

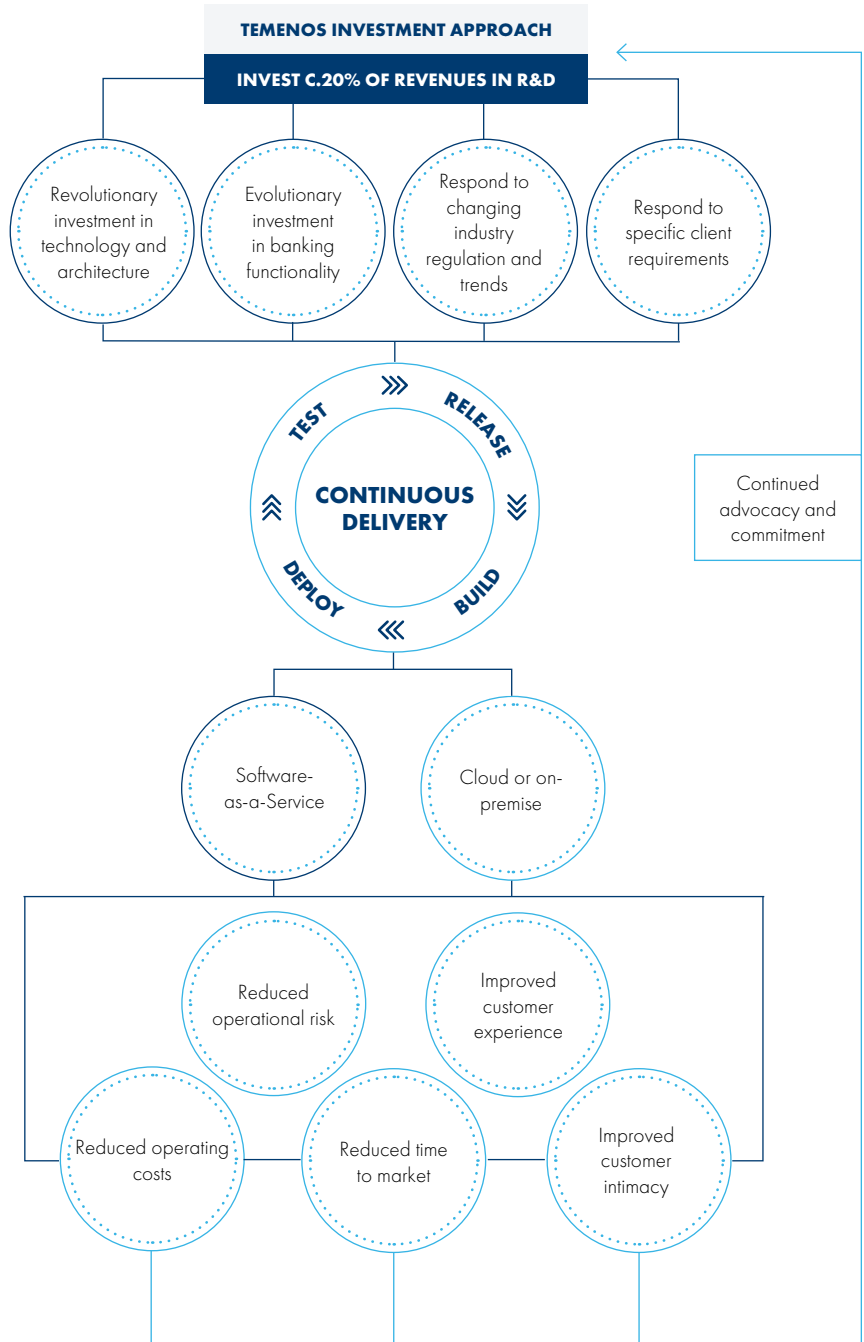


# INVESTMENT TO INNOVATION

The Temenos software investment approach forms a virtuous cycle in which our clients influence Temenos' investment and therefore benefit from the improved product. This in turn contributes to their success. Our clients then advocate for our solutions enabling us to attract new clients, continuing the cycle.

