

Paying in 2030

The future of payment systems in Germany:
scenarios and strategic options

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A study conducted by SRC Security Research & Consulting GmbH
with support of Z_punkt The Foresight Company

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Foreword

In 2015, we initiated the “Paying in 2025” project to improve our understanding of the future of payments. With the present study “Paying in 2030”, in addition to updating the scenarios, we would like to go even further and address the question: What are the options for action, especially for account-servicing credit institutions, with regard to payments in the future?

Currently, a further acceleration of the digital transformation can be observed. The worlds of living, consumption and payment are increasingly merging. The payment process is becoming more and more integrated into other processes and is becoming increasingly more “invisible”. Large digital ecosystems have begun, at least in some areas, to determine the customer interface for payments as well. At the same time, regulation has led to a decrease of

revenue opportunities from pure payment processing, especially from the perspective of account-servicing institutions. Particularly for payment infrastructure providers, who need to think in terms of long-term investment cycles, these circumstances have led to uncertainty about the future of payments and the need to rethink their strategic orientation.

To help provide some orientation in this context, we have conducted a comprehensive analysis of the trends and developments over the next ten years and those, that can already be identified today. Particular attention was paid to the question of how the expected framework conditions for the year 2030 have changed compared to our predictions from the previous study. With the new scenarios for paying in 2030, we wanted to analyse the range of possibilities from today’s perspective. We have identified the relatively certain developments as a subset of those possibilities as guidelines for the discussion of options for action. We have discussed

these in terms of strategic options that combine different value-added components in a meaningful way. In this context, several questions were addressed: How can account-servicing institutions react to new market participants? What do innovative solutions in payment transactions look like? Which new sources of income and value-added services are conceivable? And what opportunities and necessities for cooperation with partners within and beyond the banking industry will arise in order to be prepared for "Paying in 2030"?

The analysis did not take place in an "ivory tower", but in exchange with a large number of experts – both from the banking industry and from retail, as well as with technology providers. We gained their input in the run-up to the project through a survey and in the course of the project through a series of workshops with fruitful discussions.

The present study is by its nature based on information from the year 2019. Depending on how the identified drivers evolve, the scenarios and the scope for the future of payment may also change. The account-holding banks are therefore faced with the challenge of positioning themselves strategically while maintaining flexibility and monitoring the relevant drivers.

I hope that you will find our assessment of the future and the options for action we have identified helpful for your own analysis on how to adjust to a changing payment systems world.

Gerd Cimiotti

MANAGING DIRECTOR

SRC SECURITY RESEARCH & CONSULTING GMBH

Executive Summary

06

The world of payment is changing rapidly – new shopping habits, innovative technologies, intense competition and new regulatory initiatives will influence the payments market in 2030. Against this background, the study examines these influences and shows possible strategic options for account-servicing credit institutions. From the perspective of the banking industry, the following key findings emerge:

1. Omni-channel capability and at least European reach is a necessary development, which in case of doubt will – to the extent that the banking industry does not implement this itself – already arise of its own accord due to regulatory influence. Instant payments, the regulatory en-

forced access to accounts by third-party service providers (payment initiation services) and the emergence of crypto currencies can lead to the commoditisation of the actual payment if the banking industry does not manage to establish its own procedures with sufficient reach in the market at short notice.

2. Payment processing remains a central anchor for the relationship between financial institution and its customers in the long term, but may lose importance as a source of income for account-servicing institutions.

3. However, account management institutions can also generate new sources of income by developing value-added services related to payments and accounts. It makes sense to design those services in such a way that they can also be integrated into the offers of third-party service providers in order to use their sales and innovation power to enhance the attractiveness of the current account.

4. The API infrastructure built with PSD 2 for accessing the account and the instant payments infrastructure provide a good technical basis for this. Based on this, a so-called API Access Scheme for payment and account-related value-added services can be conceived.

5. From such value-added services, which can be integrated into the services of third-party service providers, it is also possible to imagine the emergence of an independent ecosystem for value-added bank services, in which the current account becomes the platform for a steadily growing number of value-added services.

6. The key prerequisite for the success of such a strategy is a sufficient customer reach for new services, which should at least cover the German market, but ideally also expand beyond it. This requires an appropriate orchestration of the diverse interests of the parties to be involved in such an ecosystem.

Changed basic conditions – changed scenarios

The digital transformation is changing our living environment and our everyday life in a remarkably dynamic way. In this environment, consumers accept innovations based on convenience – contactless payment has quickly become the standard for face-to-face payments. However, the future use of new technologies, such as artificial intelligence and the Internet of Things, raises new questions in the context of paying in 2030: Will, for example, the Smart Store and the “invisible payment”¹ become widely accepted? Will consumers willingly accept the recommendations of digital assistants? Or will purchasing decisions even be made autonomously by algorithms?

¹ Payment should become more and more convenient and is therefore increasingly integrated into surrounding processes. Through the use of innovative technologies, the payment process ultimately becomes almost imperceptible for the payer.

Key players in this transformation are digital ecosystems, some of which are active in many areas of life with their own devices and digital services – a trend that has intensified since 2015. This especially has an impact on consumer behaviour and payment processes: with the requirement of “maximum convenience”, digital platforms are increasingly integrating payments into adjacent processes. This leads to the question: is the market logic of payment transactions shifting from transaction processing to value creation through data-based business models?

Consumer attitudes towards data protection are also an important aspect of shopping and payment in 2030. On the one hand, consumers are often critical about the use of their personal data. On the other hand, misuse of data has not really led to any noticeable change in consumer behaviour. At the same time, an important aspect of the previous study has been confirmed: the regulation of interchange revenues has considerably reduced the revenue potential of pay-

ments itself. The PSD 2 enables the entry of new players to the payment transactions industry – but it may also set the conditions for new value creation models.

Recently, changes in the competitive environment have also become more apparent: international card systems are increasingly positioning themselves as global partners of digital ecosystems and a significant concentration process has been observed in the acquiring market. The following figure provides an overview of all confirmed assumptions and changed conditions compared to the previous study.

From paying in 2025 to paying in 2030



Four scenarios for 2030

To develop a comprehensive overall picture of the range of possibilities for payments in 2030, the study describes four scenarios. These scenarios are derived from critical uncertainties in the basic conditions for the year 2030. Overall, the scenarios are based on six critical uncertainties that were identified and analysed with participation of the experts who contributed to the study.

SIX CRITICAL UNCERTAINTIES FOR THE FUTURE OF PAYING

- 01/ How does digital transformation shape everyday life?
- 02/ How are shopping habits changing?
- 03/ How strongly is artificial intelligence developing?
- 04/ What is the extent of the Internet of Things?
- 05/ How aware are consumers of data protection?
- 06/ How deeply does regulation intervene in competition?

→ Figure 02

SCENARIO 1: DIVERSITY AT THE CUSTOMER INTERFACE

In 2030, the digital evolution of the everyday world is still in progress. Internet giants and their digital assistants are trying to bind consumers along their diverse needs firmly to themselves in the long term. Retail has taken digital technologies for granted and has created an omni-channel world where all transaction channels have merged.

→ Both online and in-store, a variety of convenient cashless payment options are available that ensure that cash is slowly losing its importance.

SCENARIO 2: GREEN LIGHT FOR DIGITAL HIGH CULTURE

In 2030, the motto of consumers and regulators is: green light for digital high culture! Digital assistants, ecosystems and platforms are at the heart of everyday life and shopping. Both have

long been permeated by a digital nervous system. Many everyday decisions and also purchasing processes have become highly autonomous and almost invisible.

→ Through autonomous purchases of digital assistants and connected devices, the payment process takes place in the background and is practically invisible to the consumer.

SCENARIO 3: NEW BALANCE

In 2030, the reflective handling of the chances and risks of the digital transformation has become the consumers' guiding principle. Local ecosystems and platforms are replacing global platforms. New digital solutions enable a renaissance of physical stores: it has become a third place that promises interpersonal communication and experiences.

→ Secure and anonymous means of payment experience an unexpected appreciation.

SCENARIO 4: PLATFORMS AS COMMODITY

In 2030, platforms have long since become a commodity – as well as access to data, thanks to the “Open Finance Data” model. The market power of the current GAFAs has been softened. Consumers switch flexibly between different digital assistants which organise their everyday life. These digital representatives choose between different retailers offering highly individualised products and services.

→ In the Token Economy, more and more purchases are paid via DLT networks and Smart Contracts using crypto currencies.

² The terms GAFAs and Internet giants are being used synonymously throughout the study and describe all globally active Internet giants with digital ecosystems. Next to the predominant corporates from the US these can also be the emerging Internet companies from Asia.

Certain and uncertain developments until 2030

In the overall view of the four scenarios, vari-

ous certain and uncertain developments can be identified for paying in 2030. In particular, the certain developments show important guidelines, which are the main orientation for the strategic options for action for account-servicing credit institutions. The developments are clustered in four categories:

	RATHER CERTAIN DEVELOPMENTS	RATHER UNCERTAIN DEVELOPMENTS
Everyday life	<ul style="list-style-type: none"> • Internet of (paying) Things • Everyday life in digital ecosystems and platforms • Digital assistants as a gateway to the world • Growing cyber vulnerability and threat from cybercrime 	<ul style="list-style-type: none"> • Data sensitivity as an obstacle to data-based business models • Sharing Economy as normality • Autonomous (purchasing) decisions through smart algorithms (AI)
Retail	<ul style="list-style-type: none"> • Establishing an omni-channel world • Conversion to Smart Stores and innovative store concepts with virtual reality and new types of displays • Vertical integration of payment processes 	<ul style="list-style-type: none"> • Cash register-free stores: paying without paying • Revival of local stores
Transactions	<ul style="list-style-type: none"> • Cashless shopping increasingly popular and often mandatory (IoT contexts) • Subscription models and pay per use gain in importance • Micro and nano payments growth 	<ul style="list-style-type: none"> • Revolution through Distributed Ledger Technologies and Smart Contracts • Pure token economy: crypto currencies for payments and value safe-keeping
Competition	<ul style="list-style-type: none"> • PSD 2 and Instant Payment • Establishment of new forms of competition logic • Increasing competition for Top of Mind & Wallet • International payment systems aim to prevent opening of payment market 	<ul style="list-style-type: none"> • Active industrial policy • Restriction of data-based business models

Strategic options for paying in 2030

The expected basic conditions result in various strategic options for action for account-servicing institutions with regard to paying in 2030. The rather certain developments described above lead to two main strategic questions: Do credit institutions position themselves as partners or challengers of digital ecosystems (GAFAs)? And do they focus on transactions per se or on payment-related value-added services? These two questions form the basis of a strategic coordinate system with four conceivable directions of action for account-servicing credit institutions (Figure 4).

OPTION 1: PAYMENTS GAME CHANGER

As “Payments Game Changer”, the goal is to win the competition against the GAFAs for the customer interface through superior processing procedures in payment transactions. The focus is equally on functional excellence and maximum range – only a functionally leading payment scheme offers the basis for wide-ranging acceptance.

OPTION 2: TRANSACTION MANAGER

Similar to the “Payments Game Changer”, the “Transaction Manager” focuses on payment transaction processing, but hands over the customer interface to other digital ecosystems. The “Transaction Manager” distinguishes itself, above all, through superior back-office processing and focuses on the maximum integration capability of its own services into those of third parties.

OPTION 3: ECOSYSTEM SUPPLIER

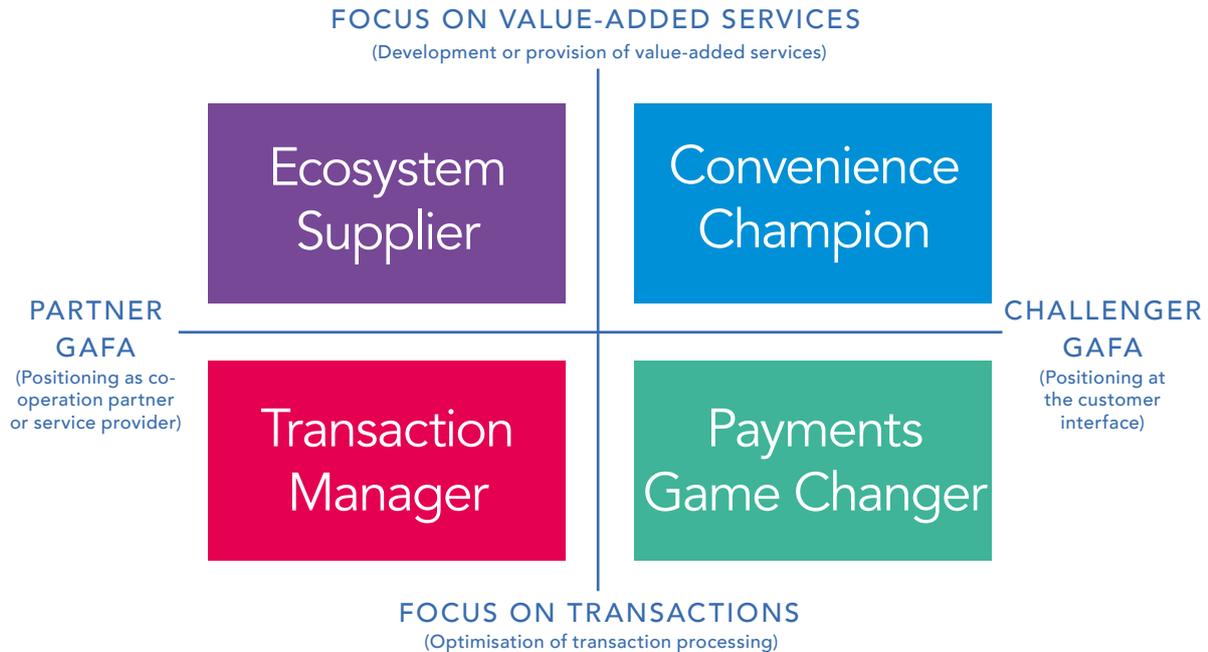
The “Ecosystem Supplier” focuses on the development of payment – or account-related value-added services for the integration into third-party services – regardless of the customer interface. As a third-party provider, it provides payment-related value added services for the use in digital ecosystems.

OPTION 4: CONVENIENCE CHAMPION

As “Convenience Champion”, credit institutions or even the entire banking industry [JS3] are trying to become a digital ecosystem themselves and, as “trusted partners”, to determine the customer interface through comprehensive payment and/or account-related value-added services.

The above-mentioned strategic options outline four extreme positions, which will probably not be addressed in their pure form by many banks. Various hybrid forms are conceivable and depend on the capabilities and customer spectrum of the respective banking group. Regardless of the individual positioning, the need for action is always high. The future paths outlined in the various scenarios for the year 2030 clearly show: the digital transformation of payment could gain further momentum in the coming years. On the one hand, the German banking industry will face new challenges from (new) competitors. On the other hand, changed basic conditions also form the basis for completely new revenue potential. In order to achieve this, however, new competencies need to be developed within the banking groups and new topics and forms of collaboration between the banking groups need to be pushed forward.

Four strategic options for credit institutions



01 /

The scenarios of paying in 2030

Everyday life, shopping habits, as well as the competitive environment and regulatory framework are changing. This chapter presents plausible scenarios for the year 2030.

The scenarios of paying in 2030 are a further development of the previous study. Individual topics were reassessed, the observation period was extended in terms of time and content and various current strategic issues were taken into account. Against this background, there are particularly six critical uncertainties, which, as drivers, will have a decisive influence on the future of paying in 2030:

01/ How does digital transformation shape everyday life? How exactly will digital transfor-

mation affect the future everyday life of consumers and to what extent will the new digital possibilities be used?

02/ How will the consumers' shopping habits change? How will forms of consumption and payment locations develop in the coming years against the background of digital transformation?

