FinTechs with banks remained strong, albeit many still take place mostly on bi-lateral basis ▪ Selected collaborations in 2017: Deutsche Bank with Finreach, Hypovereinsbank and Moneymap, Traxpay and Nord LB etc.
3 **Coaching / training**	▪ Availability of training programs for young FinTechs, incl. accelerator programs, hackathons, support through mentorship and incubators		▪ FinTechs continue to benefit from solid public and private sector support initiatives ▪ Main incubator (Commerzbank), Digital Factory (Deutsche Bank), Deutsche Börse Venture Network, Accelerator Frankfurt have continued to support FinTechs through coaching; EY Start-up Academy was launched
4 **Regulator**	▪ Support from the regulator (e.g. creation of conducive regulatory environment, clear legal framework etc.) ▪ Not region-specific		▪ The BaFin has continued to expand its FinTech activities (information concerning various FinTech business models) ▪ A new department "Financial Technology Innovations" to deal with supervisory issues related to emerging technology ▪ However, still no comprehensive regulatory approach to FinTechs (e.g. regulatory sandbox)
5 **Infrastructure**	▪ Availability of co-working space		▪ Significant progress has been made in supplying affordable co-working space to FinTechs ▪ "The Spot" with Beehive space, WeWork, Chamber of Industry and Commerce of Darmstadt (start-up center) joined a range of other already existing providers of co-working space for FinTechs
6 **Events & Networking**	▪ Organisation of events aimed at promoting or discussing FinTech developments (incl. panels, thematic conferences, investor matching etc.)		▪ The focus of events has shifted more away from 'sales and pitches' to community building and exchange of content ▪ The recurring event Between the Towers has become a staple for FinTech-related networking ▪ Lange Nacht der FinTechs, Euro Finance Tech IV etc.

Source: EY, public sources

Germany's FinTech landscape – segment dynamics

PropTechs are gaining traction on the back of a strong real-estate market in the country

FinTech landscape in Germany: segment dynamics

- Overall segment activity of German FinTechs maintains a strong bias towards Core FinTechs – in the 1H'2017 roughly 67% of new FinTechs were recorded in this group.
- Yet, 2017 has brought a shift of segment focus within this group – segments in which FinTechs were highly active in recent years – such as InvesTech, Financing & Funding, Enabling Processes & Technology – have so far seen subdued activity this year.
- Instead, a noteworthy segment theme in 1H'17 has been an increased market interest in and a corresponding push of FinTechs into the PropTech segment, driven not least due to a strong real-state market in the country. The first half of the year has seen more PropTechs founded than in the previous years combined and the highest number of PropTechs overall to date.
- In light of the ongoing changes in bank regulation and the attendant challenges and costs it brings to the industry, RegTech remains an attractive FinTech segment going forward.

FinTech foundations by segment

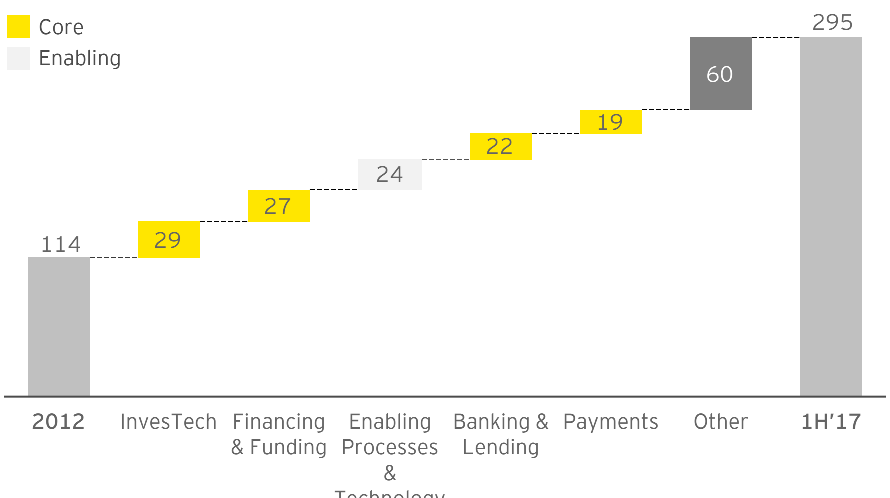
	Segments	'07	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17*	
Core	Payments	1	2	3	2	4	7	5	6	7	3	1	217
	Banking & Lending	2	0	0	3	3	3	6	5	3	7	1	
	InvesTech	2	0	2	1	2	1	2	9	9	9	0	
	PropTech	0	0	0	0	2	2	0	4	2	3	5	
	Financing & Funding	0	2	1	1	4	7	4	4	9	8	2	
	InsurTech	0	0	0	2	3	3	2	0	6	8	1	
	Fin. eMarketplaces & Aggregators	0	1	0	1	5	3	2	4	3	2	0	
Enabling	Enabling Processes & Technology	3	0	1	4	5	4	4	6	9	5	2	78
	Financial Data Analytics	3	1	1	1	1	2	0	3	3	1	2	
	RegTech	0	0	1	1	1	2	0	2	5	4	1	
	New FinTechs	11	6	9	16	30	34	25	43	56	50	15	

smallest 1 2 9 largest

No. of FinTechs

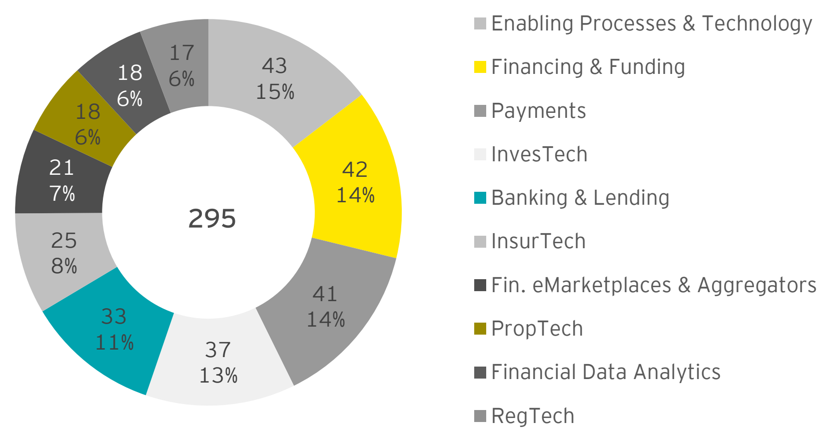
*Note: * the figures for 2017 ('17) refer only to the 1H'17.*
Source: EY analysis

Top 5 most active FinTech segments since 2012



Source: EY analysis

Germany's FinTech landscape: segment profile (1H'17)



Source: EY analysis
Note: due to changes to our segmentation methodology, segment in this report may not match those in our earlier reports.

