# European Payment Services Directive 2
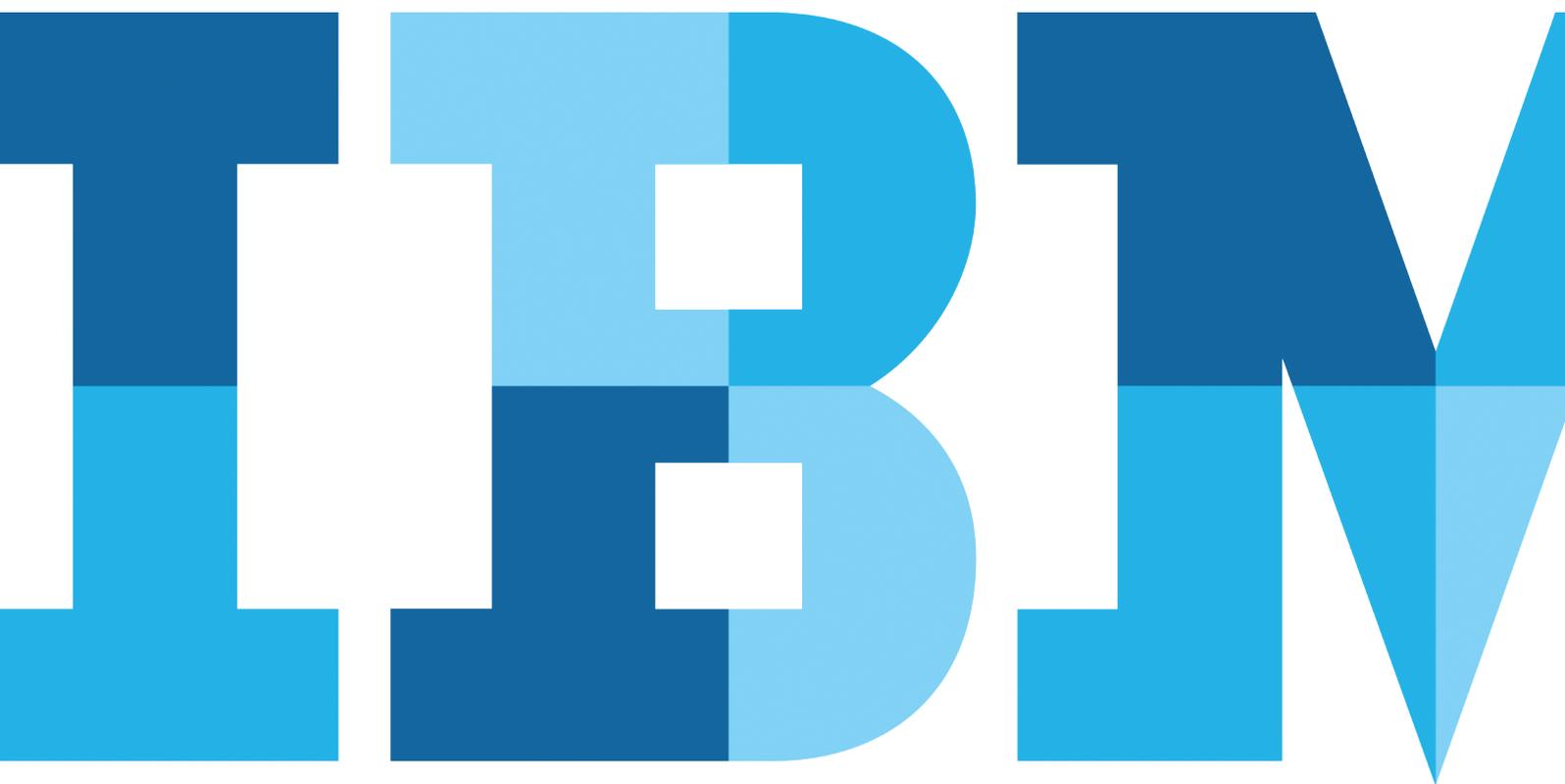
*Address new requirements and capitalise on emerging opportunities with IBM*

# Contents

The European PSD2 will have a major, direct impact on the banking industry in the European Union and European Economic Area and create ripple effects beyond Europe and in other industries. Extending the original Payment Services Directive, which was adopted in 2007, PSD2 is designed to:

- Foster a more integrated and efficient payments market
- Further level the playing field among payment service providers (including new entrants)
- Make payments safer and more secure
- Protect consumers
- Encourage lower prices for payments.

