

THE FUTURE OF DIGITAL BANKING



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Foreword

The banking industry of 2030 will look very different from what it looks like today - some of what we see will be evolutionary and some will be radically different. Whilst predictions into the future are always fraught with uncertainty, we are confident that the landscape will be far more competitive, efficient and innovative in delivering consumers "autonomous experiences" that are not possible today.

The market-leading banks of tomorrow will understand that technology will not limit what is possible. Instead they will harness digital capability to put the customer firmly in control of their destination and preferred model for dealing with their bank and other service providers.

This is not a one-size fits all.

Some consumers will opt for an autonomous banking experience when they are time poor, lack knowledge and have high levels of trust in their bank to do the right thing by them and confidence in their competence to do what they say they will do. And others will want more hands-on involvement – it will be their choice and the winning Bank of the Future will be adaptive to their needs.

Crucial to this is understanding how technology is re-shaping the way people work, live and play and embracing this deeper knowledge to help consumers manage increasingly complex, fragmented lives whilst giving them the confidence that their data is safe and secure.

The Future of Digital Banking report is designed to stimulate thinking about how the banking industry can be smarter and better, positively impacting on consumers, their relationship with money and through this, their financial wellbeing.

To this end, KPMG is delighted to be have partnered with the Commonwealth Bank of Australia on this initiative and we commend the Bank for putting financial wellbeing at the core of their strategy. We trust that you will find the report both insightful and valuable in informing your view of the future and welcome the opportunity to discuss the report's findings with you.

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How Will Banks Evolve?

Banks will transform alongside the shifts in how people work, live and play

Over the next decade we will see more changes in the banking industry than we have witnessed in the past 100 years. This isn't solely due to advancing technologies, but a confluence of inter-related, structural factors – demographic, socio-economic, regulatory and environmental changes.

These changes are likely to result in people living longer, changing jobs more frequently, participating increasingly in the sharing economy, being healthier, having better access to services to support mental and physical wellbeing, being more conscious of the environment, and being wealthier than their present day counterparts.

These will all combine to fundamentally transform how we work, how we live, how we play and how we engage with our finances.

These transformations will also be built into the Bank of the Future's efforts to improve the financial wellbeing of customers, enhanced beyond today's capabilities. At its core, improving financial wellbeing will be structured around helping customers achieve; meeting their financial obligations; having financial freedom to make choices to enjoy life; controlling their finances; and having financial security, even under adverse circumstances.

The four primary areas that will enhance financial services' ability to deliver improved financial wellbeing are:

01 Data

This will become widely available as everyday objects (and even ourselves) become connected to the internet and the Consumer Data Right applies to all sectors of the economy (beyond Open Banking). Its importance will continue to increase exponentially as disparate sets of data merge to provide a comprehensive 360 degree story about our lives. Customers will begin using its significance to extract more value from products and services offered to them, whilst demanding higher levels of security and transparency on how their data is being used.

02 Business Models

The widespread availability of data will fuel new entrants, such as neobanks and 'over the top' banking platforms. At the same time leading banks will explore opportunities adjacent to their core offerings, extending their business models. While players in other sectors will begin bundling financial services with their own, leading to a blurring of industry boundaries.

03 Regulation

These major shifts will require governments and regulating bodies to come up with completely new ways to identify and manage risks, regulate activities being undertaken by a broader range of participants, and judged on the outcomes they deliver to customers.

04 Technology

This is both the enabler and driver of change, and we can already foresee the technologies with the greatest impact to the financial services industry over the next 10-15 years. These are - Artificial Intelligence, Blockchain, Biometrics, 5G, Cloud computing, Internet of Things, AR/VR and Quantum computing – transforming both the nature of services, as well as how they are delivered and consumed.

Success will require leading banks to consider changes to each of these aspects of their business, not in isolation, but rather how they combine to re-define the bank-customer relationship of 2030.

01 Data

By 2030, data will fundamentally transform the nature of financial services and most sectors of the Australian economy. As such, it will be at the heart of how banks will deliver value to customers.

The application of the Consumer Data Right (CDR) in Australia will be widespread, with leading banks providing a range of data-related services to consumers, such as consent management-as-a-service.

The more data that is created and available, the harder it may be for any individual to manage and control what happens to the thousands of data points that will be collected about them. As consumers become more data-aware and discerning in what data they share, with who, how and for what purpose – trust will emerge as the key differentiator between providers.

Winning the trust of consumers - who are much more aware of the value of their data, and as a consequence, will be much less willing to give permission for use of their data to anyone without a clear benefit to them – will be crucial.

As examples; permissioned use of data to support better stewardship of household budgets to improve customers' financial wellbeing; and banks helping customers to compare the cost and value of different products or services, such as utilities.

Banks of the Future will use data to build a 360 degree view of their customers, not only for compliance to regulations, but to increase the value of services they offer. Empowered and more informed customers (through access to richer insights) will be able to make choices more quickly and easily, so firms unable to deliver a frictionless and bespoke proposition will become irrelevant.

Successful banks of 2030 will master data-driven customer experience across channels, underpinned by artificial intelligence and robotic automation.

2030: Personal data bank

Consumers are becoming far more aware of the value of their personal data and the importance of keeping it safe and secure.

Just as banks have long been the safest place to keep your money for hundreds of years, they could become the safest place for your data.

By 2030, banks will have the opportunity to become your trusted personal data bank:

- Banks will manage your data like they do your financial assets, allowing customers to instruct banks to share their data with particular providers, or to withdraw data from particular providers – similar to how banks manage shares or investment portfolios today.
- Banks could be the trusted place for consumers to securely manage their data consent in all aspects of their lives, across categories and institutions.
- Banks could protect the anonymity of their customers, through acting as an intermediary in securing products or services on the customer's behalf without revealing their identity.

Leading banks could be seen as most trusted to manage customer data in their best interests, using a customer's data (with consent) to provide them with the best services and outcomes, not just for their financial needs, but beyond.

Privacy will remain paramount, with consumers being the ultimate owner of their data, with banks providing data consent management services to their customers.

02 Business Model

Traditional boundaries within the financial services industry will disappear by 2030, with a move towards 'platformication' - where banks allow customers to choose services personalised for their needs from a range of providers. To facilitate this, banks will become an orchestrator of various alliances and capabilities, which may be owned by them or by others.

Consumers' digital interactions will be streamlined, moving away from using a wide array of 'point solutions' or apps for different aspects of their lives. Open Banking will enable fintechs, 'over the top' banking players and neo-banks with greater access to data to support their business models and new propositions, leveraging Open Banking rails. With the extension to CDR beyond banking into other sectors, leading banks will re-bundle relevant services around key customer needs, journeys and experiences that extend beyond the realms of traditional financial products.

The future competitive landscape and customer experience expectations will be shaped by new entrants – from the start-up fintech community, neo-banks, 'over-the-top' banking providers and the world of big technology ('big tech'). Some banks or emerging new technology players could choose to disappear from sight, instead focusing on providing the plumbing for the industry behind the scenes. Global tech brands will exploit their powers for connecting with consumers to provide new adjacent services, such as finance.

The telecommunications industry is already adopting these business models, moving beyond the provision of a utility service, into areas such as media and entertainment. These businesses are exploiting the data travelling across their networks to generate new revenue streams.

Banks of the Future will rely on their trusted brands to develop 'lifestyle layers' to compete in the platform space, orchestrating ecosystems of fintechs and other providers for consumers and small businesses. If banks are not leveraging these capabilities, they face the risk of other brands stepping in.