Germany's FinTech landscape – business model focus
The shift to mixed B2C/B2B models is likely to gain greater momentum

FinTech landscape in Germany: business model focus

- Over the past 5 years the B2C domain has been the most preferred focus area of FinTechs in Germany. On the one hand, this reflects such pull-factors as customer demand for greater digitalization. On the other hand, however, this may also be due to the such push-factors as lower start-up investment required for a B2C business. As a result, the share of B2C-oriented business models has steadily increased from 31% in 2012 to 40% in 1H'2017.
- In the past 1 to 2 years, there has been also renewed interest in the B2B models as well as an increasing shift towards mixed models. The former has not least been driven by the emergence of a more collaborative co-existence between banks and FinTechs.
- The tendency for more mixed B2C/B2B models is likely to gain further momentum, supported by the following trends: (i) expected tendency of Enabling FinTechs to increasingly explore the domain of Core FinTechs; (ii) greater collaboration between FinTechs with incumbent players, for which B2B players are less threatening.

FinTech foundations by business model focus

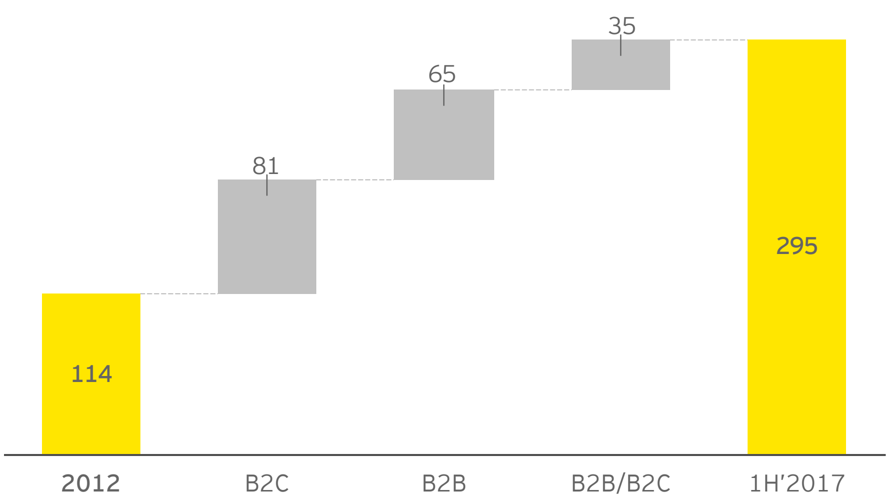
	Focus	'07	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17*	
Core	B2B	1	2	4	5	8	9	4	9	8	10	0	217
	B2C	4	1	2	5	8	8	13	16	21	24	3	
	B2B/B2C	0	2	0	0	7	9	4	7	10	6	7	
Enabling	B2B	5	1	2	6	6	6	4	8	14	8	3	78
	B2C	1	0	0	0	1	2	0	3	3	1	2	
	B2B/B2C	0	0	1	0	0	0	0	0	0	1	0	
	New FinTechs	11	6	9	16	30	34	25	43	56	50	15	

smallest 0 11 23 largest

No. of FinTechs

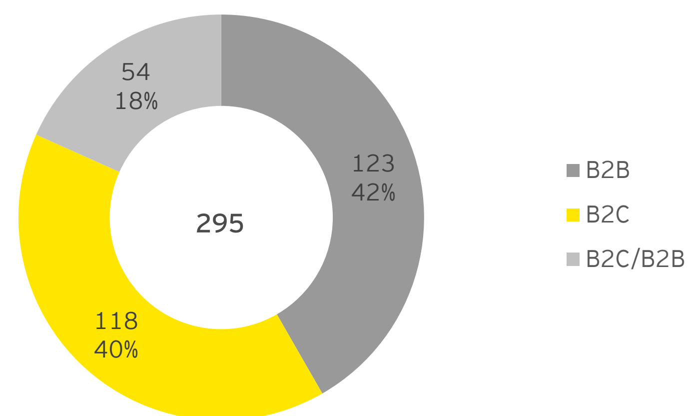
*Note: * the figures for 2017 ('17) refer only to the 1H'17.*
Source: EY analysis

FinTech foundations: business model focus



Source: EY analysis

Germany's FinTech landscape: concentration by business model



Source: EY analysis

3. Germany's FinTech landscape: response of financial institutions to FinTechs

Response of financial institutions to FinTechs – status quo

Various response models have evolved among Germany's financial services providers in response to the FinTech challenge

Current response models of financial institutions in Germany

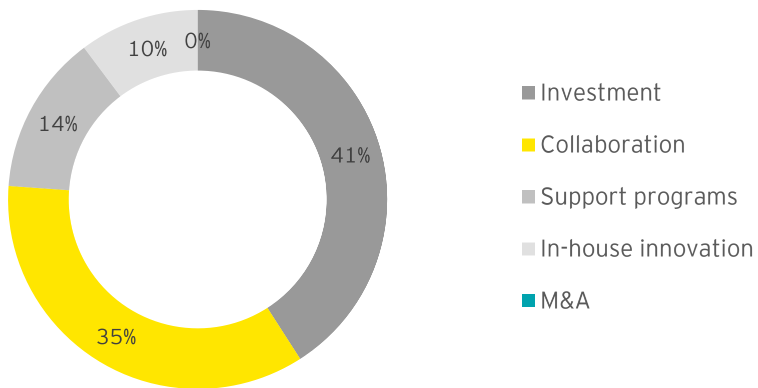
	1 Collaboration	2 Support programs	3 Investment	4 M&A	5 In-house innovation
Features	▪ Partnerships, cooperations or joint ventures with FinTechs to develop and/or apply new technologies, launch innovative products/services ▪ Cooperation with FinTechs to use their products	▪ Development of accelerator programs, tech hackathons, support through mentorship and launch of FinTech incubators etc. ▪ The focus of these programs is mainly on non-financial support	▪ Investment of own funds in FinTechs ▪ Investment can take place either through own dedicated investment vehicles, independent investment funds, or participation in financial rounds ▪ In case of acquisition, typically minority stakes	▪ Full acquisition of a FinTech ▪ Post-merger integration into the acquiring financial institution, including the integration of its product offering into the acquiring bank's product portfolio	▪ In-house research, implementation and application of new technologies ▪ Launch of proprietary innovation centers/labs ▪ Development of own digital service offering
Rationale	✓ Avoidance of product development expenses ✓ Bypass the need for costly in-house innovation ✓ Ready access to market-tested innovative products ✓ Fast time-to-market ✓ No integration costs (in comparison to M&A)	✓ Access to broad FinTech network ✓ Early access to innovative ideas & products ✓ Ability to set potentially exclusive partnership terms ✓ Flexible to tailor staff's level of involvement according to resource availability ✓ First-mover advantage on successful ideas	✓ Early access to innovative solutions ✓ Potential financial gains	✓ Fast access to innovative solutions/products ✓ Bypass the need for costly in-house innovation ✓ Fast time-to-market ✓ Exposure to talent/innovative culture	✓ Strategically important ✓ Better control over product development, deployment of resources ✓ First-mover advantage on successful product ideas

Note: classification of banks' response models is based on the EY 'Unleashing the potential of FinTech in banking' publication; unless otherwise stated, the word 'banks' refers to Germany's top-10 largest banks by assets