03/ How aware are customers of personal data protection? How high is the acceptance

of innovations regarding payment transactions and how much do consumers care about their personal data?

04/ How strongly are AI systems developing? How much will smart algorithms progress over the next decade, where will they be used and what capabilities will they have?

05/ To what extent will the Internet of Things materialise? How many and which objects are connected and which new functions are associated with these new connected devices?

06/ How deeply does regulation intervene in competition? How far does regulation intervene in digital markets and payment transactions and what is the regulator's attitude towards market concentration trends, sovereignty over payment transactions and consumer protection?

Depending on the answers to these questions, the future of shopping and thus of payment will take various forms (Figure 4). The critical uncertainties are therefore to be understood as particularly strong driving forces. In the following scenarios, the six critical uncertainties are pronounced differently, but in their combination they are each plausible and consistent.

Characteristics of the critical uncertainties in the scenarios

		Scenario 1	Scenario 2	Scenario 3	Scenario 4
		Diversity at the customer interface	Green light for digital high culture	New balance	Platforms as commodity
01	How strongly is the digital transformation of everyday life progressing?	medium, contextual	<u>very strongly</u>	barely	<u>very strongly</u>
02	How strongly are consumers' shopping habits changing?	medium	<u>very strongly</u>	slightly	<u>very strongly</u>
03	How sensitive are customers with regard to the protection of their own data?	heterogeneous attitude	<u>not sensitive</u>	<u>highly sensitive</u>	medium
04	How strongly are AI systems developing?	medium	<u>very strongly</u>	low	<u>very strongly</u>
05	How comprehensively developed is the Internet of Things?	comprehensively	<u>very comprehensively</u>	limited	<u>very comprehensively</u>
06	How strongly does regulation intervene in competition?	medium	no intervention	<u>strongly</u>	medium

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NEW BANK

total pay

PayCheep

PAY IN A YEAR

Altapay

OUPAY

QUICK PAY

Zähl

payeasy

üPay

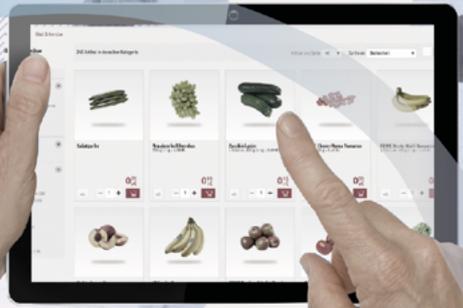
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Scenario 1: Diversity at the customer interface

In 2030, the digital evolution of the everyday world is still in progress. Internet giants and their digital assistants are trying to bind consumers along their diverse needs firmly to their respective ecosystems. Retail has taken digital technologies for granted and has created an omni-channel world where all technical channels have merged.
→ Both online and in-store, a variety of convenient cashless payment options are available that ensure that cash is slowly losing its importance.

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EVOLUTION OF THE OMNI-CHANNEL WORLD

In the omni-channel world of 2030, in-store retail, IoT retail, e- and m-commerce and social commerce are much more closely interwoven than they were ten years ago. Retailers naturally offer convenient, integrated customer journeys and expect corresponding payment solutions. From the retailers' point of view, access to customer data plays a decisive role. They either

collect data themselves or use it as a selection criterion for a digital payment process.

SMART ASSISTANCE SYSTEMS & CONTEXT-BASED INTERFACES

Simple purchasing and everyday decisions are transferred to smart assistance systems, but the power of decision tends to remain with the user. Some people live and operate in much more connected environments, control their

smart home quite naturally via voice input and gratefully accept the new technologies in some stores. Others are, also for data protection reasons, rather reluctant and only selectively open to new digital technologies. Innovative interfaces for shopping and payment are implemented and accepted context-based, such as VR applications and voice-based assistants for the continuously growing IoT-based commerce.

NEW TECHNOLOGIES FOR CONVENIENT AND SECURE PAYMENT

Digital technologies are changing traditional retail, which is evolving: self-checkout via terminals or apps, location-based services and indoor navigation via augmented reality, smart shelves, RFID or IoT-based article surveillance have become the norm. Physical biometrics (fingerprints, face recognition) have become a standard, both in online and retail stores. Device fingerprinting and automated fraud detection via machine learning allows fraud attempts to be reliably de-

tected. However, there are data silos and there is only limited exchange of information between retailers.

INTERNET GIANTS PUSH TO THE CUSTOMER INTERFACE

The Internet giants want to become an integral part of their customers' everyday lives by integrating more and more areas of life into their ecosystems. These efforts also include shopping and payment activities in order to collect further data and create new value-added services. Neobanks and Fintechs have a rather passive function, which are often taken over by other market players.

THE REGULATOR IS LAGGING BEHIND

In 2030, a regulatory backlog can be observed. Developments in competition are not adequately addressed. Regulation is not keeping pace with the rapid pace of technological progress.

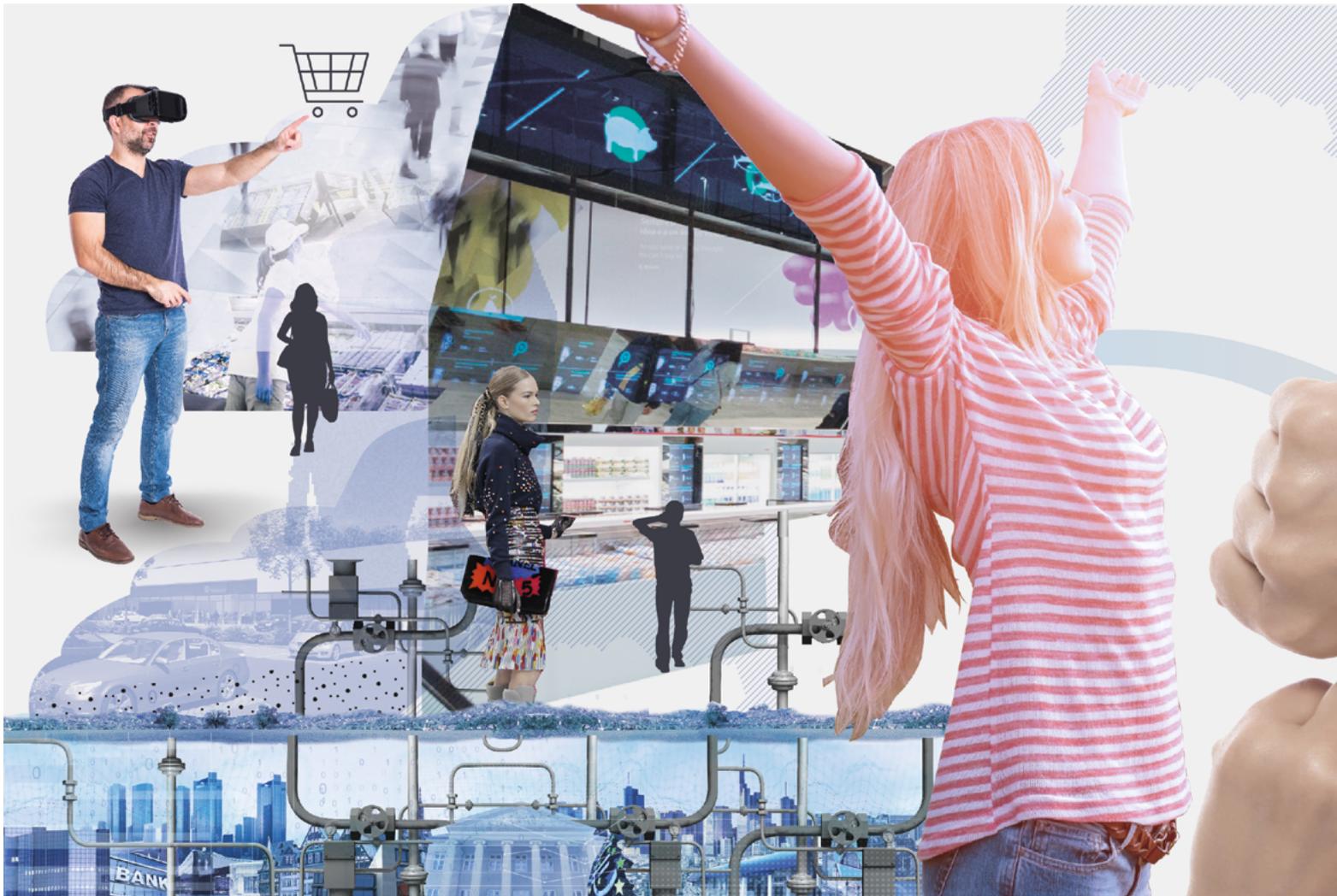
The regulatory framework aims to create a level playing field between Internet giants and other companies. One regulatory lever for this is restrictions in data-based business models. The regulator supports the establishment of integrated payment procedures, but adopts a neutral position with regard to their range.

Use Case: Digital transformation of grocery shopping

In 2030, digital technologies will accompany consumers at every step of their grocery shopping. Grocery stores have become much more digital: customers are supported by digital signposts during the shopping process, the shopping experience is improved by AR applications, personalised (location-based) offers and mobile couponing. Background processes in the store have been improved and automated based on data analytics – empty shelves and expired products are no longer an issue. The processes associated with the actual transaction – queuing, scanning, cashing – have also become increasingly invisible. Retail staff have more time for more complex activities. Smart shelves regularly report inventory levels and provide staff with information on potential out-of-stock situations.

Payment is usually made via self-checkout systems that require registration (e.g. NFC or QR Code). Thanks to IoT-based article surveillance, a variety of products can be purchased via self-checkout systems, even those that require age verification. Loyalty points can be collected not only through purchases, but also through playful elements (“gamification”) and in exchange for personal data. Based on the purchase history and shopping cart, the customer receives additional product suggestions. The receipt is transmitted digitally.

Customers can choose from a variety of payment methods: some merchants have developed their own payment systems and even exotic crypto currencies are available. Even cash cannot escape the digital transformation: coin amounts are increasingly charged as digital credits and small amounts are increasingly rounded off.





Scenario 2: Green light for digital high culture

In 2030, the motto of consumers and regulators is: green light for digital high culture! Digital assistants, ecosystems and platforms are at the heart of everyday life and shopping. Both have long been permeated by a digital nervous system. Many everyday decisions and also purchasing processes have become highly autonomous and almost invisible.

→ Through autonomous purchases of digital assistants and connected devices, the payment process takes place in the background and is practically invisible to the consumer.

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OPEN-MINDED ATTITUDE TOWARDS TECHNOLOGY

In 2030, the mere availability of technologies determines action. Distrust and reluctance regarding digital ecosystems and data-based business models have become an outsider's position. The digital transformation has captivated people: it promises deliverance from unpleasant processes, the personalisation of offers and the possibility of constant optimisation.

HIGHLY CONNECTED, AUTOMATED LIVING AND BUSINESS WORLDS

The vision of a comprehensive Internet of Things has become reality. Data is now being collected incessantly – even from critical areas of life. Even the smallest objects are connected. The high-quality database is exploited by algorithms that promise to make everyday life even smoother. Trust in the autonomous decision-making power of algorithms is high. For a long time now,

consumers have ceded their decision-making authority regarding routine decisions. When it comes to emotional issues and life decisions, digital assistants function at least as advisors – but they also often begin to act autonomously.

INTERNET GIANTS ACTIVE IN PAYMENTS WITHOUT ANY SPECIFIC REGULATION

Internet giants are more than mere “matchmakers” (platform operators) or manufacturers of smart devices. They use their influence at the customer interface to gradually conquer new scope for action. On the basis of proprietary data, they develop their own services which they offer via their platforms. They begin to emancipate themselves from former cooperation partners and use their proprietary data for new data-based value-added services (e.g. scoring the creditworthiness of third parties). Internet giants deliberately try to oust old cooperation partners from their app stores and wallets. With

a laissez-faire mentality and actor neutrality, the regulator creates the regulatory requirements: the connection of ecosystem and platform with products and value-added services is not a taboo and new Internet giants from all over the world are entering the payments market that has no major entry barriers.

RETAIL IS RETHINKING

Retail must reinvent itself in this context. It sees itself as a curator in an X-as-a-service world in which going to the store is often obsolete and in which e-commerce is handled via marketplaces on Internet platforms. The remaining stores are small cashless Smart Stores, which rather resemble pick-up stations now. Instead of mass production, they offer personalised product service systems. Data is the basis, and merchants are willing to implement certain payment procedures and interfaces as standard – in some cases through exclusive partnerships (with the Internet giants). Access to this data is the basis

for comprehensive fraud prevention, where AI systems are used to identify vulnerabilities and risks before they occur. Where retail stores cannot be replaced, and for services that are deeply rooted in the physical world (e.g. mobility), invisible payments via passive biometrics, analogous to cashless Smart Stores, is the standard. Virtual payments are also made invisibly, thanks to Device & Digital Assistant fingerprinting and behavioral biometrics (such as speech or input patterns).

Use Case: With human-machine collaboration to a new favourite dress

In 2030, the intelligent washing machine indicates that your favourite dress is close to the end of its life cycle. This is the trigger for a creative co-creation process between humans and machines. This is because in digital high culture, people are slowly giving up the power of decision when it comes to emotional shopping as well. The basis for the co-creation process is the in-house 3D scanner inside the wall mirror, which carries out the digital measurement and creates a virtual image of the own body and various movements. On this basis, an algorithm autonomously creates VR designs of a new dress, which can be virtually fitted at home and that

can then be improved in the sense of a cooperative creative process based on human feedback.

A sensor is integrated into the garment that collects health and location data and transmits the data to the product manufacturer – which used to be a trading platform. The purchase price is reduced in exchange for data. As a result of the vertical integration of payment processes, every step from payment, production, to logistics and delivery can be tracked in real time. The delivery is made directly into the apartment. The platform supplier has access to the intelligent door lock and is monitored by a camera at every step. The delivery notification is shown on the smart hearing aid and glasses duo. A video of the delivery process can also be accessed. Once the connected label has been removed, the automated payment is made invisibly via the payment procedure that was once added years ago when registering for an entertainment service of the trading platform.



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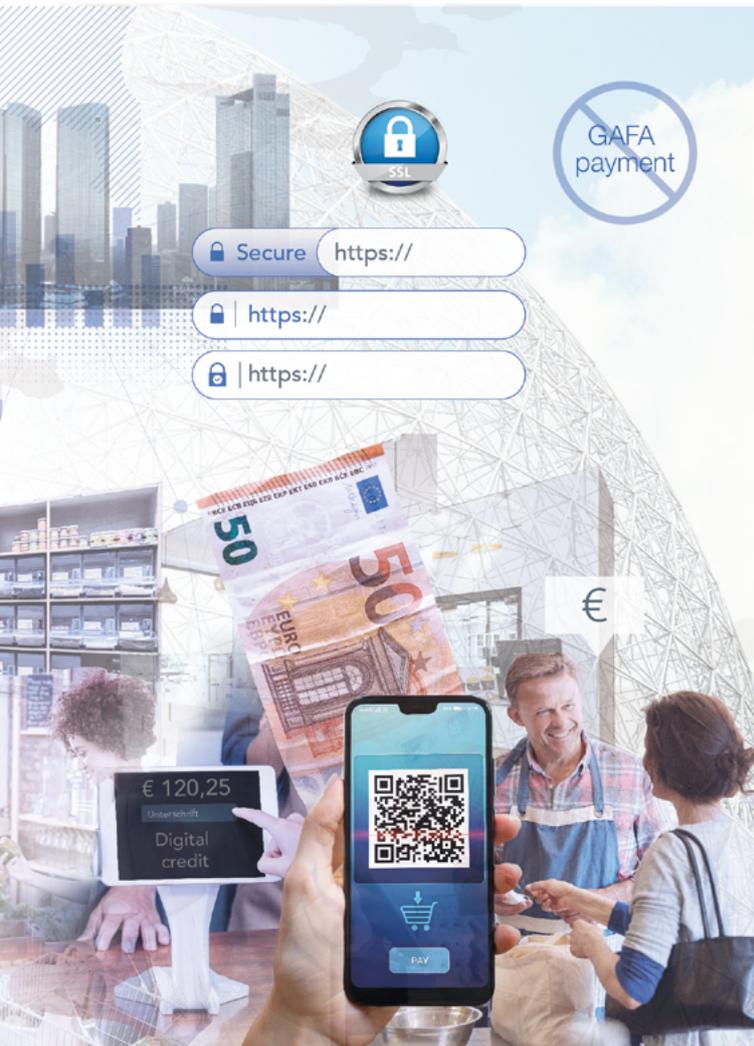
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lecture by Antonio Tabucchi

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Scenario 3: New balance

In 2030, the reflective handling of the chances and risks of the digital transformation has become the consumers' guiding principle. Local ecosystems and platforms are replacing global platforms. New digital solutions enable a renaissance of retail stores: it has become a third place that promises interpersonal communication and experiences.
→ Secure and anonymous means of payment experience an unexpected appreciation.