03 Regulation

The better informed consumers of the future will judge financial services providers by the outcomes they deliver, both to themselves as individuals, and also the wider impact on society. Furthermore, the traditional verticals of the financial services industry are breaking down with 'big tech' players entering the fray.

By 2030, regulation is likely to move away from a product specific focus towards monitoring the activities of institutions and focusing on outcomes. Financial regulators will evolve to build new structures to monitor the firms they police, assessing whether (or not) firms and financial systems are safer. They will need to respond to the delivery of banking and payment services that will become embedded in a service or experience which may be provided by a financial institution or a company, operating outside of the regulatory perimeter.

Inevitably, emerging technologies may create new and unforeseen risks for consumers (as new technology is not always neutral or benign). For example, not all uses of AI are necessarily ethical, therefore, there is a need for regulators to be supervising the technology and its application. To this end, it is essential for industry to "work with" regulators to build more trustworthy and robust systems for consumers.

New "regtech" tools, powered by AI will enable much more efficient and effective supervision. Regulators will also use these technologies to share information with one another, across both national and international boundaries, supporting efforts to combat financial crime.

Data has a part to play in this transformation too. Blockchain will become the source of 'trust', locking in data from transaction histories, contributing to more sophisticated risk assessment models. Regulations like the EU's GDPR will be commonplace, with the international community likely to adopt a global regulation in similar vein.

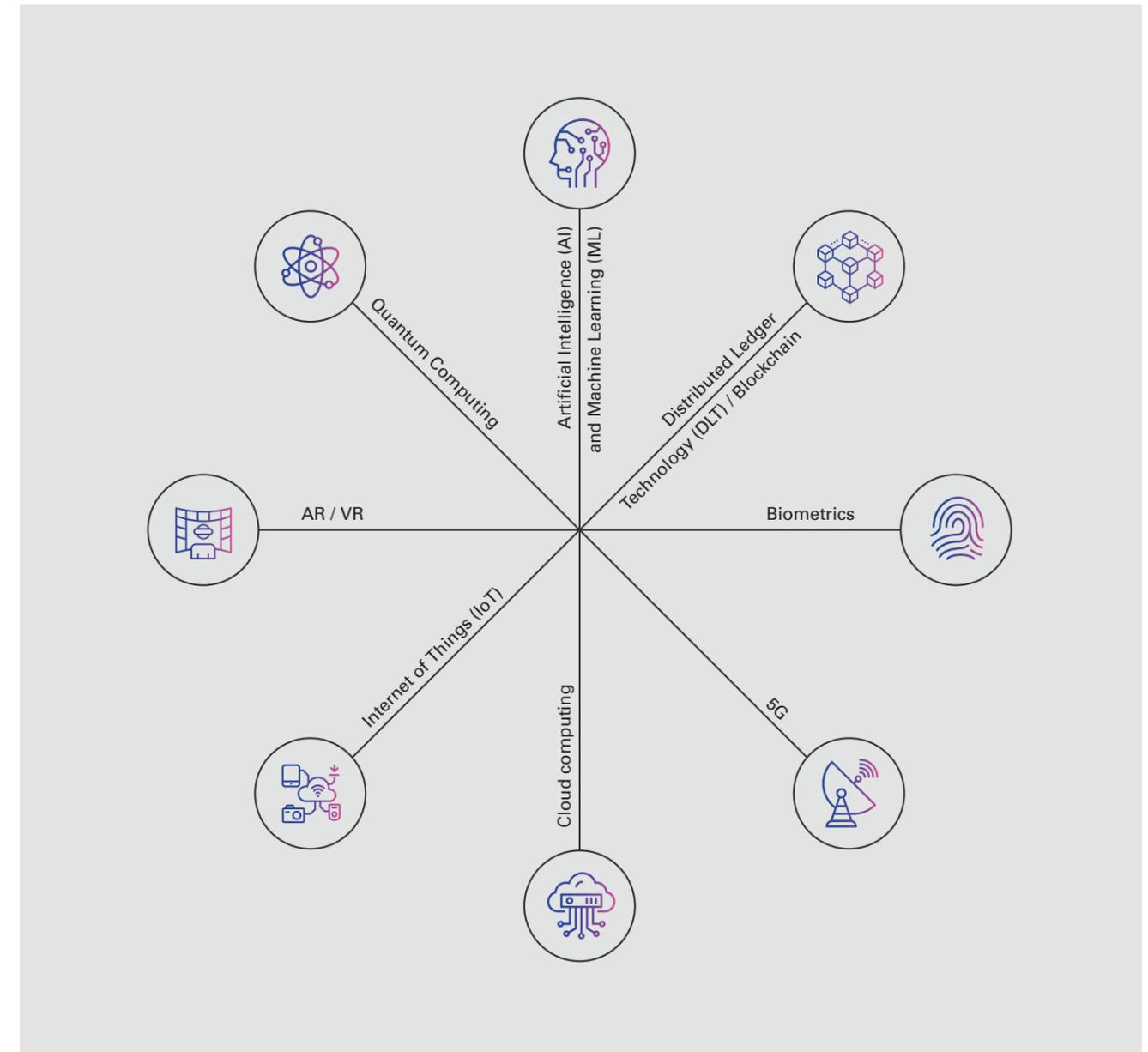
04 Technology

Technology will make banking more personalised and ubiquitous across devices and applications. This future will be enabled by a number of innovations that are transitioning from being emerging into transformative. They will cause aspects of banking to become unrecognisable from what we experience today – changing the channels, the services and the role banks play in everyday life.

KPMG has looked 15 years into the future through our Emerging Technology Radar (overleaf) and identified the following eight technological developments and capabilities as having the greatest potential impact on the bank-customer relationship by 2030.