Response of financial institutions to FinTechs – status quo

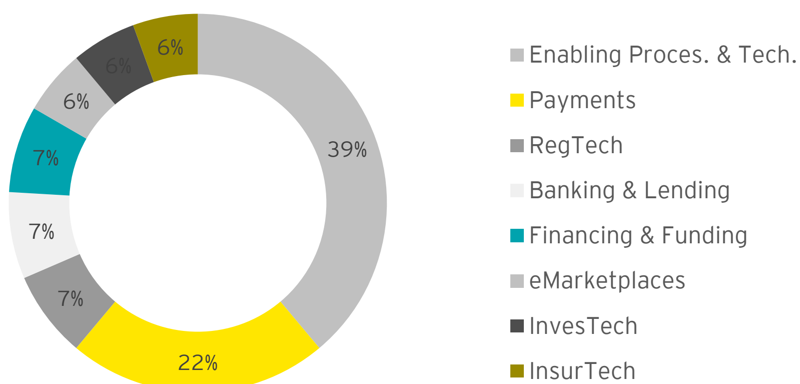
Germany's top-10 banks, for instance, employ a mix of various response models –collaboration and investment are the most preferred

Banks' response models to FinTechs



Note: the overview is based on the total number of individual bank responses identified

Banks' response to FinTechs: segment focus

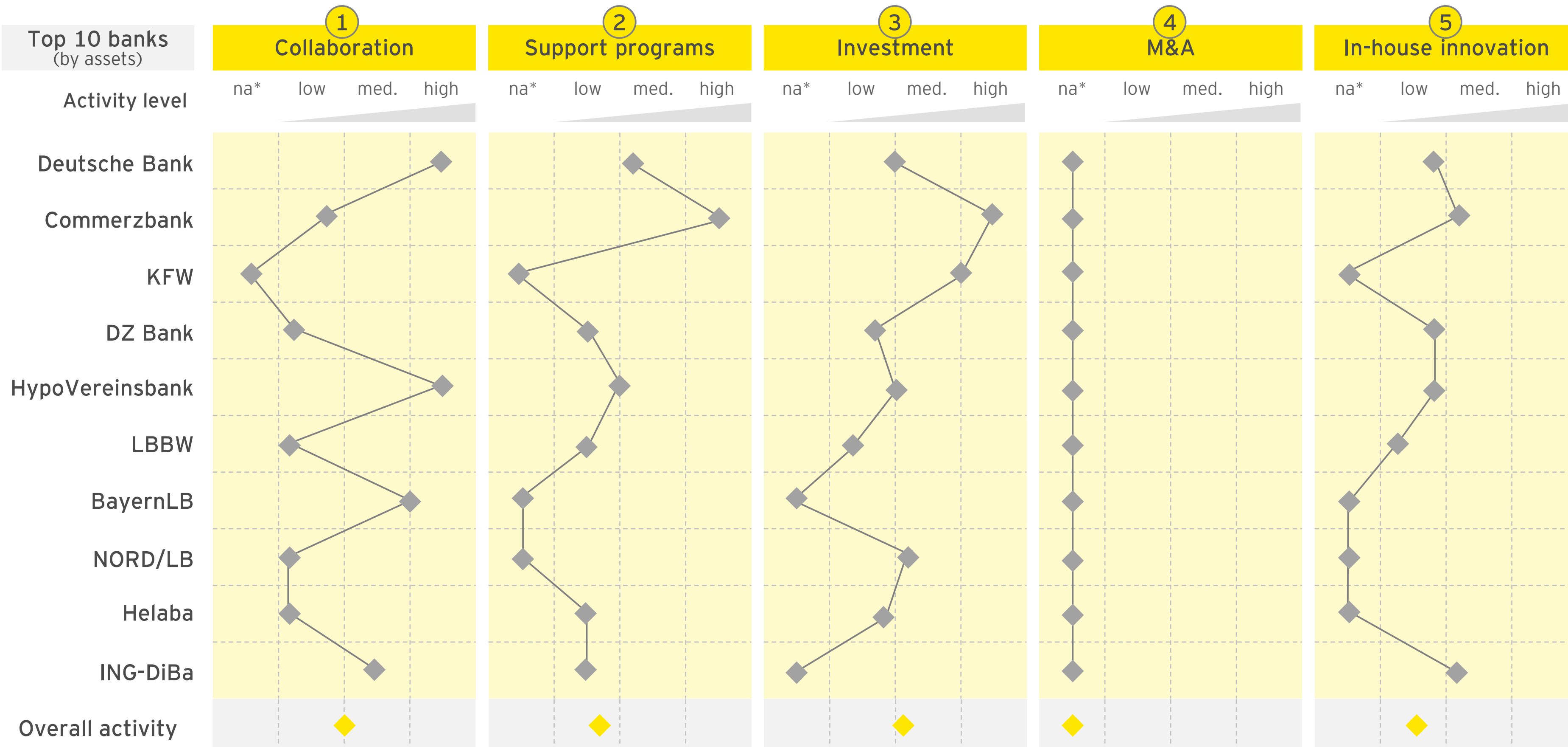


Note: the overview is based on the total number of individual bank responses identified

Banks' response to FinTechs: key insights

- A review of response models reveals that all of Germany's 10 largest banks pursue a multi-response approach in dealing with the FinTech challenge.
- Investment and collaboration have been by far the most preferred response models based on the number of reported cases. Within collaborations the country's top 10 banks have been most active in engaging with FinTechs that enable them to digitalize their service offering – most of the collaboration thus takes place in the segment Enabling Processes & Technology.
- Several banks have also launched or are co-supporting various development programs for FinTechs, although only one appears to be running an own full-scale incubator, where FinTechs obtain expertise on a range of industry-specific topics (regulation, compliance etc.) as well as funding support.
- The analysis also shows that banks have been on average less active in driving in-house innovation in comparison with other forms of response to FinTechs. This may partly reflect the entrenched bank culture that oftentimes conflicts with entrepreneurial spirit of FinTechs as well as a row of internal approval hurdles that one has to overcome to implement an innovative idea. On the other hand, in-house innovation is often a strategically sensitive topic on which most banks do not readily disclose information. Thus, the number of reported cases identified for this response model may also be simply understated.
- There appears to be no evidence based on the reported level of activity that the biggest banks in Germany have been engaged in full-scale M&A with FinTechs.
- In terms of segment exposure, banks are predominantly concentrated on FinTechs that help them digitalize their product offering. From a product perspective, payments have been the most preferred segment of banks' dealings with FinTechs, followed by the adjacent Banking & Lending and Financing & Funding segments.