## Important PSD2 dates to remember

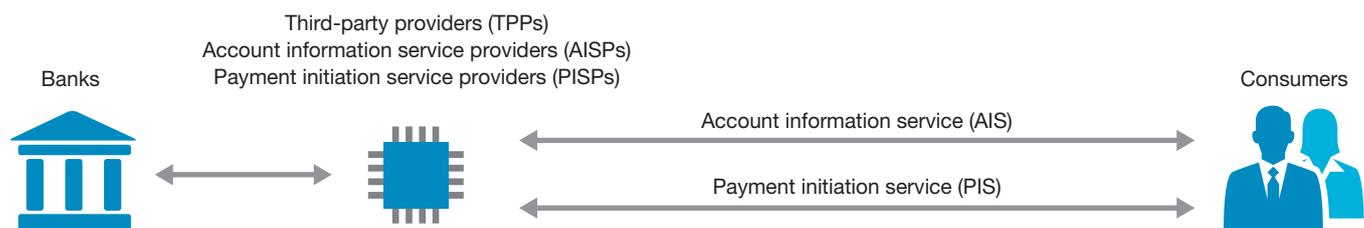| | |
|---|---|
| **October 2015** ▶ | Accepted by European Parliament |
| **December 2015** ▶ | Adopted by EU Council of Ministers |
| **January 2016** ▶ | Directive came into force |
| **January 2017** ▶ | Earliest proposed date for European Commission to adopt regulatory technical standards (RTS) |
| **Early 2018** ▶ | EU member states must adopt PSD2 |

*Figure 1*. PSD2 enables TPPs to access bank payment processing systems and account information so they can deliver services to consumers.

According to the directive, any banks that operate in Europe (no matter where they are based) will need to provide wider access to their payment processing systems to registered TPPs. TPPs, which can range from traditional banks to app providers, can use that access to offer new AIS and PIS capabilities (Figure 1).

PSD2 presents opportunities and introduces new requirements for banks. Taking a proactive approach can help them rapidly meet demands and produce innovative services that benefit themselves, their customers and ecosystem partners. But banks must also efficiently address technical requirements mandated by PSD2 and develop updated business strategies for sustaining revenues and retaining customers.

Banks have a limited amount of time to prepare for changes: with PSD2 due to be enacted by government regulators in early 2018, the time to act is now.

## Capitalising on new opportunities with a proactive approach

PSD2 creates tremendous new opportunities for banks that choose to go beyond the minimum requirements. Banks that take a proactive approach - embracing changes and modifying their business model -  can become disrupters that reap the rewards of shaping the new landscape. They can gain a first-mover advantage in forging new relationships within the third-party ecosystem and partnering with Financial Technology (FinTech) companies to create innovative new services.

How can PSD2 benefit proactive banks?

A bank can retain and gain customers by offering enticing new consumer services through innovative PSD2-compliant apps. For example, a bank could give customers a global view of their financial situations across multiple current accounts or let customers automatically draw payments from a non-interest-bearing account before using funds from an interest-bearing account.

Developing new services benefits the bank as well as ecosystem partners and consumers. For instance, a bank could begin providing travel services, taking advantage of relationships with a partner travel agency to create personalised packages. The bank could offer those packages at a discount as an incentive to use the bank's payment APIs, thereby monetising both account access and the payments made possible from many different account types.

In the same scenario, the travel partner could extend its marketing reach to the bank's customer base. The bank could engage customers earlier in their purchasing journeys, pushing meaningful notifications about partner services and personalising its offerings. Customers would benefit by earning discounts on travel and other incentives from the bank, such as loyalty points.

Banks could also become payment aggregators. A bank could, for example, offer bank-branded point-of-sale (POS) terminals that accept payments from multiple banks. In that scenario, the bank would consume APIs from other banks and provide the payment initiation service. This approach could help the bank strengthen its partnership with retailers and solidify a primary relationship with consumers.

## Key opportunities, requirements and challenges of PSD2 for banks

| Opportunities | Requirements | Challenges |
|---|---|---|
| • Introduce new services, such as:<br>  - Overall view of multiple accounts<br>  - Optimisation of payment account selection<br>  - Payment aggregation<br>• Increase upsell and cross-sell<br>• Capitalise on consumer data. | • Provide APIs that allow access to customer information and payment initiation<br>• Implement a flexible, scalable infrastructure. | • Offset required technology investments<br>• Address competition from new entrants<br>• Develop technical standards through collaboration with other market participants. |

Proactive disrupters could also maximise the value of the consumer data. For example, by analysing account access and payment data collected through API use, banks could deliver more personalised interactions, create targeted promotions, develop co-marketing initiatives with partners and more.