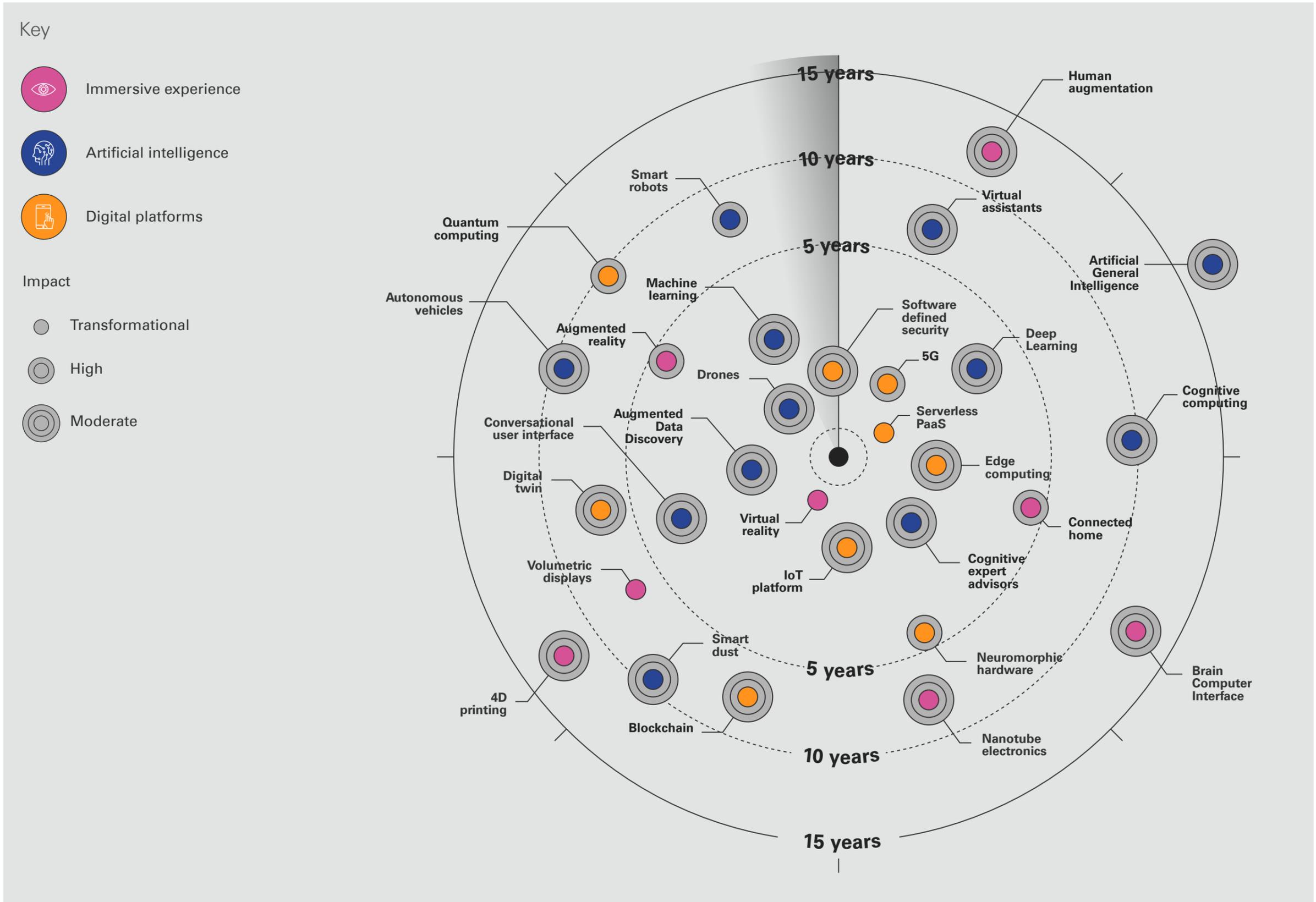
	Artificial Intelligence (AI) & Machine Learning (ML)	AI and ML will automate tasks currently requiring human intelligence, resulting in customer service being transformed, immense quantities of data produced by IoT being analysed, and enhanced security.
	Distributed Ledger Technology (DLT) / Blockchain	DLT will decentralise the management of customer transaction data, providing a more open platform; while blockchain will ensure that historic transactions will never be able to be altered, forcing transparency across all businesses who service the customer.
	Biometrics	Passwords and PINs will cease to exist, replaced with biometrics like facial and voice recognition, enabling constant, real-time user identity validation and advanced behavioural profiling.
	5G	Super-fast mobile internet will have the potential to reach over 1 gigabyte per second downloads, vastly improving the user experience and delivery of services in real time.
	Cloud computing	Cloud computing will remove the hardware burden on data storage and processing, allowing the bank to provide everyday consumers with immense data processing capabilities, accessible from any internet-enabled device.
	Internet of Things (IoT)	Everyday objects will gain the ability to connect to the internet and produce data, far beyond the smart speakers and wearables of today, allowing products and services to be highly personalised, and all aspects of a consumers life to become frictionless.
	Augmented Reality (AR) / Virtual Reality (VR)	Will allow banks to display rich information in the real world to help customers to make decisions more effectively, and become more accessible to those who may not be able to visit a branch.
	Quantum Computing	Will be the enabler of processing vast volumes of data made available through IoT, and will also help AI and ML learn faster in their goal to automate manual tasks.

We have provided more in-depth information about each of these technologies and use-case examples within the appendix.



These technologies do not work in silos, and often it is their intersection that gives us a glimpse into the impact of these technologies for businesses and customers of 2030.

Emerging technology on our radar



3

The Impact of Technology in 2030

A number of emerging technologies will combine to redefine the bank-customer relationship forever

Our reliance on technology continues to change as innovation pushes it into new areas. By 2030, technology will have advanced again as it reshapes how we live and communicate.

We can expect rising technologies to have an impact on the broader business landscape in the following ways:



Everything and everyone will be connected



Every engagement point of our lives will become a service



AI to power mass personalisation



Highly automated systems will instil trust with the consumer



Products and services will be consolidated into one platform – like a 'super-app'



Paying for products and services will become an automated process



Digital currencies go from emerging market to mainstream



Cyber security will be powered by AI to protect data



Connected everything

By 2030 a hyper-connected world will be the norm. Consumers will be interacting with their service providers through voice and personal assistants, facial recognition and wearable devices.

Smart speakers embedded with voice-enabled assistants, such as Google Home and Amazon Echo, are already becoming a staple within today's household. By 2030, nearly all devices will have some form of AI incorporated, from a fridge that tracks its contents to order supplies when running low, to your front door verifying authorised people to allow package delivery even when you are not home.

Carrying a plastic card to tap at dedicated point of sale or even making mobile payments will be replaced by a secure voice command or a facial expression. With connectivity through the Internet of Things, virtually any device can become a digital channel for traditional business interactions such as payments and enquiries.

Many of the 'connected everything' devices still emerging in society today will become commonplace by 2030. The true enabler of all this connectivity will be a trusted digital identity provider with digital currency and sophisticated / personalised algorithms that will make the underpinning technology completely behind the scenes. Banks would be a natural fit for fulfilling this role.



Engagement as a service

Data, machine learning and AI will enable businesses to switch from being just a "financial service" tool to a more proactive "enabler of needs" role. This is to ensure that value is continuously delivered.

Imagine the Bank of the Future proactively switching your subscriptions with non-banking services because they found a better offer available than your current provider. This could include the management of utilities and services in your home. With usage patterns well known through smart meters, banks can analyse providers' offers based on peak pricing and volume discounts, switching providers in the background as better deals become available. Conversely, entities from other sectors will also be trying to offer their customers the ability to optimise financial services.

These optimisation services will be capable of extending to all parts of a customers' life, if they choose. IoT will allow data be tracked in nearly all places regardless of whether the bank plays a role. The customer is empowered to choose whether their financial services providers can access this data to enhance their services. For example, your smart fridge will be capable of tracking its contents, and if this data is shared with your health insurance provider, they may be able to recommend consumption of some of its contents if it notices your blood sugar is low, like a specified volume of orange juice to reach a normal blood sugar level again.



The rise of AI

The financial customer experience of 2030 will be significantly affected by AI. This will be most noticeable through the delivery of mass personalisation, and assisting customers as they overcome low levels of financial literacy.

Algorithms and data models will be built around optimising financial outcomes for customers and will frequently reinforce positive behaviours through 'nudging' individuals to do certain things. For example, supporting segments of the population that are time poor and are seeking greater convenience, as well as preventing vulnerable customers from making poor financial decisions. These nudges will be ubiquitous, and not restricted to certain segments of customers.

However, these nudging algorithms will need to address inherent structural weaknesses as the input data will be biased (e.g. demographic data) and can easily be misinterpreted by machine learning algorithms as the desired target.

While specific predictions of what regulations will ultimately be adopted are difficult to make, recent legislative trends show the strong likelihood of government regulation of algorithms being introduced to address aspects of biases, disclosure requirements and intellectual property.

Removing potential biases of AI creates a unique opportunity for the Bank of the Future to differentiate themselves from pure technology platforms. This allows them to better service their customers with a unique user experience that has a human touch.



Distributed Trust

Banks of the Future will have to reconsider their position as just a financial service provider. This change means that banks will need to go beyond money and integrate with a broader ecosystem of alternative services.

The Bank of the Future will be able to lead the redefinition and monetisation of trust, leveraging their heritage and experience to gain a distinct advantage over newer entrants.