Banks' response to FinTechs
Ranking of banks' responses



Insights

1 Collaboration
- Most widespread response model – 9 of 10 banks engage with FinTechs through collaboration
- Banks' second most preferred response type
- Most cases occur in the segment Enabling Processes & Technology

2 Support programs
- Few banks have rolled out comprehensive support programs
- Support programs differ widely across banks, ranging from offering workstations, accelerators to extensive incubators

3 Investment
- The most preferred response of banks in Germany to FinTechs
- Typical investment form involves a bank's VC arm or own VC fund
- Preferred segments: Payments, Banking & Lending, InvesTech

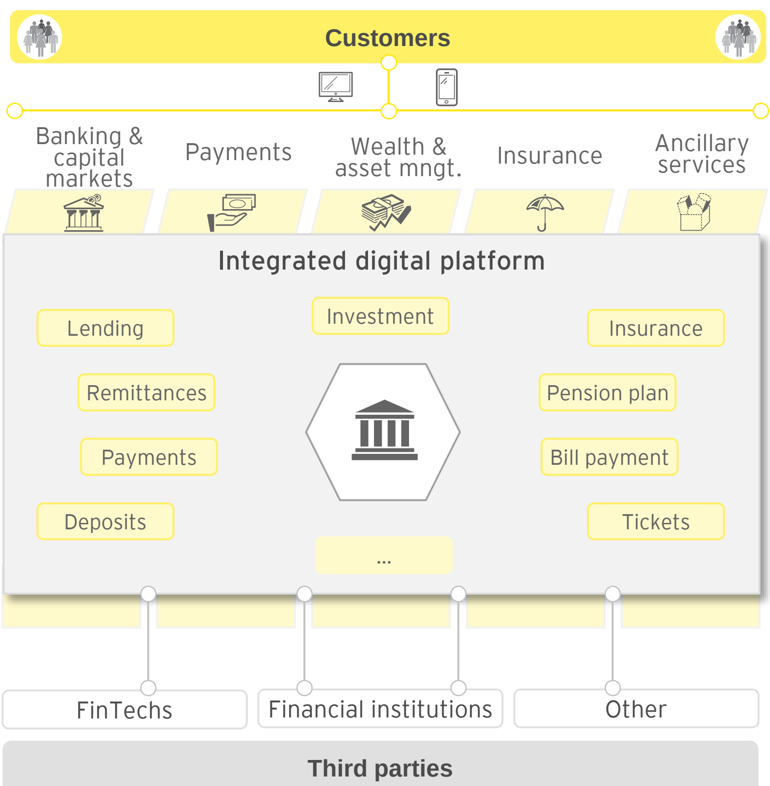
4 M&A
- None of the top 10 banks appears to have wholly purchased a FinTech
- Many FinTech business models are too nascent for takeover
- FinTechs might prefer to operate independently

5 In-house innovation
- Most common form of in-house innovation has been a proprietary innovation lab/factory
- Reported activity may be understated as in-house innovation is of high strategic importance and thus not readily disclosed

*Note: the ranking is relative and is based on the reported number of activities for each response model; * na – not available – no reported activity has been found.*
See pg. 29-30 for selected initiatives.

Response of financial institutions to FinTechs
Building integrated digital ecosystems

Building own integrated digital ecosystems



Response of financial institutions to FinTechs: integrated digital ecosystems

- While most financial institutions pursue a multi-response approach in dealing with FinTechs, the individual response models currently adopted by financial institutions provide ad-hoc singular solutions rather than a comprehensive combined response.
- A response model that is able to integrate the entirety of services related to customer's financial decisions on a digital platform is likely to emerge as the superior form of response.
- Although individual attempts have been made, none of the examined financial institutions appears to have a fully operational integrated business model that is able to incorporate all services on one platform and thus to serve as the ultimate gateway for the consumer.
- Financial institutions need not be the sole producers and suppliers of all services on such a platform, but could also act simply as its operator. Instead, the platform operators could contract third parties, such as FinTechs, connecting and integrating their services into the platform via APIs (e.g. Figo, finAPI, NDGIT etc.).
- The platform operator, however, remains the central point of contact for customers, who obtain a comprehensive and integrated financial service offering that they can manage via a single gateway provided by the operator.
- By operating such platform-based business models, incumbent financial institutions build their own interconnected digital ecosystem that is able to offer its customers the full spectrum of financial services and provides a firm response to the growing presence of emerging FinTech ecosystems (see Case Study – N26).

4. Germany's FinTech landscape: cross-segment activity and inter-FinTech collaboration

FinTech cross-segment activity – (co)operation types

German FinTechs are increasingly venturing outside of their core segment and engaging with other local FinTech firms

Cross-segment activity of FinTechs: types of (co)operation

- A common narrative in FinTech research to date has been to focus primarily on the interaction between FinTechs and banks. What has oftentimes, however, received less attention is the activity of FinTechs within the ecosystem and the interaction among FinTechs themselves in particular.
- Yet, a closer examination of the local FinTech ecosystem reveals that a growing number of FinTechs is venturing outside of their core market segment. Notably, such cross-segment expansion has often been aided by FinTechs cooperating with other FinTechs.
- Overall, several forms of FinTech cross-segment activity have emerged:

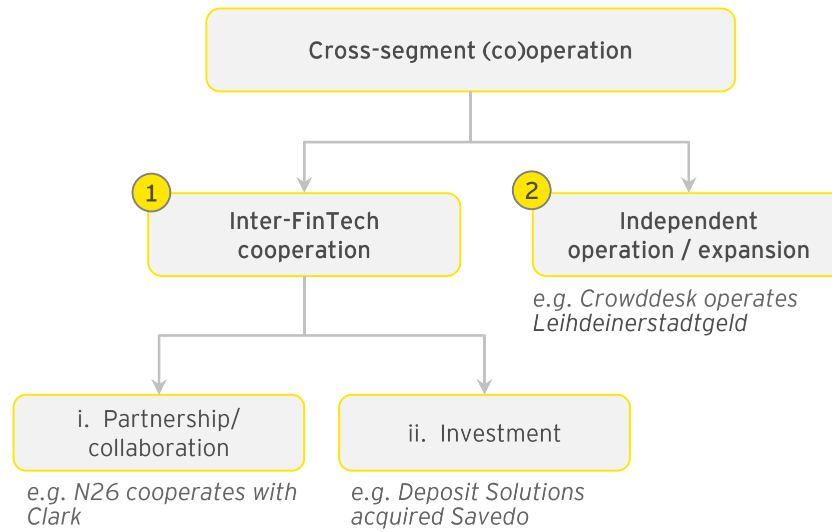
1 **Inter-FinTech cooperation.** On the one hand, FinTechs are not only engaging with banks, but also increasingly leveraging each others capabilities to expand and/or enable the provision of their own product offering. So far this has been achieved through the following avenues:

   i. *Cross-segment partnership/collaboration*. For instance, a FinTech in the segment Banking & Lending might cooperate with a FinTech from the segment InsurTech to offer its clients insurance products in addition to its core banking products; Thus, N26 from segment Banking & Lending cooperates with InsurTech Clark.

   ii. *Cross-segment investment*. This involves FinTechs from one segment investing in FinTechs from another segment (typically through direct equity participation or M&A). For example, the open-banking platform Deposit Solutions (segment Enabling Processes & Technology) has acquired the Berlin-based marketplace for deposits Savedo (segment Financial eMarketplaces & Aggregators).

2 **Independent operation / expansion.** On the other hand, a number of FinTechs is 'going it alone' and enhancing their product portfolios by expanding outside of their home segment. For instance, Crowddesk, a provider of a white-label-platform (segment Enabling Processes & Technology) for several PropTechs also operates its own platform Leihdeinerstadtgeld (segment Banking & Lending).