## The virtuous cycle of Temenos software investment

How we turn investment into innovation



### Revolutionary investment in technology and architecture

In order to keep pace with the rapid rate of change in information technology, Temenos continues to invest significantly to ensure that its software takes advantage of the latest innovations. The technology changes required to support the growing business and regulatory interest in Open Banking are a prime example of this. What is revolutionary at one point becomes standard in the following years, and this is why it is important to continue with this investment approach. Examples can be seen in recent years in the adoption of mobile banking technology and the increasing desire to provide software solutions which are hosted on the cloud. Temenos offers updated software based on the latest technology to clients seamlessly through simple, regular upgrades.

### Evolutionary investment in banking functionality

Banking functionality changes more gradually than information technology, with evolutionary advances being made in banking products, industry practice and regulation. Temenos' investment in functionality over the past 25 years reflects this. Recent examples have included the embedding of AI and analytics across the entire portfolio to support improved and personalized customer experiences and to increase the level of automation and efficiency in the back office processing areas of our customers. We enable our existing clients to add new functionality to what they use already through regular updates, whilst also releasing the latest software for new clients.

### Respond to changing industry regulation and trends

Banking, being a highly regulated industry, is subject to the continuous changing of requirements by regulatory agencies. At Temenos, we actively follow changes in banking regulation, in order to build relevant solutions into the software and thus support our clients using the regular upgrade mechanism. We also anticipate other significant industry trends such as Open Banking, and incorporate them proactively into our software.

### Respond to specific client requirements

As we enter new markets or work with new clients, it is possible that our software may require enhancement. We invest in our products to close these functional gaps, but also in such a way so as to make the new functionality of widest benefit possible to our existing and future clients. We do this by ensuring that flexibility is built into the design, and that the new functionality is incorporated into the standard product. Our wide geographic reach across all banking segments means that enhancements developed for a specific client are often relevant in other markets and to other clients.

### Continuous delivery

Temenos builds, deploys and tests software on a daily basis. We use this as the foundation for the continuous release of upgrades to clients, which are then accumulated into one Annual Maintenance Release each year. All releases are cumulative enabling clients to upgrade when they want. The upgrade process is designed to operate with minimal disruption to a bank's staff and customers.

### Reduced operating costs

Only a small percentage of bank IT spend is on growth and innovation; the majority is spent on business as usual activities. In contrast, Temenos clients spend significantly less on maintenance IT, and a significantly more on innovation. The result of this innovation-focused expenditure is our top performing clients achieving industry-leading cost-income ratios of up to half the industry average, and Returns on Equity of up to three times the industry average.

### Improved customer service

Customers expect banks to provide the same level of seamless, personalized service which they receive from leading online service companies such as Amazon or Uber. In the past, banks' abilities to provide such service has been hampered by legacy technology and business issues. Temenos provides a modern front-to-back digital and integrated solution, allowing seamless customer journeys across all areas of a bank's service and product portfolio. A single rules engine driven by embedded analytic capabilities, enables a bank to proactively tailor the experience to a customer's individual needs based on a single 360° lifetime view of the customer.

### Reduced operational risk

Legacy IT landscapes are inherently risky because of the many interfaces which are required between different functionality and delivery silos; the number of "islands" of functionality and the resulting complexity of connections between them increase the number of points where a process or technology failure can occur. As a result, banks can face outages in mission critical operations with resulting reputational damage. These risks are increased if the bank is still relying on obsolete technology where there is often a shortage of suitably skilled resources. The end-to-end integration offered by Temenos' software, with its configurable and sophisticated workflow, access control and security features, allows our clients to benefit from the lowest levels of IT operational risk, and to future-proof their IT architecture by means of the regular software release mechanism.

### Reduced time to market

Today, digitalization and the rise of new, specialized and highly agile competitors are driving banks to respond ever more quickly to customers' individual needs. Temenos' software enables banks to respond quickly, flexibly and securely to these business needs as it is highly parameter-driven, and delivered with pre-configured, re-usable content, as well as user-friendly configuration, design and testing tools.

### Improved customer intimacy

A modern, digital bank requires sophisticated analytics to understand customer needs, to respond to regulators and to make optimal business decisions in a timely and efficient manner. The Temenos analytics product set is tightly embedded within the overall front-to-back solution, providing real-time, predictive and integrated analytics based on a single version of the truth sourced from both transactional and contextual data from all areas of the solution. This enables bank staff to take customer service and business strategic decisions on the basis of up to date information.