Through the delivery of services enabled by digital identity and DLT - customers can trust that the automation and decisions made on their behalf are traceable, reconcilable and transparent to them. This will help consumers manage their increasingly complex and fragmented lives.



The 'super-app'

In the era of deep fakes (use of AI to model a human face into a video, creating situations which are factitious and individuals being misrepresented), advanced cyber-crime, data-theft, ransomware, phishing and other realities of the digital age, there will be a considerable premium to establish a platform that consumers trust and feel safe.

The quest to create a 'super-app' or virtual service that can combine digital intimacy, privacy, access control and can enable products and services has significant implications, as it allows successful entities to keep customers within their ecosystems for nearly all their activities, and away from their competitors.

In markets like China, apps like WeChat already facilitate the 'super-app' approach, however achieving a similar model in other parts of the world will be considerably more difficult – as China does not have data privacy laws similar to those adopted in western countries, and certain global technology giants are prohibited from doing business, preventing competition.

Businesses of the future will aim to build a trusted relationship with their customers through this 'super-app' platform and create an edge to differentiate from those who are simply commodity product or service providers.



Payments

Rewards, partnerships and loyalty points will become the key differentiator between payment products, and integrated rewards advise customers which preferred payment method will maximise their benefit.

You'll be able to simply walk into your local coffee shop or supermarket, order items, and leave – all without discussing payment options or the cost. Payment terminals are removed in favour of integrated real-time payment transfer solutions within point of sale systems.

Intelligent payment financing facilities that dynamically assign rates, and extend context relevant credit linked to the transaction type and spend are presented to consumers as an extension of buy now, pay later services.

Customers' credit assessments will be far more holistic and will update in real-time, taking inputs such as lifestyle habits, purchase history and predictive analytics. Credit products will be far more tailored to an individual, providing customers with flexible repayment plans for each transaction while integrating rewards programs based on their credit rating. Transaction experiences will not differ between transferring between friends, or between continents.

The biggest change is in the global B2C commerce space as consumers will be free to spend overseas with international merchants without incurring foreign exchange fees.



AI-driven cyber security

By 2030, cyber security will be built around enterprise-wide predictive analytics, security vulnerability and threat recognition, all powered by AI. Imagine AI redefining the assessment of online security vulnerabilities as it identifies and remediates security issues in real-time, preventing hackers from exploiting vulnerabilities.

Furthermore, the use of tokens to digitally store personal and biometric data will move from being held on a mobile phone or smart watch to advanced personal wearables, such as interactive glasses, rings, earrings or cuff links.

Technology-driven data protection and privacy regulations will also be in place globally in 2030. Their enforcement will increase the trust of citizens and users, with regulation focusing on the ownership, collection, custody and the processing of the personal and biometric data.

Blockchain may also hold a solution to data privacy – with distributed ledgers allowing people to take full control of their private data, and only sharing it with third parties when individuals have agreed to do so.

At the same time, an international consensus on data management and processing will protect the privacy and security of individuals – and provide standards and protocols for consent.

Customers will become more comfortable giving permissions to access data, with digital identities backed by governments. This reduces the burden of anti-money-laundering and know-your-customer regulation on customers, while making life more difficult for fraudsters.



Digital currencies

The rise of digital currencies (and tokens) that will be issued by central banks and corporate players will further accelerate the transformation of products and services. This digitisation of money will bring greater financial inclusion overall, broader transparency and better real-time transaction processing and settlement.

As cash disappears over the next decade and digitisation reaches its next logical step (e.g. corporate digital currencies such as Libra or central bank digital fiat); opportunities for a shadow economy, worker exploitation and fraud will continue to be reduced.

While impacts are broadly positive, segments such as the elderly who have a heavier reliance on cash may feel excluded from society, and financial service providers of the future will find measures to alleviate this.

We will also see this new generation of digital currencies eliminate a number of intermediaries involved in cross-border payments and currency exchange, delivering value and innovative experiences to consumers.

With an understanding of the broader impact of technology in 2030, we will now explore what banking specifically looks like as a result of all these shifts of customer trends, expectations and behaviours.

4



Banking in 2030

Leading banks will become a trusted interface for life, embedded within the needs and lifestyles of consumers

Delivery and experience re-defined by 2030

Data will underpin the delivery of seamless, integrated experiences that span beyond banking to anticipate and satisfy other customer needs. Data will be at the heart of how banks deliver new forms of value to customers and how they will make money in 2030 (in response to emerging consumer needs around their personal data). Embedding banking within the consumers everyday needs, lifestyles and life-stages will be key - as will providing and creating financial services (and other services) to meet the immediate gratification of these demands.

We anticipate consumer expectations to demand frictionless transactions: safe, fast and automated. Even though artificial intelligence (AI) will indeed power mass personalisation and micro-consumption, the importance of a human touch cannot be underestimated.

Historically product-centric operating models will shift towards platform-based approaches, and traditional banks will explore new opportunities available in neighbouring sectors, while other sectors will do the same with banking services.

Financial products will be replaced by **context relevant finance**. For example the wide array and complexity of credit products today will be replaced by the provision of credit in the relevant context for consumers, fuelled by a deeper understanding of customer needs and the application of behavioural data to model and price for risk.

As we leave behind the historical ways of banking, we will move quickly toward a smarter, more personalised and ubiquitous future fuelled by transformative applications and completely new customer experiences.

In 2030 regulation will focus far more on banking practices, rather than banking products. Regulators will need to adapt and adopt greater levels of automation moving forward.

Where to next

Truly individualised customer-centred banking

As we've discussed, the current trends in technology, data, regulation and the transformation of business models will cause a major shift for digital banking. But at the centre of everything lies the customer and their expectations.

For the finance industry to truly succeed and stay relevant, they will need to tackle and own these six key themes:

Lifestyle Integration	Customers expect their banks to know them. Therefore, banking will need to deliver next level hyper-relevance and understanding.
Automated and Intuitive	Customers expect us to minimise the time and effort required to do things. So, banking needs to be super easy to use, and where relevant, be in the background.
Context and Sensitivity	Customers expect understanding and empathy. To display this, banks will need to deliver services and experiences that contextually align to the customers' life stage, needs and circumstances.
Proactive and Forward-Thinking	Successful businesses work tirelessly on exceeding customer expectations by anticipating what they want. Banks will need to anticipate what a customer needs before they ask for it.
Pioneers of Trust and Security	Customers will only deal with businesses which demonstrate integrity. There needs to be a shift to providing data security, protection and cyber security to customers, and banking should be the sector that leads the market.
Resolution	Customers don't just judge businesses by what they do right. They appraise them for how they resolve issues. Banks will need to practice proactive accountability and tackle an issue even before it impacts the customer.



Lifestyle integration

Consumers have witnessed mass-personalisation through many of their digital experiences – think Netflix suggestions and Spotify personalised playlists. They will now expect the same from their financial services.

The Bank of the Future will be successful by being able to personalise not only their products and services towards the needs of the individual, but also their experiences.

Personalisation is often the most valuable component of an experience in the business-customer relationship, with even small actions like remembering a customers' name having significant impact.

Examples of personalisation across financial services include:

- Specific pricing of products catered to your usage, with terms aligned to your requirements
- Reducing repayment terms on loans for when the item you borrowed money for is cared for – protecting its value
- Removing the need for an ID check when you walk into a branch, and be greeted with your name and the full knowledge of your entire account history
- Financial smart assistants who can conduct in depth analysis of your historic spending and saving patterns to provide comprehensive and achievable recommendations on the spot, helping you afford spontaneous purchases

Demonstrating this level of hyper-relevance will allow the Bank of the Future to truly integrate their services into your life and maximise the value they can deliver you.