FinTech cross-segment (co)operation



Source: EY

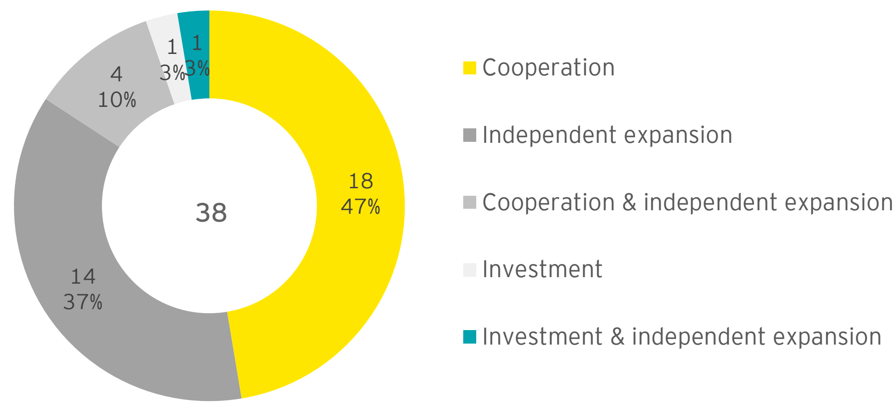
FinTech cross-segment activity – (co)operation hotspots

The intensity of inter-FinTech activity differs by segment – Banking & Lending is the most active segment

Cross-segment activity of FinTechs: hotspots of (co)operation

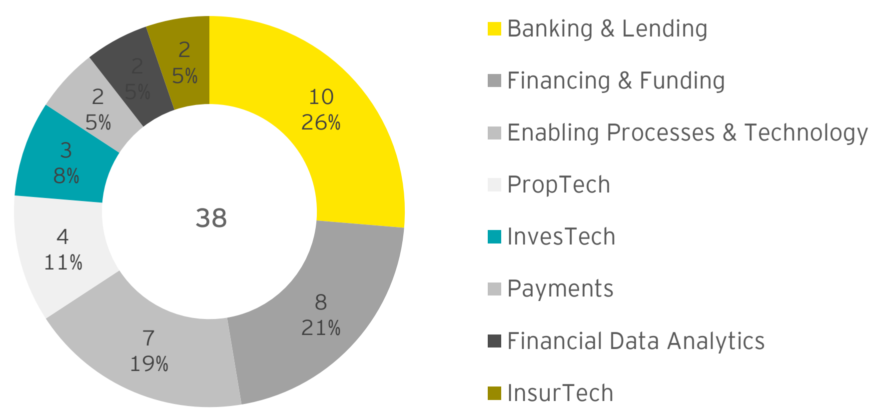
- At this stage the overall number of FinTechs engaging with other FinTechs or extending their own product offerings by making inroads into other segments is still relatively small, albeit not insignificant – within the German FinTech space 38 cases or roughly 13 % of the universe were identified. This number is not surprising, however, given the maturity level of the local FinTech base.
- Furthermore, the balance between FinTechs cooperating with other FinTechs and FinTechs 'going it alone' is currently in favour of the former – 18 FinTechs are betting on cooperation with other FinTechs, while 14 have chosen to expand on their own.
- To date, however, there have been only very few cases of cross-segment investments (2 cases). Given that ~ 50% of the German FinTechs have been founded in the last 3 years, and very few have been able to reach sufficient scale of operations, it would be premature to be speaking of industry consolidation at this stage.
- From a segment perspective, the bulk part of cross-segment activity has occurred in the Banking & Lending segment, accounting for 10 cases out of 38. FinTechs in this segment encompass one of the most mature FinTechs in the industry, making them ripe for enhancing their product portfolios with other non-core products.

FinTech cross-segment activity: (co)operation type



Source: EY
Note: the number of identified cross-segment (co)operation cases is based on our FinTech universe

Hotspots of cross-segment activity: segment focus



Source: EY
Note: the number of identified cross-segment (co)operation cases is based on our FinTech universe

FinTech cross-segment activity – (co)operation rationales

The intensity and drivers of cross-segment activity differ between Core and Enabling FinTechs

Cross-segment activity of FinTechs: (co)operation rationale

- In venturing into other segments FinTechs pursue different expansion strategies and are driven by different rationales. These variables as well as the intensity of cross-segment activity are in turn determined by whether the outbound FinTechs are more product-oriented (Core FinTechs) or rather more focused on technology (Enabling FinTechs).
- Thus, based on the nature of FinTechs (Core vs Enabling) and the direction of their expansion, we structure cross-segment activity into 4 quadrants (see 'Cross-segment (co)operation matrix' right):

I Core ⇨ Core

- Core FinTechs partnering with other FinTechs from core segments to enhance their main product/service offering
- Independent extension of own product line beyond the home segment

II Core ⇨ Enabling

- Core FinTechs cooperating with Enabling FinTechs by leveraging their solutions to enable the provision of own products/services
- Independent expansion into 'tech'-oriented product offerings

III Enabling ⇨ Core

- Enabling FinTechs partnering with Core FinTechs to expand their product portfolio
- Enabling FinTechs offering products/ services of Core FinTechs on their own, in addition to their main service offering

IV Enabling ⇨ Enabling

- Enabling FinTechs pairing their products with akin products of Enabling FinTechs or offering them independently

Cross-segment (co)operation matrix

Direction of FinTech cross-segment activity →

FinTechs	Core	Enabling	Total: 38
Core	**I Core ⇨ Core** ▪ Rationale: product offering enhancement and enlargement of the customer base ▪ Business models: mostly B2C or B2B2C ▪ Activity type: mostly independent expansion	**II Core ⇨ Enabling** ▪ Rationale: leveraging technology to enable existing product offering ▪ Business models: predominantly B2B ▪ Activity type: predominantly cooperation	29
Enabling	**III Enabling ⇨ Core** ▪ Rationale: launch of own financial products ▪ Business models: largely B2B ▪ Activity type: largely cooperation	**IV Enabling ⇨ Enabling** ▪ Rationale: complementary technology offering ▪ Business models: almost exclusively B2B-oriented ▪ Activity type: independent expansion	9

Source: EY

EY

FinTech cross-segment activity – Core FinTechs
Core FinTechs have been most active in venturing into other segments

Cross-segment (co)operation matrix: Core FinTechs

Direction of FinTech cross-segment activity

Home segment		Payments (Core)	Banking & Lending (Core)	InvesTech (Core)	PropTech (Core)	Financing & Funding (Core)	InsurTech (Core)	Fin. eMarketplaces & Aggregators (Core)	Enabling Processes & Technology (Enabling)	Financial Data Analytics (Enabling)	RegTech (Enabling)	FinTechs
Core	Payments								1 2			2
Core	Banking & Lending	1 2 5 6 7 8	1 6 7 8	1 8		4	1 9	1	2 3 4 6 7 10	2 6 9		10
Core	InvesTech			2						1 2 3		3
Core	PropTech		1						2 3 4			4
Core	Financing & Funding		2 3 4		5				1 5 6 7 8			8
Core	InsurTech						1			2		2
Core	Fin. eMarketplaces & Aggregators											
Enabling	Enabling Processes & Technology		2 6				7	5	1 3	3 4	3	7
Enabling	Financial Data Analytics								1 2	1 2		2
Enabling	RegTech											
	Total FinTechs											38

Cooperation   Independent expansion   1 individual FinTechs

The matrix above shows expansion of FinTechs outside of their 'home segment' (listed vertically on the left side) to other segments (movement from left to right along the 'expansion segments' listed horizontally). The boxes with numbers 2 at the intersections of segments refer to individual FinTechs active within those segments. The color of the box indicates either expansion into other segments through cooperation with other FinTechs (2) or independent expansion (2)

Example: in segment Banking & Lending there are 10 FinTechs which are active outside of their core market. FinTech no. 4, for instance, is also active in segments Financing & Funding via independent expansion and in Enabling Processes & Technology through cooperation with another FinTech.