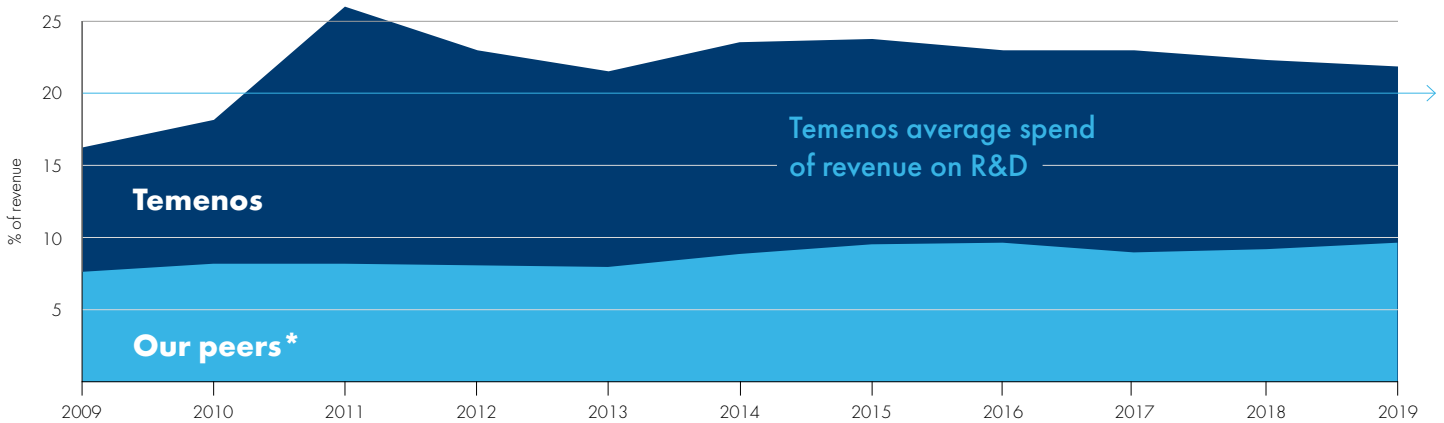
Research and development continued

# I R&D



## The highest R&D in the industry

% of revenue spent on R&D  
**USD 2.1<sup>bn</sup>**  
Cumulative R&D investment 1990-2019



R&D at more than twice the level of our competitors plus deep domain knowledge means that our software never becomes legacy.

### Investing more than our peers on R&D

Temenos has consistently invested over 20% of its revenues in R&D. This is more than twice the level of estimated investment made by our closest competitors. Furthermore, since we only produce software for banking and finance, all of this investment is targeted at our concentrated product portfolio.

### Channeled continuously into product releases

Our software is fully packaged and upgradeable. We produce new software on a continuous basis which has traditionally been available on a monthly release cycle. This will continue to be available, together with an annual release, for clients which wish to consume our software on this basis. Going forward, we will also make more of our software available on a Continuous Deployment basis, with DevOps support, for banks to help them to shorten the innovation cycle.

We also support partial upgrades, allowing our clients to upgrade the parts of their solution which they need to. This means that all of our clients can continue to benefit from the ongoing investment we make in our products.

### Core principles

Temenos has always produced software according to a set of core principles. We believe in re-use, openness and being agnostic about technology platforms. This means that all developments are made available to all clients. It also means giving our clients choice over which technology they run and never locking them into a particular provider. The openness means that third parties can develop on our platform to accelerate innovation thus ensuring that our clients always have access to the best technology and functionality.

### Proud record of innovation

Our philosophy could be summed up as constant functional evolution delivered on innovative technology. We are proud of the record of innovation which we have established, being, for example, the first banking software vendor to run on open systems, to have a truly 24x7 platform, the first to run core banking software in the public cloud and the first to have all services exposed as RESTful APIs. Temenos has recently announced the next stage in its technology investment and innovation with the migration of all of our products to "cloud native" and "cloud agnostic" platform capabilities, which use a Microservice architecture to enable elastic scalability and to allow banks to deploy individual functional areas on a standalone basis as part of larger transformation programs.



Source: Company Annual Reports, Temenos estimates.  
\* Oracle FSS, TCS, FIS, Fiserv, Jack Henry, SS&C.

# I OPEN BANKING

The pace of innovation is accelerating at the same time as competitive boundaries are blurring.