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REFLECTIVE AND EXPERIENCE-ORIENTED CONSUMERS

A range of data protection scandals in the last decade has led to consumers being more reflective or even sceptical about the digital transformation in 2030. At the same time, more sustainable lifestyles and consumption styles gained in importance. The regional retail stores respond to this development and find a new successful formula: they invest in new store concepts that

promise customers authentic experiences in the sense of a third place. Retail stores, including smaller local manufacturers, will experience a renaissance by 2030. They have managed to reclaim market share from online pure players.

INCREMENTAL DIGITISATION

Data protection scandals have caused people to reflect, and the handling of digital transformation has matured: digital technologies and

data-based business models are subjected to a critical risk-benefit analysis before they are purchased or used for the first time. Digital gimmicks alone fail to meet the benefit calculation and the conservative and reserved attitude of many consumers. Platforms have a regional rather than a global reach. The younger generation is comparatively more open to new technologies and combines physical experiences and communication in digital worlds. The older generation is more sceptical and reserved. This digital divide and the high awareness of data protection lead to a connected patchwork rug – a real Internet of Things never happens.

SHOPPING AND PAYMENT AS AN EXPERIENCE

Retail stores present themselves as a third place. Experiences and events, for which there is no equivalent in virtual worlds, determine the design of retail stores. From the consumer's point of view, the actual payment process is of

secondary importance; it has to be smooth and convenient. Payment must not negatively influence the experience and ideally should even contribute to it. Depending on the context, a suitable service or interface is provided, such as the "Chat Checkout". The time allocation of staff for experience-oriented activities is growing. From the perspective of retailers, value-added services that support local, sustainable lifestyles and consumption styles are a differentiating factor compared to e-commerce.

HURDLES AND LIMITS FOR GLOBAL DEVELOPMENTS

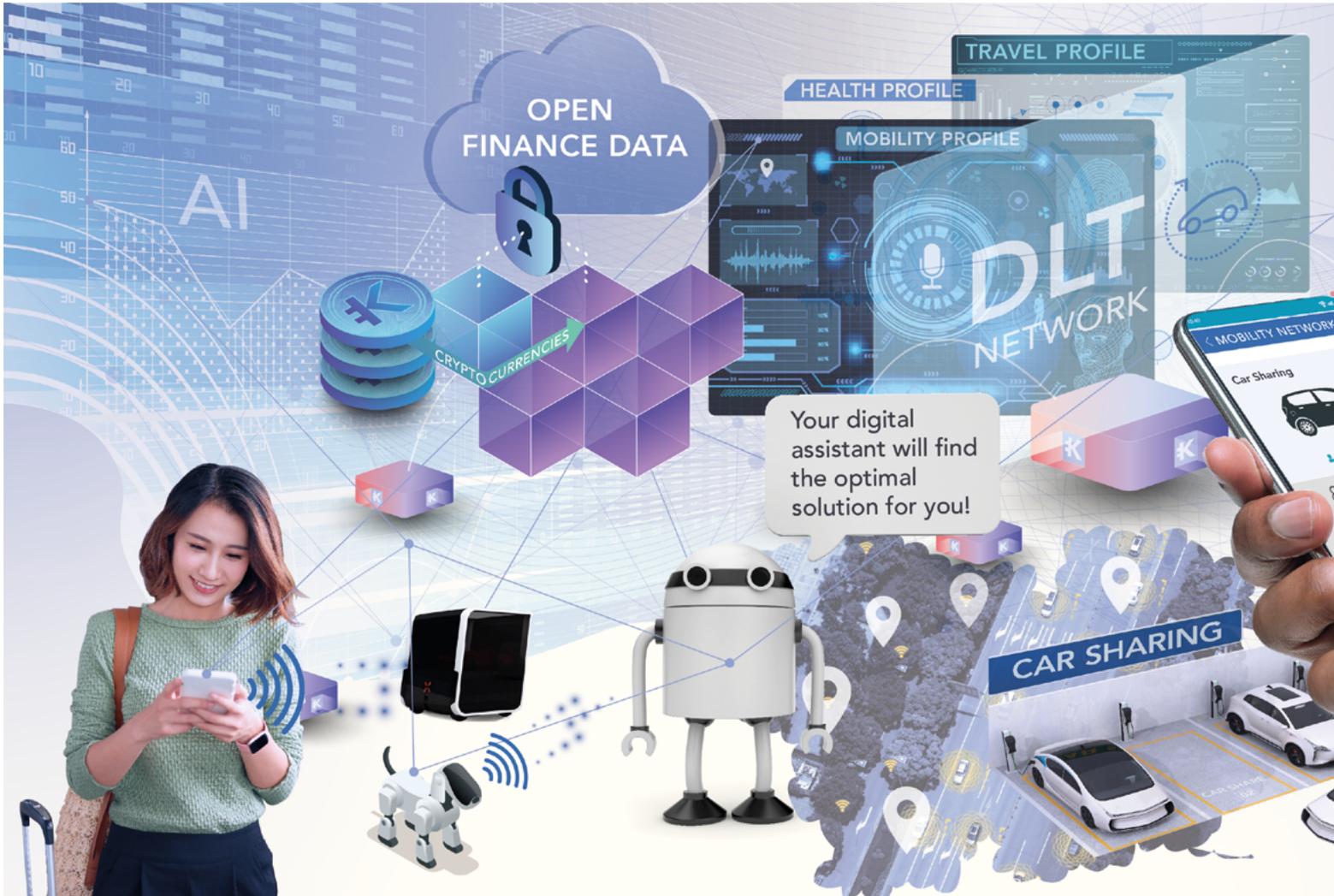
The excesses and risks of a future in which global Internet giants will become irreplaceable for the everyday and business world were anticipated by politicians at an early stage. Accordingly, the competitive position of national and European companies has been improved by means of a regulatory framework which separates Europe from global developments with regard to new

technologies and ecosystems. The influence of the non-European Internet giants was therefore effectively limited. The regulator supports the establishment of a European payment system and, in the process, harmonises API standards. Instead of the global Internet giants, new regional platforms and ecosystems will support customers' everyday lives in 2030. They are considered to be trustworthy. The EU focus also benefits the neo-banks, which have a clear focus on the European market.

Use Case: The local retailer as a third place

In 2030, the local trusted grocer offers more than groceries. As a third place, it is a meeting point for the local community; and for cooperating local manufacturers it is an analogous market place. An example of this is experience-oriented cooking events, which have become a sort of analogous context ecosystem on the subject of health, experience and culinary. The grocer informs households in the immediate vicinity via push message about a cooking event in the store. For the push message service in the regional social network, the merchant previously paid a nano amount – this is now common practice to prevent spam and fraudulent messages.

Dinner at home is cancelled. Cooking and eating is done at the local grocer's. The focus is on the shared experience and exchange between retailers and customers as well as between the participants of the event. Moreover, a story is told about the dishes, the ingredients, and their origin. A travel agent, who has his office near the grocery store, tells more about the country and its culture. The weekly shopping takes place after the cooking event and is inspired by the event: in addition to the dish's ingredients, local suppliers offer other suitable products at the store, such as travel books and special crockery. The choice of the payment method varies according to the participant. There is a balance between cash and non-cash – although some of them choose the digital payment method. Afterwards, the participants share their pictures on the familiar regional platform where they also evaluate the participating product and service providers.



OPEN
FINANCE DATA

CRYPTOCURRENCIES

HEALTH PROFILE

TRAVEL PROFILE

MOBILITY PROFILE

DLT
NETWORK

Your digital
assistant will find
the optimal
solution for you!

CAR SHARING



Scenario 4: Platforms as commodity

In 2030, platforms have long since become a commodity – as well as access to data, thanks to the “Open Finance Data” model. The market power of the current GAFAs has been softened. Consumers switch flexibly between different digital assistants which organise their everyday life. These digital representatives choose between different retailers offering highly individualised products and services.

→ In the Token Economy, more and more purchases are paid via DLT networks and Smart Contracts using crypto currencies.

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POST-GAFA DOMINANCE

Markets with a few central intermediaries are increasingly being replaced by new types of markets, those with a large number of players: Distributed Ledger Technology networks (DLT networks) and smart shopping algorithms offered by different providers as well as lowered barriers for establishing new platforms have undermined the former power of the GAFAs.

Intelligent digital assistants handle the digital matching of supply and demand and ensure smooth and secure transactions. As a result, people are supported in their everyday lives by a variety of algorithms (and not by only one platform) – given that data protection and secure (payment) processing is in place. Decisions from all areas of life are transferred to preferred AI systems. The AI systems are changed regularly. In addition to low technological barriers, the

“commoditisation” of platforms is also driven by regulation that guarantees open access to data (“Open Finance Data” model).

COMPETITION REARRANGED...

Competition in payment transactions appears to be generally more differentiated and dynamic. A single platform can no longer dominate the customer interface. The decisive factor in competition is the perceived added value of consumers willing to change the provider. An “Open Finance Data” model, which obliges financial institutions, payment providers and Internet companies equally to share (banking-relevant) user data, ensures equal opportunities in data use. On this basis, neo-banks, retailers and service providers offer their own specialised services. One example is a decentralised marketplace controlled by cooperating retailers within a network (cooperative competition) instead of by a dominant Internet giant.

...AND SECURITY THROUGH DATA

The extensive availability of data has a positive impact on the AI boom that underlies the extensive connection of all areas of life. Intelligent fraud prevention becomes the standard: AI systems are used to identify vulnerabilities and risks before they occur.

INDEPENDENT RETAILERS MAKE USE OF THEIR FREEDOM

Manufacturers and established retailers took this development as an opportunity: access to the customer is no longer determined by centralised platforms of the Internet giants, but by various AI systems that choose the best deal for the customer. Retailers and service providers support this development. They develop modular offers and personalised services and appreciate the fact that they are no longer confronted with the market power of a single platform of an Internet giant. They act as co-innovators in

payment transactions, develop suitable solutions and value-added services for various IoT contexts within cross-sectoral value-added networks. This is accompanied by the replacement of NFC by a new, contactless standard for all channels (e.g. biometrics or voice recognition).

Use Case: Ideal mobility thanks to DLT and independent AI advice

In 2030, a large number of providers of (autonomous) mobility services compete for the customers' favour. The providers are part of various DLT-based mobility networks that offer car-sharing, ride-sharing and –hailing³, integrating various forms of transport. Some consumers act as providers themselves and rent their (autonomous) cars to third parties or register their vehicles with other providers. DLT-based networks create the necessary transparency and trust. The digital identity of the user and the (autonomous) vehicle are stored comprehensibly and forgery-proof.

To use mobility services, it is necessary to share one's mobility profile within the DLT networks in order to receive new route optimisa-

tion and tariff offers. The mobility provider is changed regularly, depending on reliability and price. The tariffs are determined automatically by the provider's algorithms – route-based, depending on the means of transport or as a subscription. The algorithm chooses the offer that represents the perfect balance between costs and other criteria (e.g. time, or carbon footprint) from an individual customer perspective. Since algorithms make the decision, the ranking of offers on platforms is no longer important – sponsored products and services have disappeared. Payment is made via the respective cryptocurrency of the DLT network. Cars are more than just means of transportation, they are also interfaces for payments: electric cars are connected to energy suppliers. Storage space in the boot is used for the delivery of goods.

³ Car-sharing = Renting available cars; Ride-sharing = Organised carpooling between users; Ride-hailing = Request for an (autonomous) car

Overview of scenario profiles

SCENARIO 1: DIVERSITY AT THE CUSTOMER INTERFACE

SCENARIO 2: GREEN LIGHT FOR DIGITAL HIGH CULTURE

Digital transformation of everyday life	The IoT and digital assistants increase convenience and support in everyday decisions.	Internet giants propel the digital nervous system and digital assistants which make autonomous (purchasing) decisions.
The digital face of retail	Retail establishes an omni-channel strategy and upgrades its stores to Smart Stores.	Going to the shop has almost become obsolete. In the remaining cashless Smart Stores, payments are made completely invisibly.
Transactions in a digitally transformed world	Cash continues to lose ground as a result of contactless payment, subscription models, IoT payments and online delivery services.	Through autonomous purchases by digital assistants and connected things, cash is on its way to becoming a relic.
New competition rules	Regulatory congestion restricts digital business models and technologies.	Unregulated Internet giants are expanding into more and more contexts of life.
Core drivers	<ul style="list-style-type: none"> • Preference for assistance systems instead of algorithms that make autonomous decisions. • Segmentation of consumers into digital natives and sceptics requires a variety of options at local stores. 	<ul style="list-style-type: none"> • Convincing and comprehensive digital assistants and IoT solutions marginalise any privacy concerns. • Government intervention in digital markets is reduced to a minimum.
Signals	<ul style="list-style-type: none"> • More than 50% of Internet users between the ages of 20 and 69 can imagine ordering everyday products automatically. • 83% of German consumers find it important to always know who they are interacting with - regardless of whether it is humans or "machines". 	<ul style="list-style-type: none"> • Amazon plans to open 3,000 Amazon Go stores in the USA by 2021 (Walmart currently has around 4,800 stores in the USA). An equivalent development is assumed for Germany.

→ Figure 06

SCENARIO 3: NEW BALANCE

The critical and differentiated handling of the possibilities of digital transformation is becoming an obstacle regarding digital innovation.

There is a revival of local stores, which position themselves as experience-oriented third places.

As a secure and anonymous (biometry-free) payment method, cash experiences an unexpected appreciation.

An active industrial policy restricts the influence of global Internet giants, which are being replaced by regional platforms.

- Strong consumer awareness of data protection through data scandals and preference for real life experiences (local stores).
- Regulator wants to guarantee sovereignty towards global Internet giants.

- 75% of 16 to 25 year olds say that digital payment methods collect too much data and this encourages them to spend money themselves.
- Generation Z is shopping more offline again.

SCENARIO 4: PLATFORMS AS COMMODITY

The “decentralised” transformation of the digital transformation ensures emancipation of today’s Internet giants.

Retail takes place on decentralised marketplaces where algorithms independently find the perfect “match”.

In the token economy, crypto currencies are used to make purchases via DLT networks and Smart Contracts; using instead of owning is becoming more common.

An open finance data model creates a level playing field for data.

- Establishment of DLT networks and crypto currencies becomes possible through technological breakthroughs.
- Consumers use alternative DLT marketplaces and delegate purchase decisions to algorithms.

- The number of tradable crypto currencies has increased from 26 in 2013 to 2238 in 2019.
- France plans to test its own digital currency in 2020.