Australian Consumer Survey:

“In the next ten years I expect my business will have gone through much growth, allowing me to save at a higher rate. I would hope my banking experiences will become more personalised. As long as my bank remains innovative and modern it will be appreciated.”

Male, 30 – 34 yrs old, Melbourne

Services that could become standard by 2030

Create customised Lifestyle Bundles for individual households that provide a single monthly payment to cover their banking, energy, telecommunications, health (e.g. gym membership), entertainment (e.g. Pay TV/streaming) and banking in a bundle. This simplifies monthly living expenses and provides a subscription model of payment, allowing the household to adjust settings for their lifestyle needs. The Consumer Data Right could provide a consent mechanism for a trusted third party like a bank to bundle the requisite services and provides the consumer/household with transparency of their consumption across key service categories.

Industry voice

Over the next decade, banks face a choice of how to position themselves. They can play the role of match-maker, connecting customers to the best providers, stocking the shelves of the supermarket with their own brands and those from niche providers. Alternatively, they can use the data they have to create completely personalised products, tailored to the individual's needs.

This combination of access, selection, price, experience and personalisation are all things banks should be offering to their customers. The idea of a segment of one is that digital organisations no longer need to choose between scale and personalisation. At scale, everyone can be treated as a segment of one.

Michael Rogers, Curve

Automated and Intuitive

The role of the Bank of the Future is to make their customers lives as frictionless as possible, all while remaining behind the scenes. We've seen examples of this shift in the way we moved from the manual process of paying a taxi driver for the ride, to having payments seamlessly processed for our Uber trips.

Expect to see this automation in other parts of the customers' life such as retail. A customer will walk into a store, pick up the item they want and simply walk out - the bank and the retailer then work together in the background to authenticate the purchase and payment.

As the services customers receive from banks become less visible and a part of their day-to-day lives, banks must adjust their business models so their value becomes clearer. Banks will find new, more compelling ways to provide insights to customers about their financial wellbeing, allowing them to enhance their saving capabilities beyond what is available today.

If the Bank of the Future can make it as easy and frictionless as possible for a customer to use their products or services, they will create a substantial competitive advantage.

Australian Consumer Survey:

More than one in two Australians (55%) would prefer to arrange their future finances in the future in a way that requires minimum time and effort to set up and manage.

“With technology advancing at leaps and bounds I think most of my life will be dependent on automated ‘smart’ devices in a few years’ time, which could be beneficial as the time spent on banking tasks today is a nuisance”

Female, 35 – 39 yrs old, Sydney

“I would love it if when my credit card is renewed they would automatically update my number with companies that I have direct debits with to save me having to call them all individually”

Female 55 – 59 yrs old, Sydney

Services that could become standard by 2030

Customers will be identified simply by their face or voice - transforming in-person or over the phone engagements with businesses into a seamless experience, focused purely on answering customer queries or requests.

Confirming date-of-birth, address, carrying a driver's licence, filling out forms or checking out will become things of the past.

Industry voice

‘We need to recognise that financial products are a small component of a larger frictionless digital ecosystem’

David Duffy, CYBG

‘Today, there is very much a demarcation between shopping, banking, running a company, getting to treasury. In the future, those lines will be blurred. A very good outcome will be a world whereby people just get on with their lives, they interact, they work together. The exchange of value that underpins the activity will be invisible, instant, seamless.’

Marcus Treacher, Ripple

Context and Sensitivity

As banks improve their understanding of the customer data they collect, their ability to act upon that data increases. Technologies including AI, Blockchain and IoT, and the sharing of financial data through Open Banking have a compounding effect on providing consumers with relevant services and advice which align to their immediate needs and are in their best interests.

Banks will use their in depth understanding of customer spending habits to provide recommendations for better offers on energy, food and other services, increasing competition without long-term contracts. Customers in earlier life stages, such as students, will be provided recommendations in consideration of on a higher debt load, whilst customers who are moving towards later life stages, such as before retirement, will be provided scaling levels of recommendations to prevent a high debt load from carrying over, scaling based on the individual's circumstances.

Income data is already well understood by financial institutions. So The Bank of the Future can provide guidance to customers on what they can afford, where they should live and how they can save for their next holiday. This will provide consumers with peace of mind, reducing the worry and energy involved in managing their finances.

Australian Consumer Survey:

90% of Australians want their bank to provide advice about their spending and saving, to help them achieve their lifestyle and financial goals.

25% of Australians claim not to have any savings, of which the vast majority (67%) are aged under 50 years old.

"I would love to be able to set a 'Notify Me When' limit of a particular amount so that I don't have to always check on my spending, which affects the pace at which I do some things, and how I live my life"

Male, 55 – 59 yrs old, Brisbane

"I would like to see tools that allow people to manage their monthly finances and uses tech to come up with ways to help people save money based on their situation and circumstances"

Male, 30 -34 yrs old, Regional VIC

Services that could become standard by 2030

Customers will be able to model the impact of spend on their long-term financial health – allowing the bank to help customers to identify ways to afford a significant purchase today, through recommending reductions in specific parts of their day-to-day lives over the long-term.

This visibility on long-term impact from short-term gain will help customers with their financial wellbeing and decision making.

Proactive and Forward-thinking

Big data, IoT and Open Banking will give financial services institutions immense understanding of the lives of their customers.

Overlaying these insights across thousands or millions of customers, using AI solutions, will allow banks to accurately predict what customers are about to need, and be able to step in to support them as their needs change – if customers choose to opt-in.

There will be spectrum of comfort with this service - with one end being for individuals who want to share all their data to maximise personalisation and proactivity; and the other being for individuals who do not want to share any data to maximise privacy and control.

For the customers who give permission for their data to be used, a data model to represent changing life circumstances, such as a person moving from being single to in a relationship could be based on a combination of factors, such as:

- Increase in frequency in visiting restaurants and other locations frequented by those in a relationship – relative to their normal behaviour
- Purchases associated with couple-related gifting stores during certain seasons i.e. Valentines day – relative to normal behaviour

Over time, millions of customer profiles will allow AI and ML to find the right combination of data points to accurately predict a change in circumstance, whilst balancing with an individual's request for privacy. By aligning needs to different circumstances, Banks of the Future (with consumer consent) could use this information to proactively respond to the ever- developing lives of their customers - and in some cases, before the customers may even know themselves.

Australian Consumer Survey:

The majority of Australians (90%) are looking for their bank to provide tools and calculators that enable them to model financial scenarios to see the long term outcome.

"In 2030, I will be 44 yrs old, still paying off my home loan, but hopefully getting closer to the end of it. Thinking more about retirement and putting a plan in place to ensure I have enough money to retire on. To reach this goal I would like support from my bank by proactively giving me the best deals, products and loyalty perks"

Female, 35 – 39 yrs old, Sydney

Services that could become standard by 2030

Banks will help customers who express interest in buying a house compare similar homes in the area, flag when renters can afford a home in the area at a reasonable loan level, model home loan repayments against their current expenses, explore home insurance options and find the best deals on new appliances.

Banks will help customers achieve their objectives by proactively providing solutions for all complementary activities.