Traditionally banks have operated as vertically integrated enterprises. This means that they have both manufactured banking products, and also distributed them to their customers. Although this model remains valid for many banks and markets, changing technology and regulation is also encouraging the growth of institutions which specialized in providing one part of the overall banking value chain. Some of these are existing banks, but others are new banks, whether owned by existing banks or not, and some are technology companies whose services are beginning to overlap with some areas of banking.

In order to take advantage of the new opportunities which this change creates, banks need to be able to innovate not only in the products which they offer, but also in how they interact with other market participants. Open APIs enable banks to connect the various systems which they have in their technology landscape to each other but also to externally provided specialized solutions.

Recognizing the impact of these changes, we have pursued three key objectives:

- The deployment of our solutions as a series of Microservices to improve both operational scalability but also to increase the granularity at which external solutions can be integrated
- The extension of existing API capability to support published, Open APIs and the building of a supported developer community around these
- The creation of Temenos MarketPlace where a curated set of innovative fintechs are assembled and supported to ensure that our clients can find specialized solutions when they need them.

## Opening up is unavoidable

The effects of technology and regulation are self-reinforcing and pushing banks to much greater openness.

So many technologies are opening up the banking market: mobile phones have opened up a new distribution channel; cloud has lowered infrastructure costs and opened the market to new entrants; APIs have opened up the flow of information.

Now, regulatory forces are also pushing in the same direction. Open Banking legislation, which started in Europe, is fanning out across the globe, forcing banks to share customer data as well as share their payment infrastructure with third parties. As such, the move to Open Banking appears inevitable, whether banks like it or not.

## A new strategic imperative

The move to Open Banking, however, will be extremely lucrative to those banks that embrace the paradigm shift. To do so, they will need to consider abandoning older models of operating as a closed, vertically integrated enterprise, and instead open themselves to working with partners, becoming a concentration point for information flows so that they can learn faster and give the best customer experience at scale.

Banks are starting to appreciate this. A survey from Cognizant and Temenos found that a clear majority of bankers (89%) now see Open Banking as more of an opportunity than a threat with 57% of bankers saying that they would be prepared to distribute third party services over their platform.

And so the scene is now set for greater collaboration.

*“A clear majority of bankers (89%) now see Open Banking as more of an opportunity than a threat.”*



Research and development continued

## THE TEMENOS MARKETPLACE



### Bringing the power of fintech to banking.

The Temenos MarketPlace was launched in 2015, when we had already recognised the value that fintech could bring to banks. Our vision was clear – to help our customers to benefit from the collective innovative power of fintech – and that vision remains true today.

We are identifying the very best in fintech solutions to add to MarketPlace, those solutions which complement our software and bring real and proven value to banks. This curation of tried and tested fintech plays a key strategic role for our customers, enabling them to readily tap into an ecosystem of innovation, to identify those solutions that make sense for their businesses, and to be able to continue to innovate and differentiate within their markets. The pre-integration of MarketPlace solutions ensures that our customers can rapidly implement the solutions they select for a quick time-to-value.

MarketPlace enables our customers to accelerate their innovation by leveraging the best in banking fintech. For our customers, the decision to buy Temenos software is just the start of a journey of continued innovation where not only will they benefit from our market leading investment in development, but also where they can continue to leverage, through the MarketPlace, the latest in fintech to complement our software.

## TEMENOS DEVELOPER COMMUNITY

### Driving innovation through the building and engaging of banking's largest collaborative Community.

In 2019, we launched our Developer Portal, which provides access to hundreds of APIs, enabling developers to discover first-hand the power our API-first architecture and to experience just how easy it is to integrate with our products and innovate around our software. The Developer Portal is a key part of engaging our growing Community of developers from across our industry, from banks to Partners, from educational establishments to fintechs and consultants. Through this open sharing of technology, alongside online forums and live events that bring the Community and Temenos experts together, we are helping developers everywhere to use our software to its full potential.

Encouraging innovation around Temenos software through the openness of our technology and the sharing of knowledge benefits our clients downstream, who are in turn able to take advantage of resulting fintech activity and solutions that are ready integrated with our products. Our API-first architecture provides the technology required to empower those banks that are pursuing a strategy of proactively encouraging and harnessing innovation across their markets through creation of their own developer portals and market places.

Through this building and engaging of banking's largest collaborative Community, we are bringing together the expertise from across our industry to share best practice, to encourage innovation, and to drive change leveraging Temenos' leading technology platform.