02 /

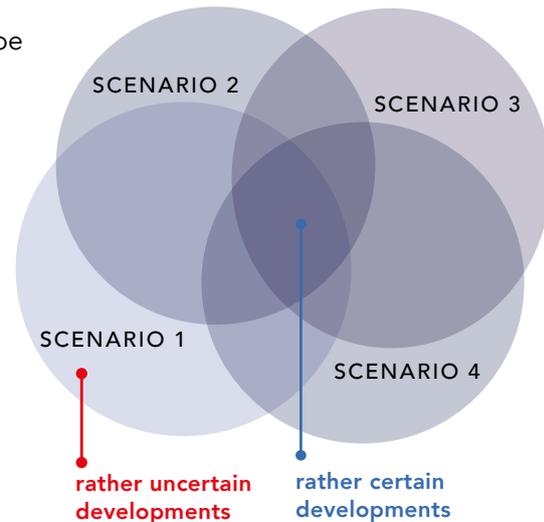
Certain and uncertain
developments until 2030

From the overall view of the scenarios, both certain and uncertain developments can be derived. In particular, the certain developments form the basis for strategic action. Therefore, this chapter provides reference points for the strategic discourse.

Given the highly dynamic nature of the payments environment and the broad possibilities for 2030, it is important to establish points of reference. Matching the scenarios reveals overlaps and differences in the underlying developments. This differentiation is an important tool for identifying and focusing on strategic issues.

Overlaps of scenarios show what is “likely to happen”. This reveals strategic guidelines for 2030 that are particularly relevant for the positioning of the various banking groups. However, the **differences** between the scenarios are useful as well: these uncertain developments must

be



considered in terms of an opportunity and risk perspective.

The certain and uncertain developments can be grouped in four major clusters: digital transformation of everyday life, the digital face of retail, transactions in a digitally transformed world and new competitive rules.

Certain and uncertain developments until 2030

	RATHER CERTAIN DEVELOPMENTS	RATHER UNCERTAIN DEVELOPMENTS
Everyday life	<ul style="list-style-type: none"> • Internet of (paying) Things • Everyday life in digital ecosystems and platforms • Digital assistants as a gateway to the world • Growing cyber vulnerability and threat from cybercrime 	<ul style="list-style-type: none"> • Data sensitivity as an obstacle to data-based business models • Sharing Economy as normality • Autonomous (purchasing) decisions through smart algorithms (AI)
Retail	<ul style="list-style-type: none"> • Establishing an omni-channel world • Conversion to Smart Stores and innovative store concepts with virtual reality and new types of displays • Vertical integration of payment processes 	<ul style="list-style-type: none"> • Cash register-free stores: paying without paying • Revival of local stores
Transactions	<ul style="list-style-type: none"> • Cashless shopping increasingly popular and often mandatory (IoT contexts) • Subscription models and pay per use gain in importance • Micro and nano payments growth 	<ul style="list-style-type: none"> • Revolution through Distributed Ledger Technologies and Smart Contracts • Pure token economy: crypto currencies for payments and value safe-keeping
Competition	<ul style="list-style-type: none"> • PSD 2 and Instant Payment • Establishment of new forms of competition logic • Increasing competition for Top of Mind & Wallet • International payment systems aim to prevent opening of payment market 	<ul style="list-style-type: none"> • Active industrial policy • Restriction of data-based business models

Digital transformation of everyday life

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The digital transformation will shape everyday life in 2030: an Internet of Things is emerging, the use of sophisticated digital assistants has become the norm. However, new dependencies and risks arise with the increased comfort.

In the [developing Internet of Things](#)⁴ it is not only possible to control or monitor things remotely, they can also be used for shopping ([IoT Payments](#)). In 2030, being connected is likely to be a hygienic factor, not only regarding smartphones, but also regarding durable consumer goods. Connected things are part of [comprehensive ecosystems](#), within which even [larger parts of everyday life will take place](#) in the future. Global Internet giants are developing their own

digital ecosystems to “[context ecosystems](#)”: they are home to a growing number of value-added services for different contexts from A to Z: from day-to-day organisation to energy, health, mobility and payments. Ecosystems are based on connected communication devices, services and (media) content, which are either provided by the users themselves or by third parties. The current diversity of apps, offering a multitude of functions, could be replaced by less but more multifunctional apps (e.g. WeChat ecosystem) or even assistants with intuitive forms of interaction (e.g. Alexa, Siri, Google Assistant) which may make individual apps superfluous. In recent years, more and more areas of application for [digital assistants](#) have already emerged. Based on personal data, they can, for example, assist with shopping, support other everyday decisions or make recommendations. The development from recommendations towards more autonomous decisions by digital assistants is likely to begin with routine decisions and purchases. It is certain that digital assistants will support us.

⁴ Rather certain developments are highlighted in blue, rather uncertain developments are highlighted in red

For 2030, however, it is rather uncertain to what extent **autonomy in emotional and sensitive purchasing and life decisions will be passed on**. Today, a lack of transparency in the functioning of algorithms is often an obstacle. With increasingly comprehensive data, more advanced algorithms and (cloud) computing capacity, more and more complex (purchasing) decisions could be made autonomously by digital assistants in 2030. This could be based not only on environmental and behavioural data, but also on emotions. Startups and retailers are already working on this ultimate form of customer surveying. This leads to the question of how **data awareness** is developing and if it will become an **obstacle for data-based business models and digital technologies in retail**. Until now, consumers tend to stick to their behaviour patterns and they seem to be willing to exchange personal data for more convenience and access to offers. From a technical perspective, future concepts such as implanted chips or the AI-based recognition of emotions seem plausible by 2030. However, it is

not yet clear to what extent this will be accepted by society and regulation.

Digital transformation also provides **new gateways for cybercrime**. Data-based value creation also means that it is becoming increasingly **attractive for third parties to gain access to personal data**. The long-term consequences of one's own digital activities and the handling of personal data are difficult to assess. As an example, high-resolution images that were shared in social networks in the past may be used to reconstruct biometric features. Algorithms could be misused to favour certain products, and price comparisons could be manipulated in a targeted manner.

The digital face of retail

By 2030, retail stores and e-commerce will have transitioned into an omni-channel world. Offers, shopping and payment experiences become more digital, personalised and convenient.

The seamless interaction and homogeneous appearance across different channels (e.g. retail stores, IoT commerce, and social commerce) will most likely become the norm in the **omni-channel world** of 2030. Data on payment history in Germany and current trends indicate a shift towards online shopping for purchases. However, the development towards an omni-channel world could shift the market power between Internet Pure Players (pure Internet merchants) and pure retail stores and retail stores with an online presence. Last but not least, Internet Pure Players (e.g. Amazon) with their concepts for cashless shops demonstrate that there could be a future in which more purchases are made locally and

in which payments are triggered locally again. However, it seems rather uncertain if there will be a real **revival of local stores**.

In the digitally transformed world, **Smart Stores and new store concepts** are emerging on the local store side. Smart Stores use various IoT solutions (e.g. smart shelves, IoT-based article surveillance) and algorithms to improve the shopping experience and internal processes. The interactions between consumer and retailer – selection of goods, queuing, scanning, cashing – will become increasingly automated or even invisible in the future. It is uncertain, however, if **stores without cash registers (“paying without paying”)** will become widely accepted in retail stores by 2030. Early solutions for stores without cash register, such as those from Amazon, Wirecard or Carrefour, are based on systems that make today’s physical interactions obsolete. Stores without cash register are based on a variety of solutions that can be considered controversial from a consumer and regula-

tory perspective: IoT systems (e.g. surveillance cameras), (behavioral) biometric recognition of consumers and algorithms that not only identify goods but also evaluate the reactions and interaction of consumers in the store. The acceptance of such stores will largely depend on the data protection/security/privacy sensitivity of customers. Currently, retailers seem to assume a more observing role: only a few retailers have such a system in place or have concrete plans for implementing it. However, the following applies: the boundaries between the physical and virtual world merge in **new store concepts** that add a digital level to the physical world. Virtual and augmented reality enable new forms of consumer-retailer/product interaction. This makes it possible to integrate additional information and playful elements (“gamification”) into the store visit based on the situation. Displays for product configurators and virtual fittings simplify the personalisation of products that are not in stock: products and brands can be experienced in a new way.

In e-commerce, **shopping platforms** are expanding their positioning across the **entire purchase value chain**: from the search for products (e.g. filters or price alerts) to logistics and timely delivery of goods. In addition, platform providers could use the knowledge about their customers, their shopping history and preferences in a targeted manner to offer their own brands (e.g. clothing, furniture) and their own services (e.g. Amazon Home Services). In the long term, (IoT) services could also be integrated into their own ecosystems and trigger payments themselves.

Transactions in a digitally transformed world

In the increasingly digitally transformed everyday world of the year 2030, there is merely no alternative to cashless payments. Digital information will be linked to the flow of money.

In 2030, **more payments will be made cashless**. In recent years, a number of corresponding trends can already be observed: the shift towards cashless payments in retail stores, the growing number of online shoppers (who spend more money per capita) and cashless P2P real-time payments. A look at how and where particular payment instruments are used reveals that in a digitally transformed world, online payments or contactless payment will most likely take over where cash payments still dominate

today. In the course of the digital transformation, new purchasing contexts are also emerging for which cashless payment is the only viable option: purchases via new types of end devices (e.g. wearables), connected items (IoT payments) and digital assistants, as well as purchases that take place in embedded virtual worlds (e.g. VR travels, gaming).

Today's one-off purchases will increasingly be replaced by **subscription models** (continuing obligation for certain products and services) and **pay per use**. This will be driven by increasing time pressure in daily life and the growing number of connected devices that can re-order consumables independently, or that can be paid for according to their use (e.g. mobility costs according to the time the vehicle is used or special driving modes). Thanks to connected things and self-learning algorithms, it will be possible to automate ordering processes of (more and more) consumables smoother and to schedule the delivery flexibly and not according to fixed

intervals – some grocery stores even offer delivery right into the refrigerator. The potential of this logic is almost endless, as its technical components are becoming increasingly easier to integrate into anything: from refrigerators to kitchen shelves or storage containers (PubNub).

In the digitally transformed everyday and business world, **micro and nano payments** will gain in importance by 2030. In an increasingly automated world, the perceived transaction costs of such small payments will decrease. All of this is based on the visions of an Internet of Things, Industry 4.0 or decentralised energy production, which are based on “machines” and “things” processing or at least adding up small payments between themselves. In everyday life, we will encounter smaller payments more often, either via paid content or via a pay-per-use model. Micro and nano payments could even be the basis for business model innovations themselves: nano-fees for e-mail dispatch could make wide-spread spam mails simply too expensive.

With a view to 2030, it is uncertain which role **distributed ledger technologies (DLT) and smart contracts** will play. There are already pilot projects where payments and smart contracts (“if-then function”) are processed via a block chain. However, blockchains struggle with different issues, e.g. they can only handle a limited number of transactions per second. Alternative DLT solutions address these challenges – with an uncertain outcome. With regard to payments, it remains unsure if DLT solutions will be able to compete with instant payment. In any case, DLT-solutions will arise independently from payments, like JP Morgan’s block-chain-based Interbank Information Network which is not intended to process payments itself, but to improve the exchange of information between banks in the fight against money laundering.

Crypto currencies (CC) offer the possibility of digital value storage and transmission. It could well be the case that CC will be established as a payment method by 2030, at least for specific

contexts such as the growing gaming industry and digital services like messengers. However, the **extent of CC**, up to a **pure Token Economy**, seems **uncertain**. Facebook is the first internet giant to announce the introduction of its own CC. The Chinese central bank has already caught up. The introduction of such currencies is at least being discussed for other central banks as well, especially in the form of stable coins, which are supposed to offer more stability and reliability. A digital Euro based on DLT is also already being discussed in this context.

New market conditions

The market logic of digital markets and their regulation will fundamentally change the market conditions by 2030..

With regard to regulation, regulatory conditions will evolve until 2030. **PSD 2 and Instant Payments** are certain developments. The regulator has thus created a new market environment for payment processing, which itself is regarded as a **critical infrastructure of the digital European internal market** and – ultimately – for European sovereignty. Accordingly, the regulator tries to promote processing of payment transactions preferably within European payment infrastructures. In practice, however, the regulation implemented so far has more resulted in global payment systems being strengthened compared to European ones. It seems certain that the **regulator will at least discuss crypto currencies more intensively in the future** as well. The Inter-

national Monetary Fund takes a further step and assumes that central banks will even issue their own crypto currencies. This has already been announced by the Chinese central bank.

In view of tendencies in digital markets to be dominated by multinational Internet giants, the regulatory framework for a digitally transformed economic world by 2030 is being discussed more intensively. Even an active industrial policy and politically promoted “champions” are conceivable. An active industrial policy may even be required if a European payment system is favoured. In view of the low volumes of cross-border transactions, the question of a pure market-driven harmonisation to create a standardised European payment system arises automatically. Another decisive factor for this is that the acceptance side is predominantly no longer controlled by banks in many countries, but by generally international service providers who may not necessarily be interested in a pure European processing. A clear regulatory frame-

work for data-based business models is not yet visible. For example, the idea of a Public Data Trust, an independent body that stores data and manages access authorisations, is only being discussed (Sidewalk Labs by Alphabet).

In addition to regulatory developments, especially the PSD 2, the digital transformation also leads to a new market logic. In a digitally transformed world where the physical and digital sides are increasingly merging and the degree of complexity is constantly growing, cooperation in connected markets and an agile adaptation of the market strategies is becoming more important. With a view to 2030, alternative forms of corporate relations must therefore be discussed: Whitelabeling, Coopetition and Open Innovation. Internet giants have already embarked on this path (Apple Card, Google Project Cache). With its Engage program, Mastercard seeks contact with financial technology companies, merchants and manufacturers of IoT devices in order to develop joint solutions.

In addition, new Internet giants, e.g. from China, are entering the market and trying to establish their digital offers and payment solutions at least for tourists (Alipay at dm).

International payment systems try to react to the growing importance of ACH-based payment processing. For this purpose, they use three key levers, similar to Internet giants in other contexts: lock-in effects, acceleration of the speed of technical innovation in payment transactions, and adoption of the role of an automated clearing house in payment transactions. Lock-in effects can result, for example, from the establishment and use of global standards that impose restrictions on the processing of transactions outside the respective network (e.g. tokenisation of card numbers) or from cooperation with other global service providers that are difficult to access for operators of local or regional payment systems.

The support of merchants with regard to the integration of payment processes is increasingly controlled by international service providers. New terminal architectures/standards allow acquiring service providers to offer national payment systems outside their domestic market more easily than before. On the one hand, there is a concentration of providers in the acquiring market. On the other hand, merchant service providers are positioning themselves with solutions for payment and cash flow management on digital platforms (e.g. Stripe, Adyen, Wirecard). Competition between these providers is particularly focused on the integration of new payment methods and technologies that allow account-servicing institutions to outsource customer authentication to retailers. This applies not only to e-commerce, but also to physical retail (e.g. digital POS on smartphones).

Competition for top of mind and wallet is **growing** in the light of digital innovations from the non-banking world, for example from fintech and Internet giants that are characterised by data and customer-centric innovations or their own strong ecosystems. Their solutions create benchmarks with a view to 2030 – e.g. with regard to fees (or freemium models), functionality and user-friendliness – from the perspective of consumers, retailers and service providers. This creates pressure on the structure of revenue opportunities – beyond the regulatory requirements.

03 /

Strategic options for 2030

From scenarios to strategic options: from the different future scenarios with regard to paying in 2030, concrete strategic implications for German credit institutions can be derived. In the previous section, the certain developments were identified as the intersection of the scenarios – this chapter now deals with the question: which are the strategic options for credit institutions to react to these changes?