Source: EY

Cross-segment (co)operation: Core FinTechs

I Core ⇨ Core

- The hotspot of cross-segment activity among Core FinTechs to date has occured largely in the core banking space, with FinTechs in segment Banking & Lending playing the most active role.
- A prime example of cross-segment expansion in this field is the case of N26. By partnering with other FinTechs, N26 has been gradually expanding its product portfolio from pure-play banking products (i.e. accounts & cards) to an array of other financial products (i.e. loans – with Auxmoney, roboadvisory – with Vaamo, savings products – with Raisin, insurance – with Clark), building a digital financial supermarket for its clients along the way (*see 'Case Study – N26' on the next page*).
- Other prominent examples of the cross-segment activity within this quadrant include such FinTechs as Kapilendo, Kreditech, Moneymeets etc.

II Core ⇨ Enabling

- Here the interaction between Enabling and Core FinTechs has occured predominantly at the intersection of segments Banking & Lending, Funding & Raising and PropTech with segment Enabling Processing & Technology.
- Thus, in segments Banking & Lending and Payments FinTechs cooperate with Enabling FinTechs by leveraging their APIs to provide customers integrated and seamless banking services (i.e. accounts). SolarisBank and finAPI are one of several examples of API-providers for Core FinTechs.
- Many FinTechs in segments PropTech and Fundraising & Financing in Germany outsource the operation of their platforms to white-label providers. The latter features most prominently the Frankfurt-based FinTech Crowddesk.

Case Study – N26
Building an own financial ecosystem by leveraging inter-FinTech collaboration

N26 Profile

N26

- founded in 2013 in Berlin
- in 2016, one and a half years after the product launch, the start-up received a full German banking license and since then positions itself as the first pan-European mobile bank

serves ~ 500.000 customers	active in more than 17 countries	raised > USD 55 mn from investors	employs ~ 250 people

N26 ecosystem

Note: Transferwise is not a German FinTech
Source: company information, EY

The making of an own FinTech ecosystem

- N26 is a leading example of a FinTech building its own ecosystem by leveraging cross-segment partnerships with other FinTechs.
- Initially offering only account services to its customers, the bank has in less than 2 years enriched its product offering by seamlessly integrating insurance, investment, payment, and alternative credit products of other FinTechs (see details below) into its product portfolio.
- These moves enable N26, on the one hand, to gain greater scale by attracting more customers and, on the other hand, to raise the stickiness of existing customers by offering them the convenience of a 'one-stop' financial supermarket.

N26 cooperations with other FinTechs

FinTech	Year	Segment	Product/service offered by N26
1 Barzahlen Online bar bezahlen	2015	Payments	▪ cash withdrawal and/or deposit at selected retail partner companies
2 TransferWise	2016	Payments	▪ international foreign currency transfers
3 vaamo	2016	InvesTech	▪ automated investment depending on the customer's risk tolerance
4 raisin.	2017	eMarketplaces & Aggreg.	▪ fixed term deposits at selected banks across Europe
5 CLARK	2017	InsurTech	▪ digital overview of customers' all insurance policies
6 auxmoney	2017	Banking & Lending	▪ loans for students, freelancers and the self-employed

Source: company information, EY

EY

FinTech cross-segment activity – Enabling FinTechs

Enabling FinTechs have mostly acted as providers to Core FinTechs, rather than being active cross-segment players themselves

Cross-segment (co)operation matrix: Enabling FinTechs

Direction of FinTech cross-segment activity →

	Home segment / Expansion Segment	Core: Payments	Core: Banking & Lending	Core: InvesTech	Core: PropTech	Core: Financing & Funding	Core: InsurTech	Core: Fin. eMarketplaces & Aggregators	Enabling: Enabling Processes & Technology	Enabling: Financial Data Analytics	Enabling: RegTech	FinTechs
Core	Payments								1 2			2
Core	Banking & Lending	1 2 5 6 7 8	1 6 7 8	1 8		4	1 9	1	2 3 4 6 7 10	2 6 9		10
Core	InvesTech			2						1 2 3		3
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Core	Fin. eMarketplaces & Aggregators											
Enabling	Enabling Processes & Technology		2 6				7	5	1 3	3 4	3	7
Enabling	Financial Data Analytics								1 2	1 2		2
Enabling	RegTech											
	Total FinTechs											**38**

Cooperation | Independent expansion | 1 individual FinTechs

The matrix above shows expansion of FinTechs outside of their 'home segment' (listed vertically on the left side) to other segments (movement from left to right along the 'expansion segments' listed horizontally). The boxes with numbers 2 at the intersections of segments refer to individual FinTechs active within those segments. The color of the box indicates either expansion into other segments through cooperation with other FinTechs (2) or independent expansion (2)

Example: in segment Banking & Lending there are 10 FinTechs which are active outside of their core market. FinTech no. 4, for instance, is also active in segments Financing & Funding via independent expansion and in Enabling Processes & Technology through cooperation with another FinTech.

Source: EY

Cross-segment (co)operation: Enabling FinTechs

III Enabling ⇨ Core

- There are very few examples of FinTechs in the 'enabling' space of the landscape supplementing their main service offerings with products from the core space, neither via partnerships with other FinTechs nor through independent broadening of the product portfolio.
- There is still considerable potential for FinTechs in this quadrant (Enabling-to-Core) to make inroads into other segments. Above all, this means an expansion into Core, B2C-focused segments and implies Enabling FinTechs that are currently offering only digital solutions (e.g. online banking platforms, APIs etc.). The latter, including particularly the white-label providers, are well-positioned to leverage their established technology capabilities and infrastructure to offer own financial products. In fact, there have already been tentative signs of this happening. Thus, the earlier mentioned white-label platform provider Crowddesk also operates its own lending platform (Leihdeinerstadtgeld). Also, the B2B-focused Enabling FinTech Deposit Solutions has recently acquired the B2C-oriented pan-European savings platform Savedo.