Banks could 'own' the customer experience, orchestrating numerous customer services and activities (Figure 2).[1] These efforts could bolster the bank's brand and help boost customer loyalty, which will be critical in the newly levelled payments landscape.
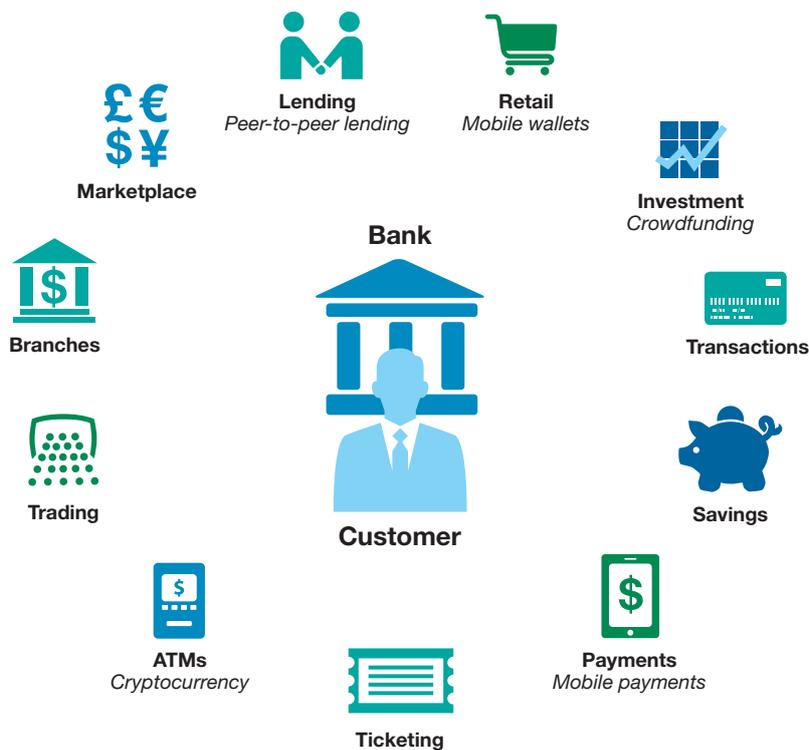


*Figure 2*. Proactive banks will continue to own their customers' experience, sustaining loyalty by orchestrating a wide range of services.

## Developing new business strategies and meeting technical requirements

To succeed in the PSD2 landscape, many banks will need to devise new business strategies. For example, because banks cannot pass along technology investment costs by charging TPPs for the provision of the service, they must find ways to offset expenditures. Some might attempt to increase payment transaction volumes so they can earn greater revenues from API usage related to co-marketing arrangements.

Traditional retail banks must also construct strategies for addressing competition from new market entrants, including app providers, acquirers and e-wallet providers. If these new entrants deliver innovative services, they could replace banks as the primary relationship-holders with consumers. Banks could lose transaction revenues to entrants that offer payment initiation services. In addition, banks (and other underlying payment providers) might suffer the loss of brand recognition and become relegated to back-office functions. Consumers might be less likely to use their bank's apps banks might lose the ability to market directly to consumers and derive revenues from customers through cross-selling opportunities.

Transparency rules could hasten consumers' shift in loyalty. According to PSD2, TPPs and consumers have the right to receive information about any charges applied to transactions. Specifically, consumers are entitled to know whether and how much banks are charging them to process certain transactions, such as using a debit card from a euro-based country to make a purchase in a currency other than the euro. If bank customers discover that a non-bank TPP offers lower charges than the bank for that particular service, customers are likely to move their allegiance to the TPP. Customers might begin using the TPP's app, taking advantage of cross-sell offers from the TPP rather than the bank. Consequently, banks must find ways to limit the potential loss of loyalty to new entrants.

At the same time, all banks operating in Europe will need to meet new technical requirements introduced by PSD2. First and foremost, banks must provide APIs that allow TPP access to customer account information. These APIs will serve as key digital channels for delivering value to the ecosystem. In creating APIs, banks must meet several requirements, ranging from provisioning a new API access layer and orchestrating communications between the API and the payment system to ensuring tight security and enabling the throttling of application traffic.