The first central finding that can be derived from the overlap of the scenarios is the potentially strong competitive position of the Internet giants (GAFAs) in future payment transactions. This insight is based on a large number of certain developments: more and more consumers draw on digital ecosystems in their everyday lives and use the corresponding services. Accordingly, platform providers are able to successfully place technical innovations in the market. In the future, the influence of conversational commerce or digital assistants on tomorrow's

payments will be significantly determined by the global Internet giants. Furthermore, the vertical integration of payment processes as well as the provision of additional services will increase – for example, through tracking of a delivery or additional offers based on a purchase order. Seamless solutions are at the heart of the customer experience, which have become possible through the extensive collection of environmental data across all sales channels. This results in increased competition at the customer interface for credit institutions and providers of payment

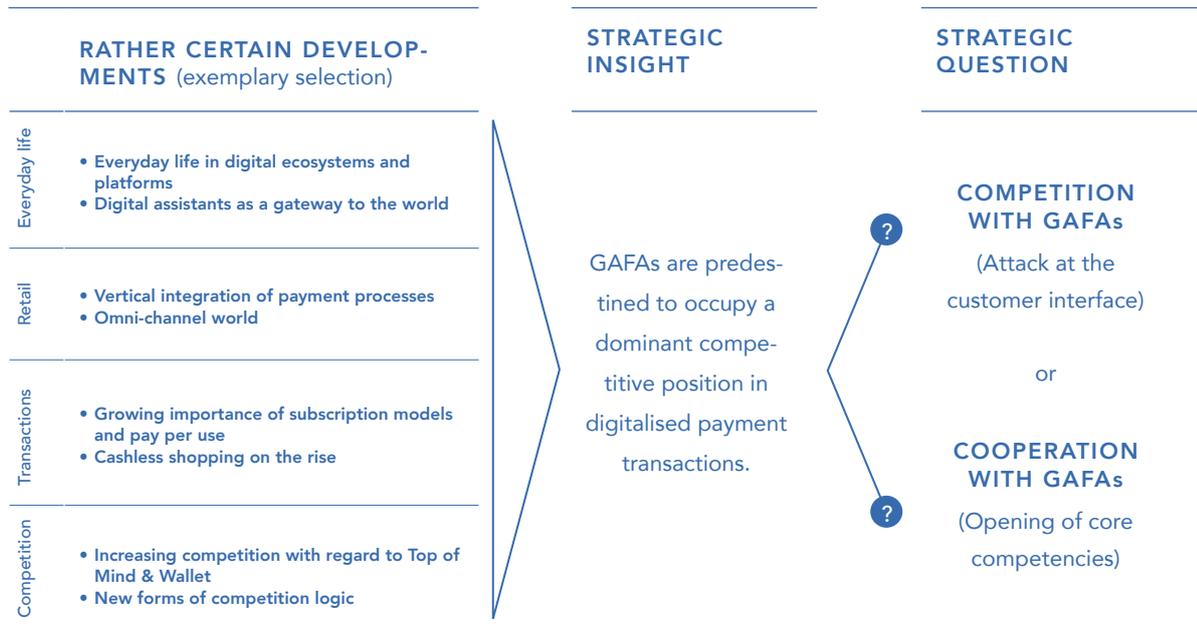
procedures: who will succeed in “Top of Mind” and “Top of Wallet”? Who will preserve direct access to the customer and the coveted data?

The central finding that can be derived from these certain developments is therefore the shift from pure transaction processing to data-based business models as a new market logic and thus the potentially strong competitive position of the GAFAs in payment transactions. Accordingly, the strategic question for established credit institutions is how they want to position themselves vis-à-vis the GAFAs in the future: **as partners or as challengers at the customer interface?** (Figure 9)

The second central finding resulting from the intersection of the scenarios is the increasing relevance of the integration of payments into surrounding processes as well as user convenience and the reduction of complexity in payments. This finding is based on various certain developments as well: in addition to the requirement

of paying cashless in every situation, payments are more and more integrated into, primarily digital, services. Regardless of whether at the virtual POS, in the smart home or car – payment must be possible everywhere. Sometimes, it must even be “invisible”: automated payments through IoT devices, e.g. in Smart Stores, and through digital assistants provide more convenience in everyday life. Payment procedures that master this universal application mix and at the same time are as cost-efficient as possible can be successful in the market in the future.

First strategic question: Competitive positioning focus

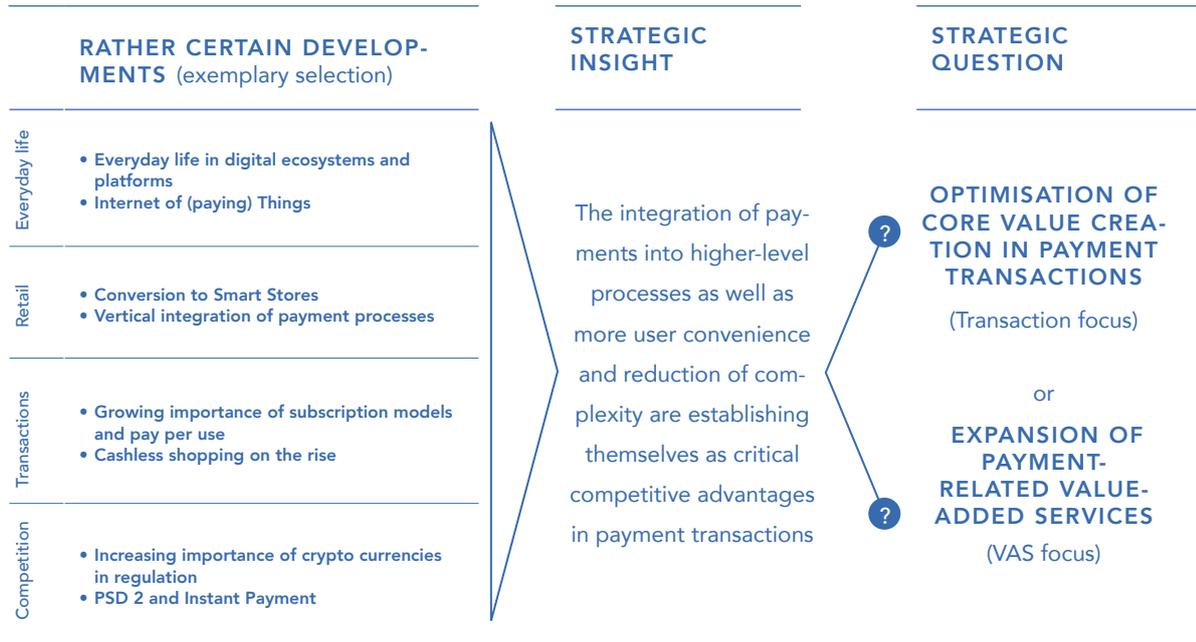


At the same time, new complexity potentials arise in the context of simplified payment processing. The decision which payment procedure should be chosen for which purchasing context is increasingly becoming obsolete, also due to more and more subscriptions. Instead, weighing of personal finances, customised offers and actual needs is becoming increasingly important. Instead of revenue generation via payment processing, value-added services gain in importance, which are payment-related but go beyond mere processing. Examples of this are personalised budget management and the administration of digital identities. The growing relevance of crypto currencies and DLT applications also offers new possibilities. PSD 2 can be regarded as a first step into this direction, since it already provides the access to the account and to the corresponding data.

These developments lead to the second strategic question for account-issuing institutions: will they aim to be successful primarily

by **optimising the actual payment processing in relation to a variety of payment contexts?** Or will they focus more on the **development or provision of payment-related value-added services?** (Figure 10)

Second strategic question: Portfolio focus



The combination of both strategic questions results in a total of four different options, which illustrate the strategic scope of action for credit institutions regarding future payments. Figure 10 illustrates the available options using the two questions as axes. The options are to be understood as extreme positioning. They may also be realised as attenuated or as mixed forms.

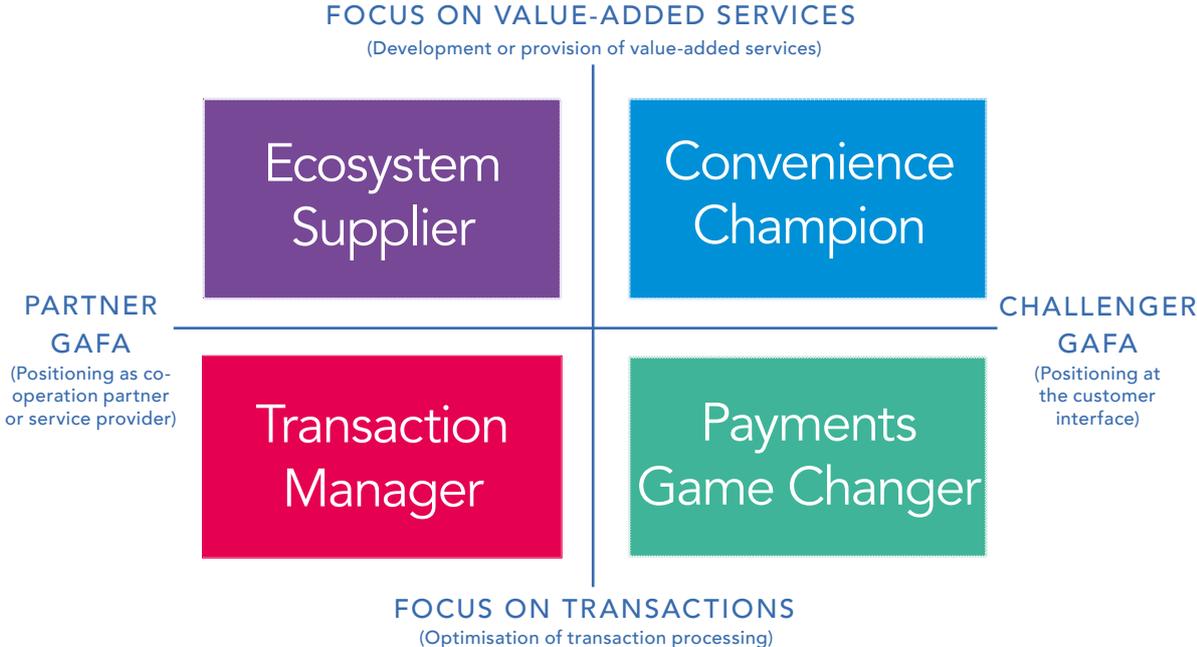
As **“Payments Game Changer”**, the goal is to win the competition against the GAFAs for the customer interface through superior processing procedures in payment transactions. In this course, the focus is equally on functional excellence and maximum range.

The **“Transaction Manager”** confines itself to transaction processing, but hands over the customer interface to the digital ecosystems. It distinguishes itself above all through superior backoffice processing and focuses on the maximum integration capability of its own offers into third-party services.

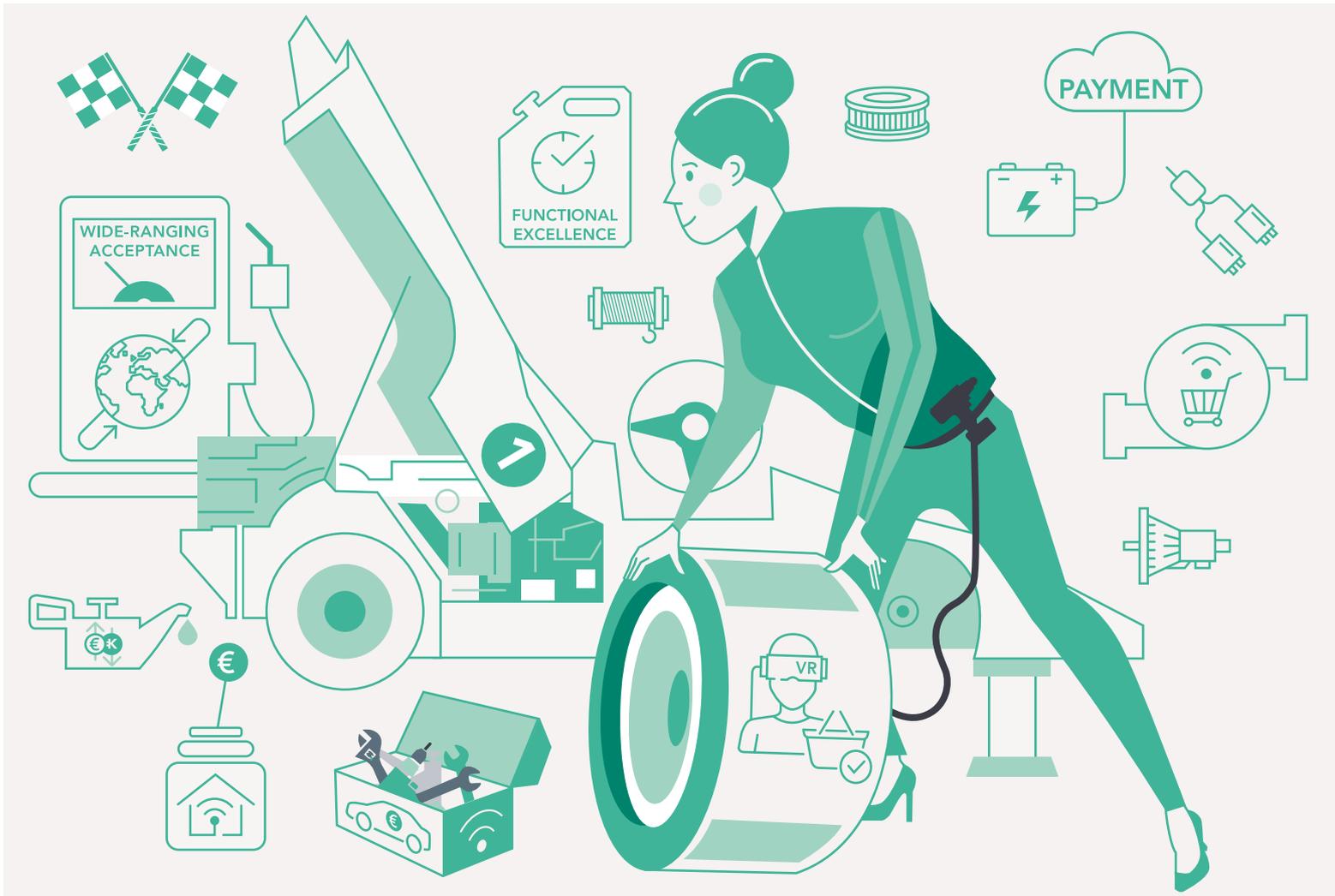
The **“Ecosystem Supplier”** focuses on the development of payment or account-related value-added services which can be integrated into services of third parties – regardless of the customer interface. It leaves those to the GAFAs and provides payment-related solution modules as a third-party provider.

As a **“Convenience Champion”**, the banking industry itself tries to become a digital ecosystem and as a “trusted partner” to determine the customer interface through comprehensive payment or account-related value-added services.

Four strategic options for credit institutions



→ Figure 11





Option 01

Payments Game Changer



As “Payments Game Changer”, the goal is to win the competition against the GAFAs for the customer interface through superior processing procedures in payment transactions. In this course, the focus is equally on functional excellence and maximum range – only a functionally leading payment scheme offers the basis for wide-ranging acceptance.

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FUNCTIONAL EXCELLENCE

In order to establish an ideal payment scheme, banks focus on the functional excellence and possible application forms based on the existing payment transaction infrastructure.