IV Enabling ⇨ Enabling

- FinTech activity in this segment, albeit livelier in comparison to the previous quadrant, is still rather at a low level.
- As with the quadrant 1, there is greater tendency for FinTechs in this quadrant to cooperate with companies offering related complementary solutions, i.e. by pairing digital financial infrastructure with data analytics. Thus, financial data analytics provider Rentablo cooperates with finAPI.
- This quadrant is expected to be least attractive in terms of potential for future cross-segment FinTech activities

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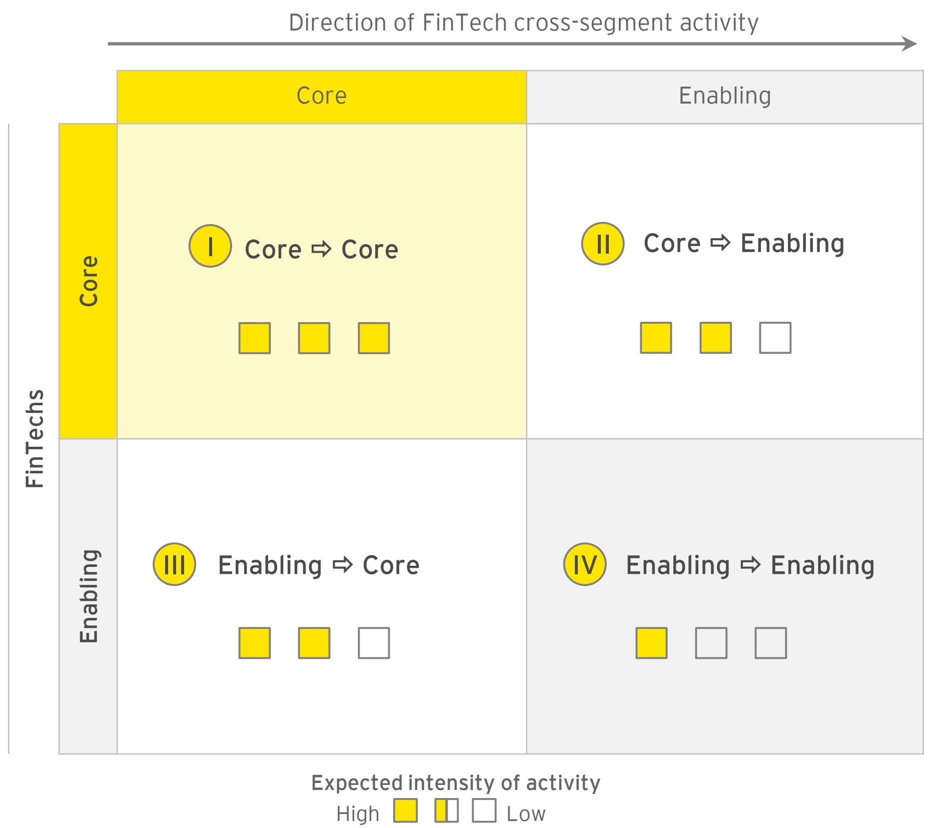
Prospects for cross-segment and inter-FinTech activity

Inter-FinTech cooperation and cross-segment activity are likely to intensify, bolstering the ecosystem's sustainability going forward

Cross-segment activity of FinTechs: prospects for the ecosystem

- Although the current number inter-FinTech cooperation and cross-segment cases is still low relative to the size of the universe, the activity is likely to gather more momentum going forward.
- In particular, cross-segment activity is expected to intensify the most in the Core-to-Core, Core-to-Enabling and Enabling-to-Core quadrants.
- In the Core-to-Core quadrant, the tendency for FinTech players to further extend their product line to offer its customers the convenience of a 'one-stop-shop' will remain. Banking & Lending is most likely to remain the hotspot of activity as existing players can leverage customer data to cross-sell other products (e.g. insurance, investment etc.). This quadrant is most likely to give rise to individual FinTech-ecosystems among established players.
- In the Core-to-Enabling space, more Core FinTechs are expected to rely on the white-label solutions provided by the Enabling FinTechs to support their core product offering. Cooperation with RegTechs is likely to become increasingly relevant for more mature FinTechs.
- The Enabling-to-Core quadrant is also likely to witness a pick-up in activity going forward as current white-label providers start to launch their own products by leveraging established infrastructure.
- As FinTechs grow scale, competition with incumbents is likely to intensify. For this reason, banks should take heed of the current developments and play a more active role in them, sharpening their response models.
- Overall, however, a broader and deeper cooperation among FinTechs as well as outbound FinTech activity is beneficial for the development of the broader ecosystem. This not only improves the survival chances of young FinTechs, but also increases their self-reliance.
- In the end, a more diverse and sustainable FinTech ecosystem should emerge, from which all key stakeholders stand to benefit – banks get access to innovative ideas and technology, FinTechs gain access to funding and industry expertise, and customers ultimately obtain a richer service offering.

Prospects for cross-segment activity



Source: EY

5. Germany's FinTech ecosystem: prospects and expected trends

Germany's FinTech ecosystem – summary of prospects and trends

- It is expected that Germany's FinTech landscape will remain on course towards developing into a sustainable and diverse ecosystem, supported by an expanding and maturing FinTech base, growing investment flows and vibrant cross-segment FinTech activity.
- As the FinTech scene matures both the average deal size and the overall investment volumes should increase reflecting both the greater financing needs of FinTechs and higher investor confidence in the viability of FinTech business models.
- Uncertainty surrounding the impact of Brexit is expected to boost the attractiveness of Germany's FinTech hubs – while several financial institutions have already announced to partially transfer operations to Germany, FinTechs are expected to follow suit.
- The focus on FinTech activities is likely to shift towards strongly growing segments such as PropTechs, RegTechs and InsurTechs, as well as business models which are more cooperation-based.
- At the same time, the tendency for more mixed B2C/B2B models is likely to gain further momentum, supported by the following trends: (i) expected tendency of Enabling FinTechs to increasingly explore the domain of Core FinTechs; (ii) greater collaboration between FinTechs with incumbent players, which see B2B players as less threatening
- FinTech cross-segment activity and inter-FinTech cooperation is also likely to gather more traction and intensify going forward.
- These developments are in turn likely to give rise to individual FinTech-ecosystems among established players (such as N26) and lead to a 're-bundling' of financial services within these systems.
- Against this background and as FinTechs grow scale, competition with incumbents will intensify, particularly with B2C-oriented FinTechs. On the other hand, FinTechs operating B2B models are likely to face more cooperative response with established industry players.
- Increased competition from FinTechs is expected to force incumbent financial services providers to rethink their current response models. Integrated platform-based business models that build interconnected ecosystems are likely to rise as superior response models.
- Overall a more diverse and sustainable ecosystem should emerge from which all key stakeholders stand to benefit – incumbents get access to innovative ideas and technology, FinTechs gain access to funding and industry expertise, and customers ultimately obtain a richer service offering.