Industry voice

'Say in 2030 you wake up and walk to the bathroom. By the time you're ready to put your clothes on, your bodily diagnostics will have been updated: smart technology will know whether you're high or low on glucose, or whether you're slightly anaemic. That information will be communicated to your fridge so that by the time you are in the kitchen, remedial breakfast choices are highlighted. Insurance technology will have also communicated to your shopping list that you'll need extra orange juice because you're deficient in this or that nutrient'

Blair Turnbull, Aviva

Pioneers of Trust and Security

Banks once represented the pillars of trust and integrity in communities all over the world, protecting and managing their customers' financial lives. While trust in the finance industry has recently been challenged, there are other factors that are encroaching on the financial services industry. For example, the introduction of Open Banking and the immediate reduction of the barriers to offering financial services to customers.

In order to compete, Banks of the Future must carefully rebuild the trust within the community through a strong focus on the security of customers' data and valuing their privacy. This should be regarded as a non-negotiable factor, and will be the primary differentiating point between a customer choosing a bank, or a business from another sector that has bundled in financial services along with the rest of their products or services.

Banks who focus on providing data security, protection and cyber security are much more likely to be considered by customers as the entity with the highest levels of integrity.

By prioritising these actions, the customers' financial wellbeing and showing a deep understanding of their obligations as a result of holding the customers' data, the Banks of the Future can position themselves in places unattainable by other businesses. The banks who choose to sacrifice integrity and attempt to compete in areas such as technology or price alone will instead find themselves easily outclassed by other sectors.

Australian Consumer Survey:

Consumers in the survey believed banks (47%) will be the most trusted sector to keep their data and privacy safe, followed by Government (26%), Payment Providers (16%), Retailers (4%), Technology giants (3%), Airlines (2%) and Telecommunications (2%).

Two in five Australians (42%) are concerned about potential security risks when dealing with companies online, like their bank.

"My biggest bugbear is feeling like I am not able to obtain the correct financial advice and making sure that the person who is providing that advice is acting in your best interests"

Female, 35 – 39 years old, Melbourne

"I'm not sure who I can trust to give me really impartial advice. It feels like all advice is based on commissions and profit for the individuals giving the advice. In the short term I wish my bank provided better support in asking for credit increases and assistance on how to save for an overseas holiday. Longer term, like in the year 2030, I would like advice on retirement and how to have a better work life balance while not being in debt"

Female 40 – 44 yrs old, Brisbane

Services that could become standard by 2030

Financial services providers will have access to the full uneditable transaction history of all customers, powered by blockchain. This provides the high transparency and levels the playing field - ensuring products and services can be personalised effectively by whoever can offer the best value to the customer, rather than only those who have a long history.

Resolution

No matter the number of technologies, processes and policies put in place by banks to mitigate risk and protect against data breaches, fraud and human error, issues will arise from time to time.

It is during these moments that a bank has the opportunity to show they understand their obligations to the customer. Banks must demonstrate a level of responsibility and accountability that fosters a 'working together' atmosphere to fix the problem, rather than leaving the customer feeling like they are on opposing sides.

Through the use of AI and ML, technologies of the future will make it significantly easier for banks to not only prevent problems, but also identify historic ones. Issues will be identified in real-time and even predicted and prevented in advance.

When problems are identified, the leading Banks of the Future will take immediate action to protect their standing across all customer experience pillars (integrity, expectations, empathy, time & effort, and personalisation):

- In the situation where the bank makes a mistake: AI will be able to quickly pick this up, flag that an error has occurred to the customer, while providing a selection of solutions that takes into consideration the customer's personal circumstances i.e. providing low-income customers with a no-interest loan in the short-term during the resolution process.

Australian Consumer Survey:

"I would like my bank to fix my problems without me even having to notify them"

Female, 18 – 21 yrs old, Regional NSW

"I'm scared about the state of our planet. I just want everything to be as simple as going to my local bank branch when I have a problem or issue, for my bank to be there for me when I need them"

Male, 60 – 64 yrs old, Regional QLD

- In the situation where suspicious transactions are made: AI will proactively limit fraud from impacting their customers. Foreign government business registries and external financial institutions will be scanned and measured for compliance, product delivery status from the delivery company will be tracked in real-time and customer feedback will be overlaid and verified to ensure the transacted item is aligned to its description.

While the banks of today may already conduct some of these practices, the technologies of the future will allow for resolution to become a more seamless and pain free experience. Plus, the extra security provided by future technologies will lead to greater protection of a customers' personal data.

Services that could become standard by 2030

Problems that arise as a result of human error will largely be eliminated, as IoT will track the real-lives of customers rather than relying on manual submissions, the data will be secured via blockchain to maximise transparency and security, followed by AI authenticating and verifying compliance.

5



Future Customer of 2030

Banks will need to adapt to individual customer desire for control and knowledge

What are the enduring needs of the customer?

The consumer needs of today will continue into the future and will demand the same key elements from the leading banks:

Simple: Help me clear the clutter and defragment my life.

Smart: Know me as well as the data you have about me, and help me achieve my aspirations and master my financial life.

Secure: In an increasingly untrusted world, protect my money, identity and data.

Customers will still need to save, borrow, invest and make payments, with digital advancement and financial literacy helping them find smarter and better ways. The increasing savviness of consumers will drive an intense and urgent new battle between incumbents and challengers to be their trusted interface of choice.

At the same time, technology is likely to make banks increasingly invisible. As we move toward a fully connected way of life, banking activities will often be hidden within 'super-apps' that can fulfil daily personal and financial obligations with a tap.

By 2030, we will have transitioned to a new world of adaptive banking. Technology will enable them to meet each customer's unique set of preferences as they change across occasion, time and context.

How we work

By 2030, Millennials comprise 75% of the workforce. There's also an increased labour market participation of women, older workers and workers from more ethnically-diverse backgrounds. People change jobs every 3-5 years. What's more, 92% of future jobs will need digital skills.

The continued rise of the 'gig economy', has people actively seeking independent work, and 'casual workers' are using it as a means to supplement their income. These temporary, shorter-term jobs are held by more than 50% of the working-age population.

How we live

Health

We are working more and living longer. Life expectancy has increased largely as a result of improvements in diet, living conditions and technological progression in the medical field. With a societal push towards healthy living and preventative health, a growing consumer base has become increasingly responsible for financing their own care.

Society is seeking sustainable solutions to mental and physical health problems. Mobile apps and devices provide individuals with personal medical records and daily activity logs.

There's also a rise in automated new care delivery models that facilitate self-care, prevention and wellness. It's tough to budget for old age due to growing health costs and uncertainty about how long you may live. There's a critical need for financial products that help people save and provide an income in an increasingly long retirement.

Family

People are marrying later and cohabiting for longer periods. There is an increase in the number of single-adult households and single-parent households, plus the number of couples without children has increased. The number of one-person households has increased by almost 50% due to an ageing society. This is reflected in the rising proportion of elderly people among society's most poor.

Social and Environmental

The act of sharing has connected people and promoted social cohesion. Consumers are more aware and conscious of growing environmental concerns and the efficient use of water, energy and food resources in light of constrained supply.

How we play

Consumers' lives are densely packed as they balance work and life. They have even less time available for recreation and leisure activities. People now seek out opportunities to play or watch sport at times that fit into their busy schedule. People increasingly opt to go for a run with headphones rather than commit to a regular organised sporting team or event.

The Australian population has become wealthier, and their demand for products and services has changed. Consumers now look to pursue rewarding experiences over products. This is reflected in the rise of lifestyle, adventure and alternative sports. Participants obtain cultural self-identity and self-expression through these sports. Travel remains a status symbol for many and the desire to present a "perfect holiday" to your friends, families and followers has increased dramatically with technology. Virtual Reality and live-streaming now offers the opportunity for friends to join your experience.

Finally, with the proliferation of technology and devices, "digital detoxes" or "black hole tourism" takes consumers to the rare places that remain offline.