The ideal payment scheme is **universally usable for new application contexts**. On the one hand, it allows a smooth transition between in-store and web-based shopping (virtual POS, (cashless) smart stores, AR/VR shopping). On

the other hand, it can be universally integrated into proprietary apps and digital ecosystems – e.g. gaming, messenger, IoT/M2M transactions in the smart home or (autonomous) car. In the latter case, it allows automated payment, for example at parking meters, in car parks and at gas stations. Furthermore, P2P payments with communication elements are possible (Paypal / Venmo / Revolut). According to these new payment contexts, the ideal payment scheme can be used for making **invisible payments**. Initiation, authentication and authorisation require ne-

ither physical contact with a terminal nor active data entry or user activity (e.g. automated face, behaviour or device recognition for cashless smart stores and autonomous shopping through smart algorithms and via connected things). All elements of invisible payments are based on access to personalised “context information”. Therefore, implementation may be highly dependent on the device manufacturers and the corresponding regulation.

In addition, the ideal payment scheme offers significantly more **flexibility and control regarding payment processing** by the user or automated via smart contract. These include: flexible scheduling of payment dates through immediate or invoice payment, as well as optimisation for continuing obligations (subscriptions), management and control of repayments and refunds (finalising), the digital request for payment (request-to-pay) and digital rounding up of payment orders (save-donate-compensations, e.g. Thyngs).

While the ideal payment scheme may be based on the use of established systems for transaction processing, it is **optimised for different types of transactions**. It offers banks new, optimised revenue models that are adapted to the respective use of the payment. The payment scheme may be adapted for future IoT environments with high volumes of micro and nano payments, both for individualised subscription models and pay-per-use plans in digital ecosystems as well as for large transfers in corporate payment transactions. This will ensure that the payment scheme remains competitive in the respective areas.

WIDE-RANGING ACCEPTANCE

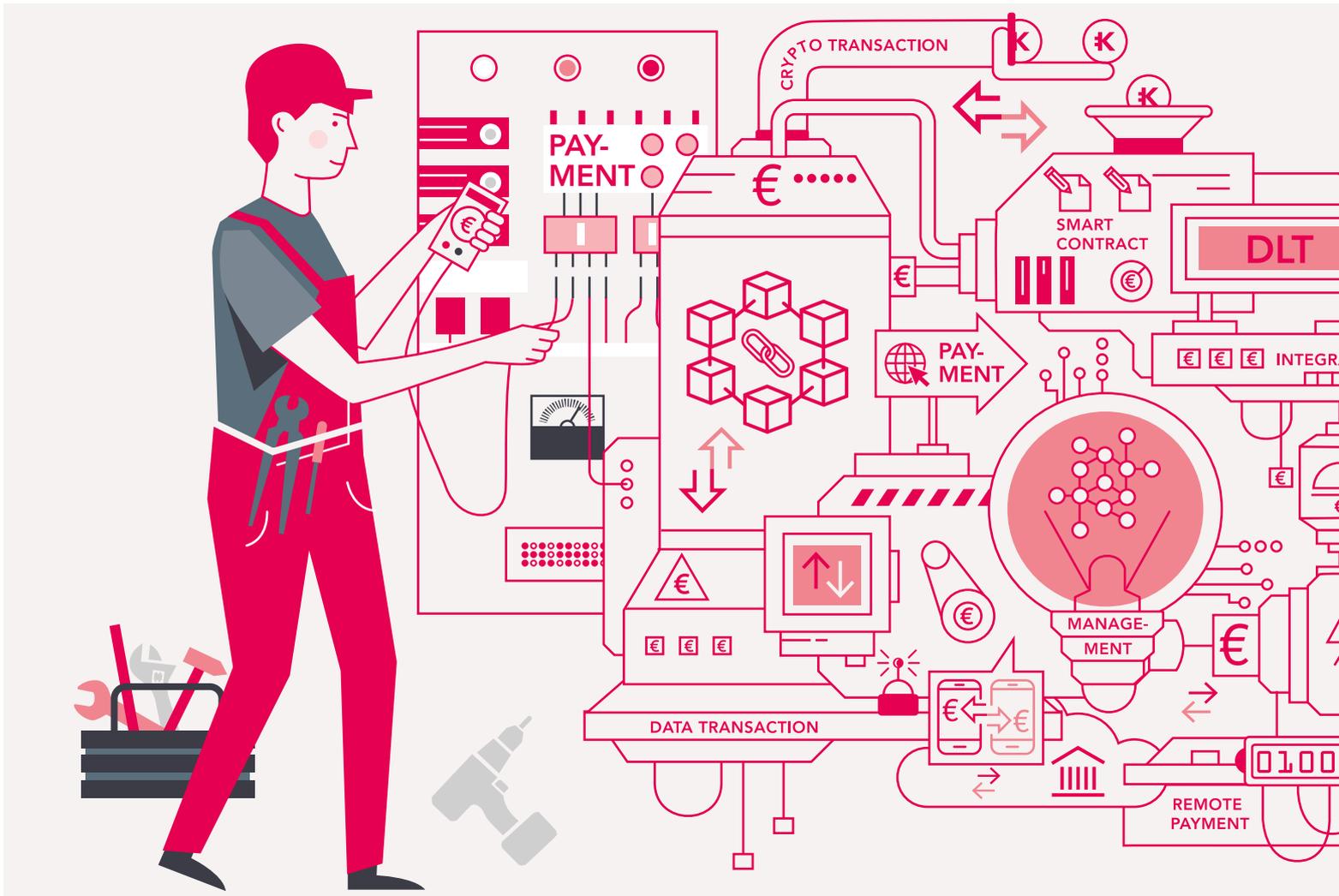
The second decisive aspect for establishing an ideal payment scheme is that it has to focus on maximum reach and thus wide-ranging acceptance and high volumes based on its infrastructure.

Market success and acceptance by retailers and service providers requires **high cost efficiency in infrastructure provision and operation**. At the same time, it is necessary to adapt the infrastructure constantly to prevailing market situations, the different customer segments, and transaction volumes.

As a further approach to achieving wide-ranging acceptance, banks may, based on the existing SEPA system, organise themselves in a **network for pan-European payment procedure acceptance**. National systems may still be optimised for the respective market, but they are transnationally integrated as a secure, transparent and reliable payment scheme with a standardised interface.

To simplify payments for users outside of Europe and also to make the payment scheme attractive for non-European users, banks may integrate a flexible **real-time currency exchange** with low fees in competition with the emerging

non-bank providers. The focus is on the exchange or direct payment in FIAT currencies or the transfer of such to addressees outside the Euro zone. The introduction of multi-currency accounts is also conceivable (Transferwise).



PAY-
MENT

CRYPTO TRANSACTION

SMART CONTRACT

DLT

PAYMENT

€ € € INTEGR

DATA TRANSACTION

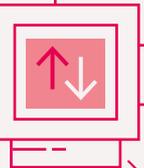
MANAGEMENT

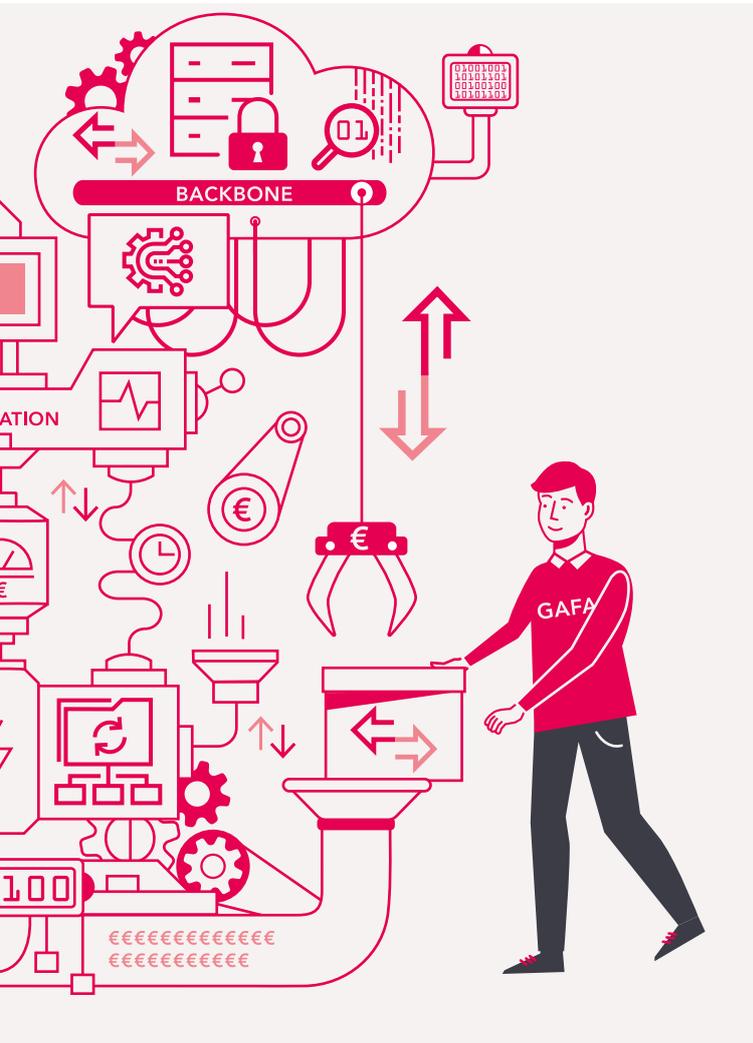
REMOTE PAYMENT

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Option 02

Transaction Manager

The “Transaction Manager” confines itself, like the “Payments Game Changer”, to transaction processing, but hands over the customer interface to the digital ecosystems. Transactions include both traditional payment transactions and alternative systems for data or cryptocurrency transfers. It distinguishes itself above all through superior backoffice processing and focuses on the maximum integration capability of its own offers into third-party services.

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TRADITIONAL PAYMENT TRANSACTIONS

Banks focus on providing their own infrastructure to third parties and leave the customer interface primarily to other (non-banking) players.

For example, banks use their existing account and payment infrastructure to offer third parties the **backbone for (virtualised) (card) payments** (e.g. Apple & Goldman Sachs). As a result, monetisation takes place through the

mere provision of infrastructure. This causes the orientation to shift from being a provider of a proprietary (national) payment scheme to a service provider for (globally operating non-bank) players, such as the GAFAs. Provided that there will be no conflicts of interest with these “third parties”, the continuation of an own (web-optimised) payment scheme is recommended as a parallel strategy to the operation of a classical payment infrastructure (new revenue channel and fixed costs reduction).

CRYPTO & DATA TRANSACTIONS

In addition to traditional transaction processing, credit institutions may also get involved in the development, establishment and management of alternative transaction systems at an early stage, based on their existing infrastructure expertise. Again, the focus shifts mostly away from the customer interface towards a pure provision of infrastructure (management and storage function).

For credit institutions, there is the opportunity of operating a **proprietary system to manage decentralised computer networks**. Analogous to the backbone for traditional transactions, monetisation takes place through the pure provision of an infrastructure, for example for initial coin offerings (ICO's), cryptocurrency payments and the processing of smart contracts. However, it is also conceivable to manage a uniform, state-controlled stable coin, especially with regard to its attachment to physical assets. For imple-

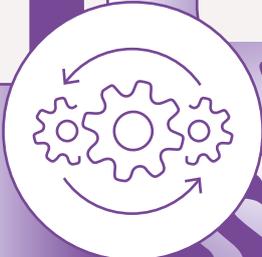
mentation, there may be a high dependency on external technological competence and on regulation.

Based on their own or external decentralised computer networks, banks may also act as **crypto payments and asset tokenisation processors**. Analogous to traditional transactions, they may process crypto transactions on a commission basis or issue corresponding crypto certificates (e.g. issuing tokens for financing real estate).

In the context of a growing diversity of data-based services within digital ecosystems, banks could also focus on the operation of a centralised storage site for (personal) user data. This **data infrastructure** (server) could be the basis for the development and marketing of a data trust solution (see Convenience Champion).



BUDGET
MANAGEMENT



RISIKO
MANAGEMENT



SERVICES





Option 03

Ecosystem Supplier

The “Ecosystem Supplier” focuses on the development of payment or account-related value-added services which can be integrated into services of third parties – regardless of the customer interface. It leaves those to the GAFAs and provides payment-related solution modules as a value-added service provider. Another option is acting as an integrator of (third-party) payment schemes into digital ecosystems.

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VALUE-ADDED SERVICE PROVIDER

In addition to the optimisation of the mere transaction processing, there are many opportunities for value-added services. Account-servicing banks offer third-party service providers access to customer accounts and enable them to market additional services to private and corporate customers. This enables banks to increase the attractiveness of their own account offerings. According to the classical definition of “banking as a service”, however, banks could

also position themselves as providers of modular, payment-related banking services that can be integrated into (different) ecosystems and platforms (e.g. in “banking chatbots”). The third option is to provide and prepare payment data only.

Banks, therefore, use the payment data generated in the course of payment processing and account management to develop new business models for digital services. This service may cover not only payment data handling,

but also other areas of banking (e.g. assessing customer creditworthiness, deposit analysis) as well. This requires a standardised interface and qualified access control to anonymous or personalised payment and financial data. Contrary to revenues from payment transactions generated on a transaction basis, revenues are generated through app sales, usage-based or through a subscription-billing model. A wide range of modular, payment-related value-added services with account reference is conceivable:

Banks could offer a **personalised budget management service for consumers**, helping them to make routine financial decisions while maintaining an overview. Consumers would gain more control over their financial situation with the help of a multi-account overview (WF Control Tower). Additionally, expense prognoses could be offered, as well as individualised savings or expense budgets (Revolut Vaults). Personalised ad hoc financing (Cashpresso / Duologi) at the POS or within digital ecosystems

would also allow the appropriate financial flexibility with precise, individual risk assessment.

Intelligent invoice management by credit institutions would enable consumers to manage their expenses and to document them for reimbursements from their employer or for disclosure at the tax office (for example Klippa). A direct integration of the invoice management into the personalised budget management would be conceivable. Purchases in physical or online stores could equally be documented with a digital receipt (Admin), which can be transferred directly into the intelligent invoice management, bonus programmes and returns management.

Automated financial management for corporate customers, similar to budget management for consumers, this would contribute to better planning reliability and control through tracking and analysis of cash flows and transactions (liquidity planning). This could include integrated ad-hoc financing for needs-based

liquidity (including predictive financing) as well as intelligent cash flow management to control cash in- and outflows (e.g. no immediate receipt of payment for orders despite using instant payments, automated cash discount). It is also possible to connect this to automated warehouse management systems of “smart stores”.

With the help of an **intelligent invoice management system**, the issuance, dispatch and administration of invoices to consumers would be digital, centralised and automatic (Debitoor). In particular, a specialised subscription management for platforms and ecosystems would be possible (Stripe). It would also provide the basis for **automated accounting and reporting** through automated aggregation and documentation of data on financial transactions according to regulatory requirements and for internal controlling.

Through real-time analysis of transaction data, banks could allow the **detection of fraud**

attempts, for example by bots, as well as the **identification of security vulnerabilities** through machine learning for both merchants and service providers as well as for GAFAs. This could include real-time verifications of biometric features during the payment process for existing cases of fraud and cybercrime.

By combining the financial data with other data pools (news, weather data, etc.), banks could also offer a **predictive risk management** and thus minimise risks regarding the customer’s payment transactions in advance (e.g. exchange rate risks, payment default risks).

To ensure certainty and reliability in global economic cycles, banks could use payment tracking to provide **traceability of payments** throughout the supply chain and real-time information on the status of the payment process (initiation, authorisation, receipt, etc.). Based on this payment information, banks would also be able to offer greater **transparency along the**

supply chain through certification and information on both product origin and manufacturing processes.

INTEGRATOR

The goal of banks positioning themselves as integrators is either to successfully bring payment schemes into the market (acceptance by merchants and service providers) or to optimise their integration and application for participants in digital ecosystems. Revenues in this area are generated by a (guaranteed) coverage promise instead of only providing infrastructure.