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6. Appendix

Banks' response to FinTechs
Selected cases (1)

	1 Collaboration	2 Support programs	3 Investment	4 M&A	5 In-house innovation
Deutsche Bank	▪ The bank collaborates with Deposit Solutions to offer its customers the option of investing daily deposits with other institutions that offer higher rates (2016)	▪ Deutsche Bank operates its own development center – 'Digital Factory' – for digital banking in Frankfurt, offering FinTechs workstations (2016)	▪ The bank announced a plan to invest EUR 750 mn by 2020 into innovative technologies and FinTechs (2016)	▪ No reported activity	▪ The bank's 'Digital Factory' also involves IT specialists and financial experts developing digital products (2016)
Commerzbank	▪ In cooperation with FinTech fino the bank allows its customers to easily move their other bank accounts to Commerzbank through an app 'fino Kontowechsel' (2015)	▪ Commerzbank launched the main incubator to support FinTechs from their inception to marketability (2014) ▪ Other notable programs: start-up garage (2015)	▪ The bank set up CommerzVentures, a corporate venture capital fund, to invest in FinTechs (2014) ▪ Notable investments: Mambu, Bilendo, Traxpay, Gini, OptioPay	▪ No reported activity	▪ Commerzbank runs a P2P lending platform – Main Founder – that allows the banks' SME customers to obtain financing from investors within the clientele of Commerzbank (2016)
KFW	▪ No reported activity	▪ No reported activity	▪ Funding for FinTechs through the High-Tech Gründerfonds (2017) ▪ Investment through the corporate VC fund Coparion (2016)	▪ No reported activity	▪ No reported activity
DZ Bank	▪ DZ Bank and FinTech iZettle have partnered together to launch its payments service in Germany (2012)	▪ The bank runs GENO Hackathons – three-day events, involving FinTechs during which new ideas, software prototypes are discussed (2016)	▪ DZ Bank acquired 25% share of TrustBills – FinTech that operates an auction platform for trade receivables (2016)	▪ No reported activity	▪ DZ Bank runs an Innovation Lab to develop various digital solutions / products for its customers (2016)
HypoVereinsbank	▪ The bank's business clients use SumUp's mobile payment solution to process EC and credit card payments from their customers (2015) ▪ Other collaborations: Gini, Fintura, OptioPay, Moneymap, COMPEON	▪ Participation in the UniCredit Hackathon, aimed at inventing and developing mobile application for financial services (2014) ▪ Co-partnership with UnternehmerTU to run an accelerator TechFounders (2014)	▪ HVB holds approximately 46% in FinTech Moneymap, which offers a tool for personal finance optimization (2017)	▪ No reported activity	▪ HVB has an innovation laboratory in collaboration with the Munich agency Hyve. Employees from both companies work on new banking products and services (2016)

Note: this list is not meant to be exhaustive and merely includes selected cases compiled based on publicly available information. In cases of material discrepancies and/or information deficiencies please contact us.

Banks' response to FinTechs
Selected cases (2)

	1 Collaboration	2 Support programs	3 Investment	4 M&A	5 In-house innovation
LBBW	▪ Collaboration with the sport crowdfunding plattform fairplaid resulted in a creation of crowdfunding platform bwcrowd (2014)	▪ Participation in the 'Fintech Days' Bankathon' – FinTechs present their pitches and bid for prize money (2016)	▪ Investments in FinTechs through BBW Ventures, a subsidiary of the LBBW focused on the venture capital market	▪ No reported activity	▪ Development of an app for private and corporate customers to enhance the digital securities consulting of the company (2016)
BayernLB	▪ The bank is working with FinTech Finreach to enable customers to transfer their entire securities account to DKB broker (2015) ▪ Other collaborations: Barzahlen, cringle, webID solutions, Gini	▪ No reported activity	▪ No reported activity	▪ No reported activity	▪ No reported activity
NORD/LB	▪ Nord LB introduced Traxpay's financing platform to provide automated supply chain financing services to corporate customers (2017)	▪ No reported activity	▪ Nord LB launched a joint venture with DVH Ventures to support FinTech startups in seed rounds with up to EUR 0,5 mn (2015) ▪ Co-investment in FinTech OptioPay (2016)	▪ No reported activity	▪ No reported activity
Helaba	▪ Through its partnership with Tech-Quartier, the Bank maintains contact with FinTechs to explore future collaboration opportunities (2016)	▪ The bank is one of the main sponsors of a new FinTech hub in Frankfurt - TechQuartier	▪ The bank invested EUR 5 mn in the Capnamic Ventures Fund II that invests in FinTechs (2017) ▪ Co-investment through TFH Technologiefonds Hessen	▪ No reported activity	▪ No reported activity
ING-DiBa	▪ The bank launched a securities signposting campaign, using the easy-to-use solutions from Easyfolio ▪ Other collaborations: webID, Gini, KOBIL	▪ The bank is one of the main sponsors of TechQuartier	▪ No reported activity	▪ No reported activity	▪ Development of numerous digital retail banking solutions

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Methodology
Defining the scope of Germany's FinTech landscape and size of FinTech investment

1. For this and following reports we have adjusted our FinTech landscaping methodology, sharpening the fundamental question of what should be considered as FinTech and how to segment the FinTech activity. As a result, the number of FinTechs in the universe might not correspond to the number published in our earlier studies. This also applies to our FinTech segmentation.
2. We define FinTechs as *organisations combining innovative business models and technology to enable, enhance and disrupt financial services*. Correspondingly, our FinTech universe comprises only those companies, to which our definition of FinTech applies.
3. In particular, we define FinTechs as: (i) companies whose primary business focus lies on financial services; (ii) stand-alone companies, not products / solutions of established companies; (iii) start-ups to maturing companies (maximum 10 years after foundation); (iv) business models based on new and innovative technology.
4. We do not consider as FinTechs: (i) services related to finance functions of corporates (accounting, finance, invoice, working capital management software etc. for non-financial institutions) (ii) 'FinTech'-like solutions/products (Google Wallet etc.) of established market players; (iii) mature FinTechs (over 10 years); and (iv) companies not using innovative technology.
5. For the purposes of this report we have limited the German FinTech landscape only to those companies that are founded and registered in Germany.
6. Furthermore, the FinTech universe in this report refers only to what we define as 'active' companies, that is those: (i) still operating in the market and (ii) acting in the market as a stand-alone entity (not just a solution of another FinTech). Whereas, we exclude from the universe companies that: (i) are no longer active in the market (i.e. due to insolvency) and/or (ii) companies that do not operate as a stand-alone entity (i.e. acquired by another company)
7. We use the CB Insights database as a primary source of information on investments in FinTechs. The funding figures extracted from this database include only equity-linked financing:
   - ✓ seed/angel
   - ✓ series A/B/C/D/E+
   - ✓ private equity
   - ✓ growth equity
   - ✓ venture capital
   - ✓ convertible notes
   - ✓ other equity-based funding

   Notably, we exclude funds raised through mergers, takeovers or IPO to get a better indication of venture capital activity.
8. Owing to its early stage of development, the FinTech landscape in Germany is subject to continuous and frequent changes, and is characterized by very limited information. As a result, the size of the landscape at a particular point in time may depend on such factors as: organic expansion of the universe as result of newly-founded FinTech companies; newly identified FinTechs that were previously not included; companies that were excluded from the universe as they were deemed no longer active (see above).

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