Some banks might also need to make infrastructure changes. With PSD2, banks are offering services to TPPs that will create an unpredictable load on their systems. Banks need a flexible, scalable infrastructure that can accommodate changing resource demands.

Meanwhile, industry participants - including banks, non-bank TPPs and others - will have to collaborate on the development of technology standards. For FinTechs and new market entrants, it could be extremely costly and time-consuming to establish technical connections with banks if each bank implements its APIs differently. Industry working groups are actively defining standards, but proactive banks could take a leading role in those efforts. For banks, defining standards will enable them to more easily capitalise on new ecosystem relationships that benefit their own business.

### Taking a proactive approach with IBM

A bank in Scandinavia was facing increasing competition from FinTech startups, which were disrupting the bank's relationships with consumers by offering new digital apps and services. The bank wanted an infusion of fresh ideas and turned to IBM® for assistance.

IBM organised a two-day hackathon, inviting local startups and developers to create new apps using the IBM Bluemix platform. IBM Global Technology Services provisioned an IBM SoftLayer cloud infrastructure for the event and used IBM API management middleware to establish banking APIs on top of the bank's data.

In just 48 hours, developers produced a whole set of new banking apps, including apps that would enable the type of account information services defined by PSD2. The bank subsequently launched one of the app entries into production. The event was so fruitful that the bank plans to conduct similar events in the future, even expanding events globally.

# 9 dimensions of API development for PSD2

To capitalise on PSD2 opportunities and comply with mandates, industry participants must implement a broad array of APIs, including multiple APIs that enable TPPs to provide service subscription, payment initiation and account information. Developing an API is not simply a process of implementing a technology adapter; it requires work across numerous dimensions, including both technical and business aspects. API providers must not only incorporate ways to request account information and initiate payments but also monitor service-level agreements (SLAs), offer support and more.

Consider all the dimensions of API development work required for capitalising on PSD2:

## Technical dimensions
- **Account information:** APIs must be able to request information for a specific account
- **Payment initiation:** APIs must be able to initiate payment functions for a specific account, including funds reservation, payment cancellation and payment refund
- **Security:** APIs must help ensure tight security with capabilities for authentication, confidentiality, fraud detection and RTS compliance

- **Permissions:** APIs should incorporate consent from account owners allowing TPPs to request account information and payment initiation services for accounts
- **API messaging definitions:** APIs must adhere to several messaging standards, including ISO 20022 and open banking standards, as well as REST/JSON protocols
- **Nonfunctional requirements:** APIs should address a range of other 'nonfunctional' requirements, including latency, availability, throughput, scalability and resiliency
- **Monitoring and analysis:** API providers should implement capabilities for monitoring and analysing service levels and performance to help ensure APIs meet SLAs.

## Business dimensions
- **Onboarding:** API providers must implement processes for onboarding TPPs, testing APIs and providing certification. When a bank onboards a new TPP, the bank must also be prepared to take on additional financial risk - the bank must share liability for any breaches
- **Support:** API providers must be prepared to provide business and technical support, manage incidents, handle exceptions and respond to inquiries.