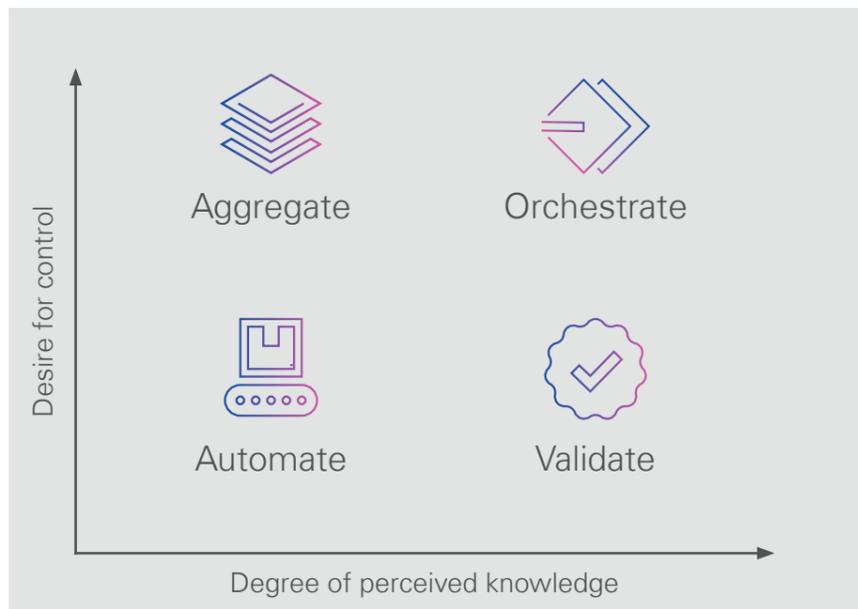
These developments paint a different picture of the customer in 2030 to what we observe today – influencing their attitudes, aspirations and behaviours. The future customer will have far more complex needs to satisfy and their preferences will change based on different contexts for those needs.

Enduring needs are skewed by the realities of life

The enduring needs of the customer we introduced in the future context set the timeless foundations for customer experience – however each and every individual will fall somewhere along a spectrum based on their own values:

- Some people may want it easy because they do not understand and trust businesses do what is right for them
- Some people may want it easy because they have in depth knowledge, but want it done a specific way
- Some people may want personalisation, and be willing to share all their personal data, so products and services are highly personalised
- Some people may want personalisation, however are not willing to share data due to fears about privacy, so products and services are lightly personalised
- Some people may want to be protected, because they are worried about entities that they cannot trust, and have a clear understanding of the type of protection they need
- Some people may want to be protected, because they do not understand what is out there, and don't trust businesses to do what is right for them

These spectrums of needs are comprised of the individual's desire for a combination of:



Automate

People who want low control, and have low knowledge want their lives to be automated so processes they don't understand can just happen behind the scenes.



Aggregate

People who want high control, and have low knowledge want their lives to be aggregated so they are provided a list of available options.



Orchestrate

People who want high control, and have high knowledge want their lives to be orchestrated so everything happens according to their plan.



Validate

People who want low control, and have high knowledge want their lives to be validated so their choices are seamlessly reassured.

These are the four needs that Banks of the Future must align their services to, in order to truly service customers of 2030.



Jack, 22 year old student

Jack is a student currently studying economics at the University of Sydney. He sees economics as an opportunity to develop some general skills for the future, rather than being something he is passionate about.

He is not burdened by too many expenses, as has still lives at home with his family. They have shared with him many horror stories about what poor financial management and debt could do to a person, inspiring him to use a student loan as the starting point for learning how to manage his savings and expenses.

In order to get a head start on paying off his student loan, Jack recently began working part-time at a restaurant in between classes, and hopes this kind of real world experience may guide him towards a career that he could be passionate about.

Role of the bank:

	Automate	He has opted out of the bank contacting him directly, and prefers to rely completely on dealing with AI customer service, or instant message chat bots – where they are available 24/7 and he can respond at his leisure.
	Aggregate	To get the most value out of his money, he has opted into a robo-adviser who provides daily information on deals, discounts or offers for products he regularly purchases.
	Orchestrate	In order to not carelessly spend too much of his savings on food and entertainment, he has opted into a monthly spend limit with warnings. Once it goes over, his banking app will begin sending him notifications whenever it notices he is in the vicinity of stores he frequently purchases from. When he opens his app, it shows the long term impact of following or ignoring the warnings, by displaying the compounding interest gained or lost projected against six months and two years. This helps him understand the impact of a small guilty pleasure purchase on his long-term goals.
	Validate	His banking app models potential scenarios for paying off student loans using his historic financial data, allowing him to create some self-set goals for the future. He now understands that if he is able to get an increase of \$3.50/hour at his part-time job within the next 2 years, and allocates 25% of his earnings into student loan repayments, then he will be able to pay off his student loans 4 years earlier and with 8% less paid in interest.



Mia, 44 year old small business owner

Mia and her family recently opened a small restaurant. She managed to pay off their mortgage quite early as both her and her husband were careful savers since their youth, allowing them to put their house as collateral for the loan.

Like most small businesses, she understands it could be quite a long time before the business becomes profitable, if ever. With slowly declining savings, two kids, a small business to run, and their home on the line, they know they need to work hard to ensure their restaurant becomes successful.

Role of the bank:

	Automate	Customer payments have been automated throughout their restaurant, from tap-and-go to not even needing to interact with a bill, their bank monitors the end-to-end process to ensure each and every order is paid for before the customer leaves. 'Dine-and-dash' is a thing of the past with the bank's facial recognition payment system.
	Aggregate	Relies on the bank to monitor prices of food supplies across the marketplace, and provide estimated price projections depending on current events. Weather events like cyclones can significantly drive up prices of food supplies, and being able to forecast these spikes allows her to adjust the menu or source supplies internationally to reduce negative impact.
	Orchestrate	Sensors monitor electricity, gas and water usage throughout the premises, and allows the bank to optimise their energy usage, including turning down or off devices consuming resources when not in use. She also allows their bank to automatically switch between utility providers to ensure they get the best value for money.
	Validate	Her restaurant kitchen equipment made up a significant portion of the loan, and the bank monitors its usage and care. Keeping the equipment well maintained and in pristine condition allows the bank to reduce their repayment burdens. She insists on weekly meetings with their bank account manager to review their data, in order to better understand if she is doing everything she can to keep their repayments at its lowest.



Olivia, 54 year old doctor

Having been born into a long line of doctors, Olivia felt the need to also become a doctor herself. She spent over 10 years working in the emergency room of a major hospital, before realising she needed a change of pace, becoming a general practitioner of a small family clinic.

The years of stress in the emergency room have taken a toll on her health, and she is now much more serious about looking after herself.

Her income has allowed her family to be debt free, and to have a portfolio of investments in property and the stock market. She worries about finding the right balance between giving her children a comfortable life and spoiling them. However for now, is just focused on ensuring she provides them the best education possible.

Role of the bank:

	Automate	Has set up funds for each of her children, and automatically contributes to these monthly using earnings from her investments. As incentive for her children, she has set goals such as achieving certain grades and test scores, not spending over a specified amount of time on electronics, and doing a set amount of physical exercise – when the bank tracks that her children have achieved the set targets for the month, it distributes a portion of the funds into their accounts as a reward.
	Aggregate	To force herself to fit time in to relax, her bank automatically schedules planned relaxation opportunities into their calendar, such as recommending the top restaurants for a date night with her husband or weekend trips to the vineyard – based on activities that the bank believes she will enjoy using her historic spend data. All she has to do is accept or decline these suggested schedules as they come up, allowing her to make finding down time very easy.
	Orchestrate	Her premium health insurance program monitors her health 24/7, and she allows her bank to share this with entities involved in many parts of her life, such as with her nutritionist, so meals are prepared in accordance with what she needs; and her personal trainers, so they can prepare weekly personalised exercise routines. Her bank authenticates that the services she receives are in alignment with her health data, and keeps up routine payments.
	Validate	With a portfolio of investments in the share market and property, her bank monitors the global marketplace and current events to give her projections and alerts of significant changes that could impact her, so she can maximise the return.