One integrator type could be banks acting as partners for the **acceptance of payment schemes by merchants and service providers** (analogous to acquiring companies Worldline / FIS). On the one hand, it allows the acceptance promotion of the banking industry's payment schemes, but on the other hand, it also allows the marketing of third-party schemes.

Furthermore, banks could position themselves as providers for the technical **integration of payment schemes in ecosystems and online shops** (Stripe / Adyen). In addition to focusing on a user-friendly interface for the lowest number of terminations during the purchasing process, up- and cross-selling elements may also be integrated (e.g. collection of financial data for user-friendly age verification). Possible components include an integrated payout service for bundling mass payments to marketplace participants or the detection and prevention of incorrectly refused payments (Hyperwallet / Stripe / Adyen).



SHOPPING ASSISTANT

SECURE DATA MANAGEMENT

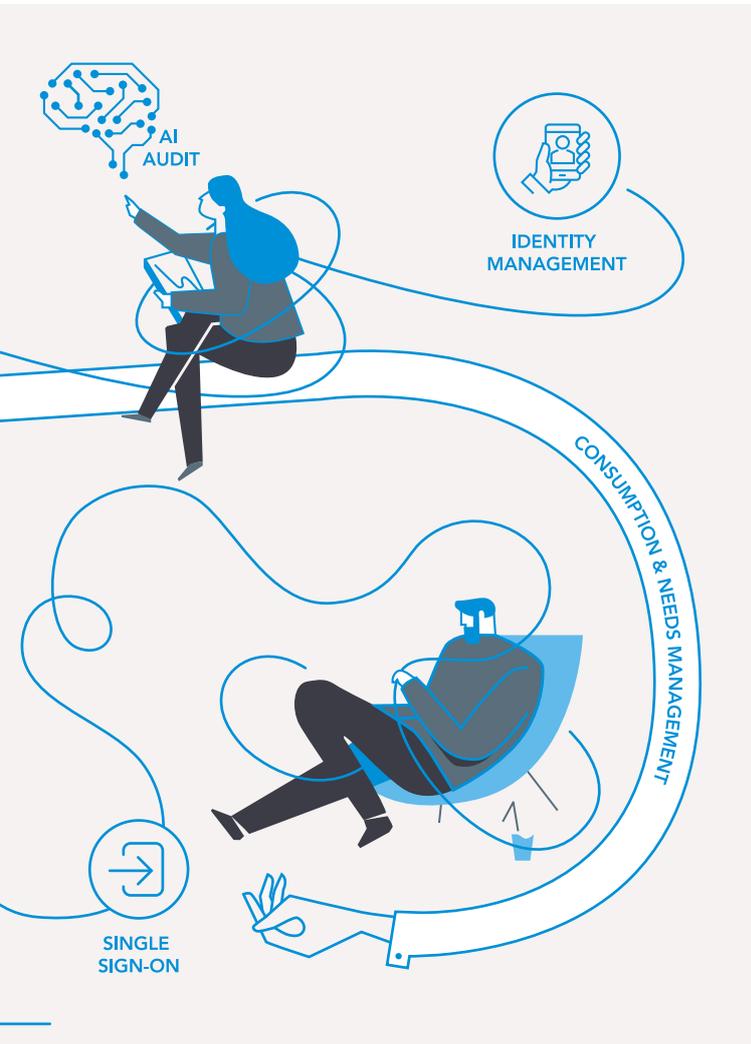
AGGREGATION

MOBILITY

PAYMENT TRACKING

TRUSTED PARTNER

VALUE-ADDED SERVICES ECOSYSTEM



Option 04

Convenience Champion

As a “Convenience Champion”, the banking industry itself tries to become a digital ecosystem and as a “trusted partner”, to determine the customer interface through comprehensive payment or account-related value-added services. This may also be achieved by acting as a transparency assistant, providing specific solutions for the independence from digital ecosystems.

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ECOSYSTEM OF VALUE-ADDED SERVICES

In this role, banks position themselves as direct competitors of digital ecosystems in the areas of payment and financial services with target group-optimised ecosystems for corporate customers and consumers. Examples of this include (detailed descriptions can be found in the section “Value-added service providers”):

- Personalised budget management
- Intelligent invoice management
- Automated accounting and reporting
- Predictive risk management
- Payment tracking
- Transparency along the supply chain

In a proprietary value-added service ecosystem, services from external providers (other banks, payment scheme providers, fintechs) could be listed and integrated into holistic so-

lutions. On the other hand, banks would be offered a distribution model for their own value-added services and their Fintech portfolio from their own incubators. A differentiated appearance of the individual banks would be possible. The products would complement each other through different target groups and local adaptation. Monetisation would primarily take place via referral fees paid by the providers on the platform.

For consumers, banks could offer the option of a **personalisable banking ecosystem** (“current account as an ecosystem”) in which, starting with payment services, a wide variety of banking elements may be combined in modules to form an individual overall solution, for example by using “conversational interfaces”, such as chatbots (Bank of America Erica). This applies both to the banks’ value-added services and to third-party provider services.

An **integrated finance & payment platform for corporate customers** would be conceivable in a similar form, which could additionally enable the integration of B2B networks (e.g. direct banking between manufacturers and suppliers).

TRANSPARENCY ASSISTANT

The more areas of life are covered by services in digital ecosystems, the greater the risk of a possible “lock-in effect” for consumers and business clients, thus resulting in a growing demand for independence. Accordingly, there is an increasing need for transparency when using personal and business data. If banks positioned themselves as “trusted partners”, they would offer appropriate solutions and distinguish themselves by addressing different customer groups. Various solutions are conceivable:

Banks could provide both private and corporate clients with the aggregation and secure management of multiple logins and digital enti-

ties in and outside of payment transactions via **identity management**. This would include both the management of personal digital identities with password or biometric authentication and the management of device identities with stored credentials or environmental information.

Based on a (proprietary) data infrastructure, banks offer a centralised **data trust solution**. In addition to storage, it offers a standardised interface and platform for the management of personal data (“who has access to my data and when and what for?”, simple forwarding of personal data, e.g. the new address after moving). In addition, there are extensive KYC applications for corporate clients (see below). Mastercard and IBM already provide Truata. For implementation, there may be a high degree of dependence on regulation.

Know-your-customer solutions for corporate clients would include integrated customer data services to manage and analyse customer

data for personalisation solutions, for digital marketing and as an enabler for cross-channel/product journeys. Additionally, banks could offer corporate clients the provision and management of loyalty programmes (Payback) and the validation and management of customer ratings (Trustpilot).

A **digital shopping assistant** could help consumers find information according to their preferences and based off a needs analysis (e.g. via smart home devices). It would help to make ideal purchasing decisions. This may be an assistant function, but under certain circumstances, it may also decide autonomously as a deputy within certain limits. Possible components of the assistant include the optimised shopping basket, which contains the most favourable combination of required goods or services from one or more merchants, and price tracking, which is used to automatically monitor and predict prices of products and services (Idealo / Keepa). As a further purchasing support, but also beyond the

purchasing process itself, banks could offer an independent AI audit.

A corresponding algorithm would make it possible to independently question and control recommendations, judgements and decisions made by third parties – for example by digital assistants of Internet giants. The underlying data set may consist of data that can be accessed on the Internet and is supplemented by data that either the consumer enters directly or that is stored with other services, such as other apps or connected devices.

In the context of consumption & needs management solutions for consumers, purchasing decisions would be aligned with actual needs and requirements: banks would offer active behaviour control, e.g. by avoiding impulse purchases in highly emotional and spontaneous situations (e.g. VR environments), against gambling addiction (Starling) or as support for a more sustainable lifestyle (Evocco). Through black and white listing of merchants or suppliers, consumers can

block certain suppliers or add higher hurdles to the purchase confirmation, while transactions with preferred or trusted suppliers are carried out immediately.

Overview chances – risks

	PAYMENTS GAME CHANGER	TRANSACTION MANAGER
Chances	<ul style="list-style-type: none"> • Providing superior payment systems not only secures customer relationships, but can also offer independent revenue potential. • The banking industry, as a whole, has a very high customer reach, especially in retail banking, which can be an important asset in the successful establishment of new payment schemes. 	<ul style="list-style-type: none"> • Positioning as payments service provider for third parties in corporate banking • Additional revenue streams beyond traditional payment transactions are conceivable: <ol style="list-style-type: none"> a) Establish crypto infrastructure or management of (government-issued) stable coins as a fallback option and in preparation for possible disruption through regulatory approval of crypto currencies b) Creation of a data infrastructure (server) as the basis for data management and data trust solutions
Risks	<ul style="list-style-type: none"> • Instant payment and PSD 2 account access for third-party service providers increases the interchangeability and revenue pressure on payment schemes, especially for remote payments • “Europeanisation” of banking payment systems may lead to additional costs (additional complexity) and a threat to existing (national) market positions • High technological dynamic: possible introduction of new payment schemes e.g. in the IoT sector by technology providers or telecom companies • Interchange regulation may further limit revenue opportunities for account-servicing institutions • With growing market concentration, international acquiring service providers increasingly define market success of payment schemes in retail 	<ul style="list-style-type: none"> • Differentiation as an infrastructure provider is only possible via price (economies of scale): risk of commoditisation • Extensive abandonment of the acquiring business has led to a loss of access to the merchant interface for banks thus making it more difficult for them to add value by offering infrastructure only • Centralisation pressure, technology dependency and capital expenditure regarding data trust and crypto infrastructure

→ Figure 12

	ECOSYSTEM SUPPLIER	CONVENIENCE CHAMPION
Chances	<ul style="list-style-type: none"> • <u>Main chance</u>: account as the central hub for all types of transactions provides an ideal link to payment-related value-added services • Increasing account attractiveness through data processing in accordance with the customer (B2B; B2C) • Digital ecosystems & third-party service providers as sales channel for value-added services of banks • Third-party service providers as banks' partners for co-invention: congruence of interest with regard to offering additional services to customers • New technical infrastructure (PSD 2-API) provides the basis for banks to develop and market VAS to be integrated into third-party providers' products 	<ul style="list-style-type: none"> • <u>Main chance</u>: account as the central hub for all types of transactions provides an ideal link to payment-related value-added services • Increasing account attractiveness through data processing in accordance with the customer (B2B; B2C) • Preservation of the direct customer interface as a "trusted partner" through a holistic ecosystem beyond payments, but with a common payments infrastructure as a "basic layer" • Increased depth of value creation by offering integrated, payment-related banking solutions for maximum convenience through a combination of third-party and own services
Risks	<ul style="list-style-type: none"> • Dependency on Internet giants and third-party service providers and risk of substitution • Choice of cooperation partners by Internet giants is largely determined by global considerations 	<ul style="list-style-type: none"> • The individual interests of banks may prevent the joint use of assets and the implementation of joint solutions • Strong opponents: digital platforms of Internet giants enjoy extensive customer acceptance and offer technological competence • Extensive transfer of acquiring business to internationally operating service providers makes a successful market entry of banks more difficult • Establishment of a new banking platform requires extensive investment in active sales & distribution

04 /

Conclusion

Compared to the previous study “Paying in 2025”, a number of important framework conditions have changed in recent years. This has led to a reassessment of the scenarios and to the need to formulate the strategic options for action more precisely.

The digital transformation of everyday life and retail, which has already been considered essential for the future development of payments in the previous study, has further increased. This is mainly due to the increased importance of large digital ecosystems (so-called GAFAs) in everyday life. Their business model is based on data-based value creation and they try to bind their customers as closely as possible. Digital ecosystems aim to cover not only the search for products, but also their payment and delivery. In order to improve the shopping experiences

and to avoid cancellation of purchases, payment is increasingly being integrated into the purchasing process and is becoming more and more “invisible” from the customer’s point of view – up to business models based on subscriptions. From the payment service provider’s point of view, this means that digital ecosystems are increasingly striving to take over the customer interface regarding payment transactions and push payment processors and account-servicing institutions aside.

Digital ecosystems are usually global players that have substantial financial resources and are thus able to successfully introduce new technologies to the market. Examples are the establishment of smartphone operating systems by Apple and Google or the introduction of voice control systems such as Alexa, Siri, Cortana or Google Assistant. With the introduction of 5G networks and the resulting increased use of cloud services, it is generally expected that this effect will intensify.

In this context, global card payment systems seem to increasingly see themselves as processing service providers for electronic payments and are trying to actively address the growing importance of digital ecosystems. Cooperation between global card payment systems and global digital ecosystems seems natural and offers advantages to both parties. For digital ecosystems it simplifies the integration of payment processing; for global card payment system it offers new distribution channels.

From the perspective of European regulation, the attractiveness of electronic payment processing is of major importance for the realisation of the digital European internal market. In this context, “attractiveness” primarily means to keep costs for payment processing low and the processing speed high. Low costs for payment processing are being achieved through two main measures

1. The limitation of interchange fees in payment transactions associated with the Interchange Regulation leads to an automatic limitation of the original revenue opportunities for account-servicing payment service providers regarding payment transactions
2. The free opening of account access to third parties (PSD 2) leads to the emergence of alternative payment transactions in the market without interchange fees.

In this context, an important secondary condition is the objective of protecting European sovereignty regarding the processing of payments. Accordingly, the emphasis on instant transfers is also an important regulatory instrument for securing sovereignty over payment transactions in Europe. This is complemented through initiatives by the European central banks in connection with the emergence of crypto currencies. The European regulator is increasingly dealing with questions of the regulation of non-governmental crypto currencies and the issuance of central bank issued crypto currencies (so-called stable coins) as a future perspective of electronic payment processing.

For account-servicing banks, this means that revenue opportunities from pure payment processing will most likely decrease. This is due not only to the limitation of interchange fees, but also to the expected competition with payment initiation services offering credit transfers in combination with instant payments.

Additionally, the initiation and processing of payments is increasingly being controlled by institutions other than traditional banks. Considerable concentration processes in the market of European acquiring service providers, which had not been foreseen in this form in the previous study, have led to a fundamentally changed market situation in recent years. In the meantime, very large parts of the European acquiring business are determined by only a few service providers (e.g. Worldline, Fiserv), usually operating at least on a pan-European scale. Only in a few countries (e.g. France and Spain) the acquiring business continues to be dominated by banks. New terminal architectures and standards make it possible for new multinational acquiring service providers to support multiple payment schemes at the same terminal and to favour those schemes which offer more benefits to the acquirer and/or retailer. As comprehensive advisors for retailers, the large acquiring service providers thus occupy the acceptance side of the value chain of electronic payment.

In addition, the PSD 2 interface required by the regulatory authorities has created a new technical infrastructure in the banking industry that makes it easier to integrate banking services into third-party services. The implementation of PSD 2 has led to the creation of a Europe-wide standardised API framework in the banking industry for the integration of banking services into third-party services (Berlin Group NextGen PSD 2 API). The banking industry thus benefits from a technically standardised way in Europe for integrating standard services defined by PSD 2 (payment initiation and account information) into third-party services.

This new infrastructure, which is supported by third-party service providers throughout Europe, may also be used to offer additional, fee-based banking services in a standardised form for integration into the services of third-party service providers in the future. Banks can thus be given the opportunity to use the sales power of third-party service providers to market

such banking services and, through technical standardisation, significantly reduce the time to market.

New strategic issues for banks

The changed basic conditions result in two basic questions to be answered from the perspective of the banking industry for the future of payment:

1. Will banks compete with the Internet giants when it comes to the customer interface, or will they more likely cooperate with the platforms or third-party providers?

2. Will the focus of banks remain on value creation from pure transaction processing or will the focus shift towards payment or account-related value-added services?