For banks and any other API producers, the technical challenges created by PSD2 extend across a wide range of functions, including production, promotion and the preparation for consumption (Figure 3). For example, banks must integrate and expose core services in accordance with requirements for consent; they must integrate with fraud and anti–money laundering (AML) processes; they must adopt a flexible yet robust hosting infrastructure; and they must promote the APIs and make them easy to consume. At the same time, banks must work to promote API capabilities, engage with third-party developers, incorporate feedback and interact with public repositories. They must also create and manage software development kits (SDKs) to help facilitate consumption.
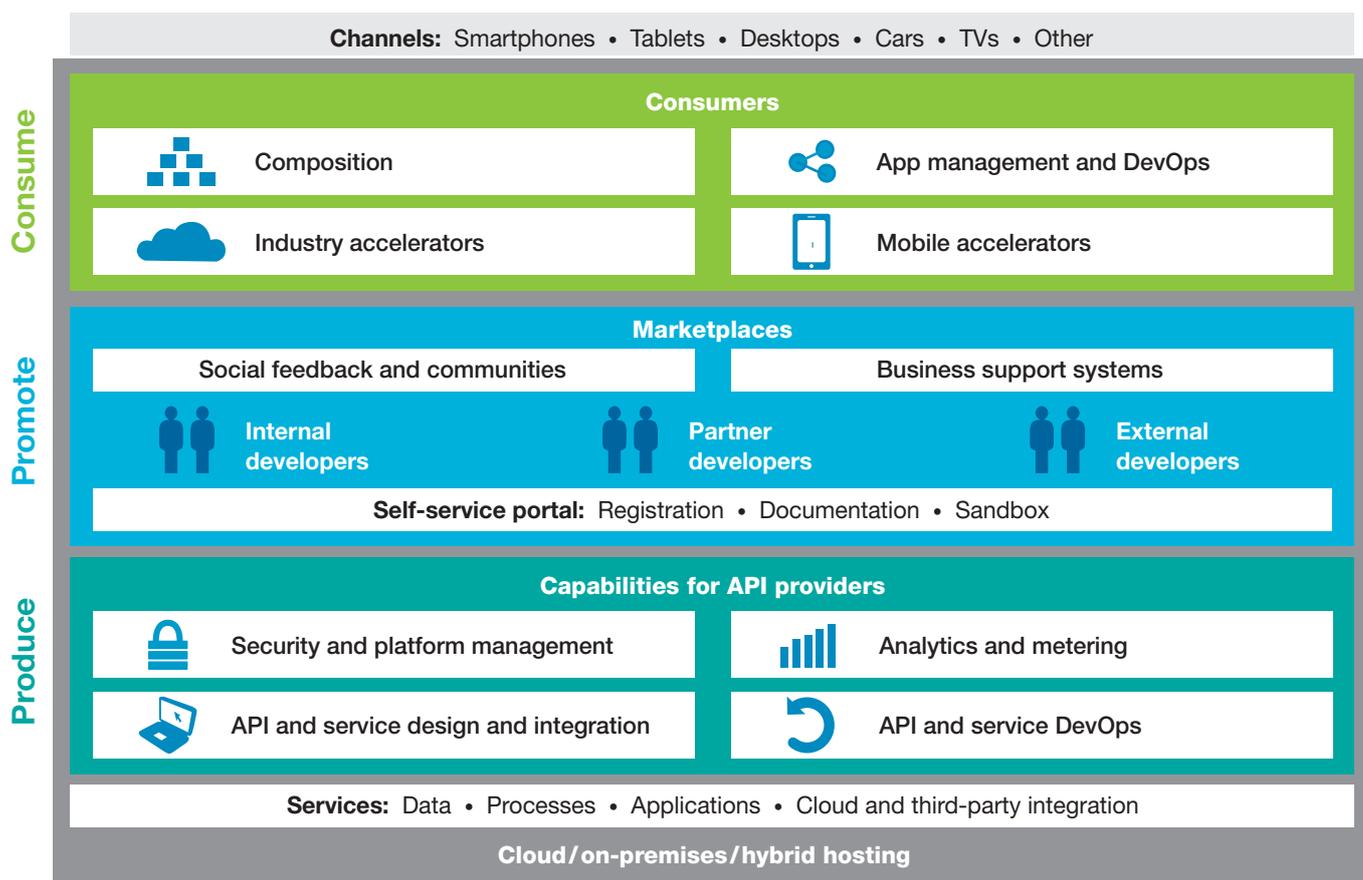
**Channels:** Smartphones • Tablets • Desktops • Cars • TVs • Other

**Consume**

**Consumers**

| Composition | App management and DevOps |
| Industry accelerators | Mobile accelerators |

**Promote**

**Marketplaces**

| Social feedback and communities | Business support systems |

**Internal developers**        **Partner developers**        **External developers**

**Self-service portal:** Registration • Documentation • Sandbox

**Produce**

**Capabilities for API providers**

| Security and platform management | Analytics and metering |
| API and service design and integration | API and service DevOps |

**Services:** Data • Processes • Applications • Cloud and third-party integration

**Cloud/on-premises/hybrid hosting**

*Figure 3*. The technical challenges created by PSD2 extend across key tasks, including production, promotion and preparation for consumption.

## Taking a proactive approach to the API lifecycle with IBM

IBM offers a wide breadth of software and services that can help banks, TPPs and other market participants take a proactive approach to PSD2 changes. These offerings draw from the company's long history of assisting with the development and management of APIs, plus its extensive expertise in the banking industry. As a member of the Banking Industry Architecture Network (BIAN),[2] IBM is helping to develop API standards for the industry. Banks and other industry participants can capitalise on banking-specific APIs and other offerings from IBM to jump-start their PSD2 initiatives.

**IBM API Connect** offers a foundation to create, run, manage and secure new or existing APIs and microservices in a hybrid deployment model with Node.js and Java™.

**IBM z/OS Connect Enterprise Edition** complements API Connect, enabling banks to integrate their APIs directly into the z/OS mainframe systems where many of today's payment and account systems reside.

**IBM Financial Transaction Manager (FTM)** orchestrates communications between the API and the payment system to effect the payment.

**IBM Global Business Services (GBS)** can help banks explore custom solutions that address PSD2 requirements. GBS teams can provide readiness assessments, business-impact consulting and strategic assistance for PSD2. Technical services include integration, application rationalisation and more. In addition, GBS teams can help organisations forge new business relationships with API ecosystem participants both in banking and beyond.

**Address the entire API lifecycle with IBM API Connect**

- **Create:** Produce high-quality, scalable and secure APIs for application servers, databases, enterprise service buses (ESBs) and mainframes in minutes
- **Run:** Provide a managed scalable run time for microservices. Take advantage of integrated tooling to build, debug and deploy APIs and microservices using Node.js or Java
- **Manage:** Create and manage portals that allow developers to quickly discover and consume APIs, securely access enterprise data and monitor APIs to improve performance
- **Secure:** Manage security and governance over APIs and microservices. Set and enforce API policies to secure back-end information assets and comply with governance and regulatory mandates.
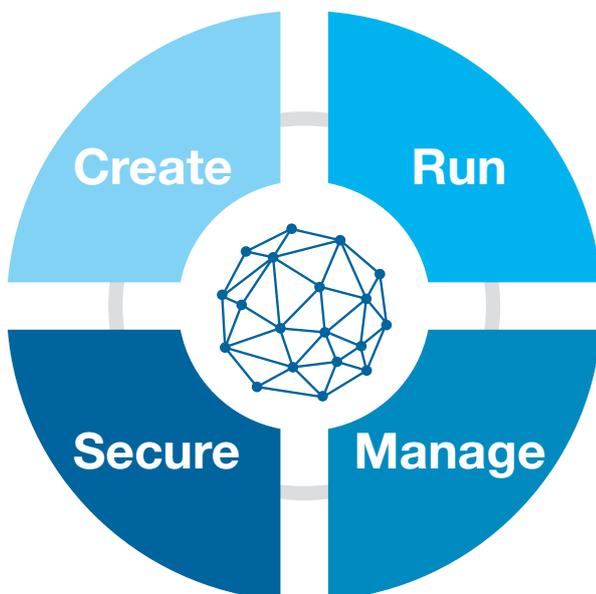
## Adopting the tools for capitalising on change

With implementation of PSD2 expected in 2018, banks must begin preparing today to capitalise on new opportunities. IBM solutions and services help streamline development of new APIs that will be at the center of these looming changes. By working with IBM, banks can draw on deep expertise with API development that stretches beyond the financial services sector. Banks can also tap into the broader portfolio of IBM solutions, including cognitive and analytics solutions, to help boost competitive differentiation in this evolving environment.

## For more information

To learn how to fuel innovation and reach new audiences by making APIs part of your business model, visit: ibm.co/PSD2

## About the authors

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Annap has 20 years of experience in the IT industry. He works with financial services clients worldwide to understand business needs and translate them into innovative technology solutions. His current areas of focus include insurance blockchain applications, the API economy and business ecosystems. Annap is an active member of the IBM Senior Architect Certification Board and holds a Ph.D. in operations research.

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Customer expectations, technology and regulations are changing the financial services sector every day. Bharat is at the cutting edge of this environment and is responsible for shaping IBM's views and solutions on topics that matter to IBM customers.

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As one of the European Technical Leaders for digital transformation, Richard works with clients to develop new solutions and capabilities with API, mobile, blockchain and IBM z Systems technologies. He has worked in a number of technical roles during his time at IBM, ranging from an integration and connectivity specialist to an IBM WebSphere architect. Prior to joining IBM, Richard was a researcher at the University of Leeds, UK where he obtained a doctorate in the field of bioinformatics.

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Arjeh has over 25 years of experience in payments, engaging with banks across the globe in the role of strategy/business consultant, solution sales and solution architect. He also has in-depth expertise and experience with digital channel strategies focused on maximising customer value, experience and intimacy. Lately, Arjeh has been strongly involved in enabling merchants and PSPs/banks to extend the traditional checkout with promotions, coupons, reward points and wallets across online, in-store and in-app channels.