From the banks' point of view, four extreme positions can be identified as possible strategic options in relation to the strategic issues mentioned above:

At the centre of the strategic option as a **"Payments Game Changer"** is the goal of deciding the competition with the GAFAs for the customer interface for the banking industry through a superior payment processing scheme.

The **"Transaction Manager"** confines itself, like the "Payments Game Changer", to transaction processing, but hands over the customer interface to the digital ecosystems. It distinguishes itself above all through superior backoffice processing and focuses on the maximum integration capability of its own offers into third-party services.

The **"Ecosystem Supplier"** focuses on the development of payment or account-related value-added services which can be integrated into services of third parties – regardless of the customer interface.

As a **“Convenience Champion”**, banks would try to become a digital ecosystem itself and determine the customer interface not only through payment transaction services but also through comprehensive payment or account-related value-added services.

On this strategic field, the first question for each bank is how it positions itself individually. In addition, the question arises as to where within the banking industry there is a need to work together to define the necessary pre-conditions so that new business models become possible.

Evaluation of the strategic options for the banking industry

POSITIONING AS “TRANSACTION MANAGER”

A positioning as a “Transaction Manager” offers banks only limited opportunities to differentiate themselves in the competitive environment (usually only by price). A successful positioning as a “Transaction Manager” is therefore likely to primarily require significant cost advantages in processing, which in payment processing can usually only be achieved through economies of scale.

Since the customer interface is left to other providers, competition is largely focused on the

pure price of transaction processing. Due to the lack of differentiation opportunities in the market and the high costs of new infrastructures, positioning as a “Transaction Manager” is unlikely to be an attractive option for the vast majority of banks in Germany.

POSITIONING AS “PAYMENTS GAME CHANGER”

With a positioning as a “Payments Game Changer”, the focus is largely on securing the customer interface in payment transactions for the banking industry – but against the background of decreasing revenue opportunities from pure payment processing. The focus is on the goal of securing the account relationship for the bank through superior payment processing.

Positioning as a “Payments Game Changer” includes both functional excellence – i.e. optimised usability and integration into third-party applications – and maximum reach – i.e. com-

prehensive availability in all future payment contexts. In addition to classic card payments, Mastercard and Visa already offer integration for in-car payments and VR shopping. Paypal is also especially powerful in the field of online payments and P2P payments. And the Chinese messenger service WeChat has already integrated almost all payment contexts such as restaurants, gaming and retail into one payment procedure – also due to the low investment threshold for retailers (QR codes).

Particularly with regard to a wide reach, the positioning of the bank as a “Payments Game Changer” always implies the goal of processing payments as cost-efficiently and securely as possible. In Germany, this specifically refers to the processing of payments in Automated Clearing House infrastructures (avoiding investment in additional special billing infrastructures) and the goal of minimising system costs. The German banking industry has already successfully implemented this for POS-payments in

Germany. The efficiency achieved in this area should not be jeopardised.

In comparison, the e-commerce market is largely dominated by payment schemes of other providers. However, the ongoing digitalisation of everyday life makes it necessary to also integrate e-commerce into the payment schemes of the banking industry for a long-term sustainable positioning. When developing an online payment system for the banking industry, the technical orientation towards the standards of the international card payment systems offers the advantage that the considerable investments of the international payment systems can be used to integrate their standards into the offers of payment service providers and that the technical integration of a banking payment scheme into the offers of payment service providers is simplified.

The positioning as a “Payments Game Changer” is therefore absolutely necessary, especial-

ly with regard to remote payments, if the aim is to develop additional revenue potential based on a strong position in payment processing. But also for POS-payments, a corresponding positioning requires adjustments, as it requires at least a European reach.

A positioning as “Payments Game Changer” is necessary to secure the account relationship with the customer in the long term. From a revenues point of view, however, an appropriate positioning is in all probability not sufficient in the long term against the background of decreasing revenue opportunities.

POSITIONING AS “ECOSYSTEM SUPPLIER”

In order to position itself as an “Ecosystem Supplier”, the German banking industry has two assets that can basically be used to achieve such a positioning:

First, the systems operated by the German banking industry for processing debit payments at the PoS offer maximum customer reach for the German market and are extremely cost-efficient – for both the banking industry and the retail sector. They are thus a good basis for the development and provision of payment-related value-added services.

Second, the current account infrastructure with the new PSD 2 API for the integration of banking services into third-party services provides an ideal technical basis for offering bank-related value-added services for integration into third-party services. The Europe-wide standardisation of the API framework used by the German banking industry may be an important technical prerequisite for the acceptance of this interface, also for internationally operating digital ecosystems.

The focus of a positioning as an “Ecosystem Supplier” would above all be the generation of

revenues through marketing account-related or payment-related value-added services. Although payment-related value-added services refer to the payment process, they are not part of the pure payment processing. However, the cost-efficient payment system serves as the basis for this strategy to introduce the value-added services developed in the banking industry to the market.

Very different forms of value-added services are conceivable. Basically three different approaches can be distinguished:

1. Based on the account relationship with the customer, the bank develops a “marketplace” approach for third-party service providers which are given access to the bank’s customers via an API and can thus integrate banking services into their services. The British Starling Bank is a good example. On the one hand, it offers third-party service providers access to customer accounts and, on the other, enables them to market ad-

ditional services to private and corporate customers. These are not necessarily services offered only to Starling Bank customers, but also services that other banks can offer their customers. One example is a service where the receipt is no longer printed for each card payment at the POS, but automatically forwarded to the customer's account and displayed there. In this case, banks use the cooperation with third-party service providers for co-innovation.

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2. Banks offer their services to third-party service providers and are no longer visible to customers themselves ("banking as a service"). Third-party service providers use the bank to offer services under their own name which include banking services. An example of such a positioning is the Solaris bank.

3. Banks are offering new services to third-party service providers that are suitable to improve the services of those third-party service providers. At the heart of such a strategy is above all

the goal of commercialising the bank's data. For example, in extreme cases it is also conceivable that customers could be interested in their trustworthy bank providing information on the customer's consumption habits so that the customer receives more relevant offers from the third-party service provider.

Corresponding strategies are often combined with measures aiming at providing account information to the customer in a more personalised form. An example of such a service is a personalised budget management. It can be integrated into voice assistants or supplemented by offering consumer loans. With the decreasing importance of payments per se, the management of personal budgets and the alignment of purchasing decisions with actual needs becomes more important. As part of this strategy, banks develop and market appropriate technical solutions that can be integrated into the offerings of third parties, such as digital ecosystems.

The PSD 2 API offers a very good basis for establishing corresponding value-added API's. The examples above show that standardisation can possibly go further and, in the long term, may need to go beyond traditional payment processing.

The successful development, marketing and communication of value-added services requires the simple and standardised technical possibility of integrating such services into third-party offerings. The further development of the PSD 2 API, which has already been standardised on an international level, into an API Access Scheme for bank-related value-added services enables the banking industry to achieve a wide reach through international standardisation.

POSITIONING AS "CONVENIENCE CHAMPION"

In connection with the development of value-added services, a positioning as "Convenience Champion" with a strong positioning of the bank at the customer interface generally offers the highest attractiveness from the perspective of the banking industry. The focus here is also on payment-related value-added services (examples "Ecosystem Suppliers"), which are, however, offered in a separate ecosystem.

In order to become a "Convenience Champion" at the customer interface, it is therefore advisable for banks to set up their own (banking) ecosystems, analogous to the digital banks such as the British Revolut or the comparison portal Check24. They develop their own services, but also integrate third-party offerings in order to market holistic solutions. In doing so, they go beyond pure payment or often have a completely different origin. Another way to become

a “Convenience Champion” could be, for example, offering identity services that combine multiple user logins in a single sign-on and thus manage access to digital ecosystems.

In any case, with such a positioning, banks would directly compete with the Internet giants, which focus not only on payment processing but also on much more comprehensive value-added processes. Accordingly, the entrance barriers for positioning as a “Convenience Champion” are much higher than those for other positions in order to be successful. It is therefore uncertain if banks will be able to successfully assume this role in the short term.

Recommendations for joint action in the banking industry

The implications for the strategic orientation of the banking industry result in the following long-term objectives:

- Securing a strong market position in payment processing as the basis for the development and marketing of payment and account-related value-added services and
- the creation of the necessary conditions for the technical integration of bank-related value-added services into the services of third parties and the use of these services as an additional sales channel for banking services.

1. Securing the efficiency and market position of the banking payment schemes at the POS,

while at the same time expanding the European reach – both through interoperability with other payment system providers and by expanding acceptance abroad.

2. Use of the market reach of existing payment systems to expand the market position of the banking industry for remote payments (e.g. online, IoT or in-car payments) and use of the standards of the international payment systems for cost-efficient implementation and coverage assurance of a standardised online payment scheme for the banking industry.

3. Further development of the PSD 2 API – ideally as part of a European standardisation process – into an API Access Scheme that is capable of supporting any value-added services offered by banks, so that these can be easily technically integrated into the online services of third parties. In this context, two key fields of action emerge:

- The definition of a technical standard based on the PSD 2 API for the integration of value-added services into third-party online services ("Value-Added API").
- The definition of an API access scheme to enable banks to offer their value-added services to third-party service providers in the market.

4. Expansion of the banking industry's activities towards the development of payment-related value-added services. In order to achieve the necessary market reach for such value-added services, it is essential for the success of this strategy to develop those services across institutions in the banking industry. The basis for this may be a positioning as an "Ecosystem Supplier", whereby the long-term aim should be to position the bank as a "Convenience Champion".

These four central recommendations for action should serve as a basis for the strategic decision-making of the German banking industry in

order to ensure competitiveness with regard to paying in 2030 through proactive orientation.

Methodology

What will the payments systems environment look like in 10 years time and what are the strategic options for banks? Questions of this kind do not allow an answer in the sense of a prognosis, because the future is always characterised by uncertainties – even if individual developments can be identified as relatively certain.

In order to address the remaining critical uncertainties, it is helpful to work out various plausible scenarios. As a result, the scope of possible future developments can be defined, the uncertainties become explicit and can be discussed. The scenarios are not to be understood as prognoses, but as plausible and consistent scenarios of the future – as self-contained, alternative representations of the future.

Scenarios allow a systematic and structured analysis of the future and form the basis for the derivation of options for action. For this reason, they have been used by companies, public administrations and other organisations for years to facilitate a fruitful discussion of strategic future issues.

A scenario process also formed the methodological basis of the “Paying in 2030” project (see Figure 12). An analysis of recent developments in the environment and a critical comparison of the assumptions made in the preceding study “Paying in 2025” laid the foundation for the selection of the key factors that will have a significant impact on the future of payment. Key questions included:

- (1) How will the everyday life and shopping habits of consumers and retailers change in the face of digital transformation?

(2) How will the Internet of Things develop and which progress will be made in artificial intelligence?

(3) What could the regulatory framework look like?

The key factors formed the basis for the construction of plausible and consistent scenarios. For each key factor, various plausible future developments up to the year 2030 were determined. By linking the factors, consistent and plausible scenarios were developed. The effects of the scenarios on concrete payment transactions were evaluated in the form of exemplary use cases.

Finally, the intersections of the scenarios were analysed for the discussion of strategic options for action. In this way, it was possible to distinguish between rather certain and rather uncertain developments for the year 2030. Against the background of the certain developments in

particular, two central strategic questions were derived for banks and the German banking industry: is the strategic focus on ...

... an attack at the customer interface or an opening of core competencies for cooperation?

... the optimisation of core value creation in payment transactions or the expansion of payment-related value-added services?

On the basis of these two questions, a matrix and/or a range of options were developed, which show four different strategic options for banks. These strategic options have been developed as extreme positions. When analysing the options, different aspects were investigated: chances and risks, possible hurdles for implementation and potentials for joint action. From the final evaluation of the four options, initial recommendations for banks were finally derived.

The scenarios for shopping and paying in 2030, the strategic options and recommendations for the German banking industry have not been developed in the so-called "ivory tower". In a comprehensive online survey, national and international payment transactions experts were asked about the factors leading to this change, their future development and their significance for the future of shopping and payments. In a workshop process with representatives of the German banking associations and publishers, the scenarios were developed and the strategic options for the banking industry were discussed. In addition, non-bank players such as technology providers, retailers and service providers were also involved a separate workshop.

Overview of methodology



Involved experts

In the course of the project, we have received support from a large number of experts, to whom both SRC and Z_punkt would like to express their gratitude.

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From May 2019 to December 2019, three workshops with a core team from the German banking industry were held as part of the project to develop scenarios and analyse strategic implications and options. Members of the core team were:

Ralf Arnoldt (Bundesverband der Deutschen Volksbanken und Raiffeisenbanken BVR), Hermann Beckers (VÖB-ZVD Processing), Jörg Bernhauer (Bundesverband deutscher Banken),

Holger Dicke (VÖB-ZVD Processing), Sebastian Garbe (Deutscher Sparkassen- und Giroverband), Michael Gerken (Deutscher Sparkassen Verlag), Dr. Ibrahim Karasu (Bundesverband deutscher Banken), Franz-J. Köllner (Deutscher Genossenschafts-Verlag), Dr. Rüdiger Mock-Hecker (S-Payment), Wilhelm Niehoff (Bank-Verlag), Michael Rabe (Bundesverband Öffentlicher Banken), Markus Schierack (VÖB-ZVD Processing), Dr. Peter Söhne (DG VERLAG), Christoph Thöt (Bank-Verlag).

We would like to express our special thanks to all those involved for their intensive investment of time and their valuable input.

In April 2019, an online survey was also conducted to evaluate various factors that will shape the shopping and payment landscape of the future and to learn about the future expectations of the experts involved.

In addition to the members of the core team, national and international experts from different areas of the network industry of payment systems (acquirers, automated clearing houses, banks, consultants, chip card manufacturers, retailers, mobile network operators, processors, payment service providers, regulators, terminal manufacturers, associations and publishers) took part in the survey. 143 German-speaking and 78 English-speaking experts were asked; the response rate was at 43% and 19% respectively.

Of the approximately 80 experts who participated in the study, some have agreed to be named here. We would like to thank all experts for their participation, in particular:

Christian Schollmeyer (Deutscher Sparkassen- und Giroverband), Dr. Martin Hausmann (Verifone GmbH), Dr. Toni Merschen, Edith Gruber (card complete Service Bank AG), Hans-Bernhard Beykirch, Ingo Limburg (EURO Kartensys-

teme GmbH), Jörg Stahl (Bundesverband der elektronische Cash Netzbetreiber e.V.), Jürgen Petry (Raiffeisen Schweiz Genossenschaft), Karl F. G. Matl (EURO Kartensysteme GmbH), Marcel Winandy (innogy), Mirko Torgen Oesau (DSGV e. V.), Norbert Albrecht (Anselko GmbH), Robert Herzig (Metro AG), Thomas Egner (EBA), Ulrich Binnebößel (Handelsverband Deutschland – HDE e.V.), Werner Strecker (Deutsche Bahn AG), Dr. Marijke De Soete (Security4Biz), Filipe Dos Santos (FDS International Payment System Consultants), Jean-Philippe Joliveau (SIA SpA), Miguel Torres Vila (Redsys), Philippe Kempeners (Bancontact Payconiq Company), Victor Escudero (Redsys).

Some of the experts mentioned above have also participated in a workshop to verify and enhance the findings of the survey. We would like to thank the participants for their attendance and their contributions.

Imprint

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Paying in 2030
The future of payment systems
in Germany: scenarios and
strategic options

A study conducted by
SRC Security Research &
Consulting GmbH with support of
Z_punkt The Foresight Company

PUBLISHER

SRC Security Research & Consulting GmbH
Emil-Nolde-Str. 7
53113 Bonn
www.src-gmbh.de

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