Elijah, 63, retired former truck driver

Elijah had worked as a truck driver for over 25 years, hauling goods interstate for a major grocer. He had spent his youth living relatively lavishly, without concerning himself with saving. When self-driving trucks replaced his full-time role, he resorted to working odd jobs as a handyman wherever he could find them.

With little savings and diminishing capabilities to be able earn more, he relies on government support and tight budgeting to get by. Without any immediate family who rely on him for their wellbeing, he only hopes to be able to live comfortably in his retirement.

Role of the bank:

	Automate	Other than the monthly in-branch visit to have a face-to-face with his account manager, he prefers the bank to manage everything in the background. He is happy for them to adjust his critical expenses, like utilities, to find the lowest cost without his additional input.
	Aggregate	He is on a low cost health insurance plan with his bank, covering only the most basic components aligned to his needs. His monthly Medicare covered health check gives him data on his health status, and he has granted the bank permission to use this data to recommend changes to his package; allowing him to add or remove elements at will so he can balance between maximising his safety net, and reducing the cost.
	Orchestrate	A small family farm he inherited is the only considerable asset he has left, and he relies on the bank to monitor its estimated selling price, and to put it on the market when he can get the highest return. He set a goal for the bank to allow him to afford a range of products and services he put on a wishlist for living more comfortably, using the money from the sale.
	Validate	Unlike most households who rely on self-driving cars or ride-share, he still prefers to drive himself. In spite of his older age and minor health conditions, his insurance profile was deemed to be low risk as a result of his tracked driving performance, allowing him to save with his monthly premiums.

6

Appendix

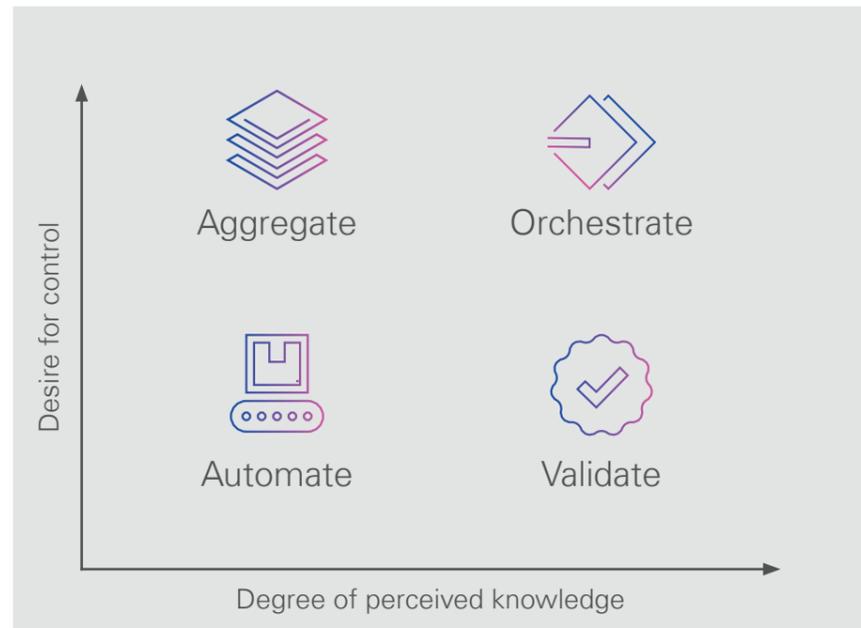
From product banking to adaptive banking

The role of the Bank of the Future

Control vs Perceived knowledge

Banks are in a unique position, as they operate as the connective tissue between the customer and their products and services. With banks having complete visibility around payments and transactions, it provides an opportunity to extend their offers across two key customer dimensions

- The desire for control- the level that a customer wishes to make active decisions
- The degree of perceived knowledge- how much a customer believes they understand the category and offer



With these two parameters in mind, banks can develop products or solutions that tackle the customers' needs in four specific areas:

	Automate	This is where the customer is averse to control decisions, possibly due to their lack of knowledge in a specific area. Therefore they trust the bank to take care of the end-to-end transaction. The less visible the bank is here, the better.
	Australian Consumer Survey	Two in three (65%) consumers are looking for banks to automate the process of finding product, rate or fee information, recommendations and advice.
	Aggregate	When we find that the customer still wants to control the decisions and actions, but possibly lacks knowledge, we can step in to bring offers and experiences together. This becomes all about facilitating and streamlining to create easy choices.
	Australian Consumer Survey	More than two in five (44%) Australians feel very overwhelmed by their current situation and would like to be more in control in the future.
	Orchestrate	When the customer knows what they want, when they want it, it's up to the bank to action their wishes simply and efficiently.
	Australian Consumer Survey	In the future most consumers (70%) are looking to consolidate - preferring to have all their financial relationships with just a few providers.
	Validate	When the customer feels they are knowledgeable in a chosen subject, they will look to the bank to help validate their choices. This should still be a frictionless and low engagement experience but allows the bank to provide key supporting information.
	Australian Consumer Survey	Three in four Australians (75%) feel they have a good knowledge and understanding of financial products and services and how they work, but the majority (66%) still want guidance and advice from their bank before making a decision.

All of these roles are driven by the customer preference which is why it's imperative that banks adapt to a future-facing position that empowers the customer. For example, a customer may allow their bank to automate their choices of utility providers, but still maintain closer control with the bank orchestrating their payment.

Mass market financial establishments will consider these four specific areas across any product or offer they bring to market. They will want to be active, and adapt to each customers' unique set of preference as they change across offer, occasion and time.

Products and services alone are too passive, and are no longer enough to retain customers in a world of choice.

Technologies expanded

AI and ML

Artificial Intelligence (AI) and Machine Learning (ML), while having different definitions, collectively work towards the common goal of helping humans automate and optimise tasks typically performed manually. AI is more broadly defined as a computer performing tasks which associated with requiring human intelligence, while ML is the process of allowing computing systems to teach themselves to improve through repetition. These two technologies work together in harmony, and using self-driving cars as an example, AI is the term that defines computers driving a car, while ML allows the computer to optimise its own driving through repetition.

The most imminent applications of AI and ML into financial services will be:

Customer service - through voice-enabled computer customer representatives who can have conversations seamlessly or chat bots to manage a significant portion of tasks currently managed by humans.

Analytics – due to the exponentially increasing volume of data due to IoT and big data, AI will be used to sift through the mountains of data to identify the insights.

Security – with facial and voice recognition technologies set to replace traditional means of identification, developments in technology to fake these is also on the rise, and AI will be required to authenticate and verify facial and voice imagery or sound.

DLT / Blockchain

Distributed Ledger Technology (DLT) is a database of asset transactions which are shared and stored in multiple locations at the same time. There is no centralised administrator or location of storage. When a ledger is updated, each machine in the network votes by consensus to determine which copy is correct, and then all other machines update themselves with the new copy of the ledger.

Blockchain is a type of DLT, where data is structured into blocks, and then linked with each other and encrypted for security. One primary difference is blockchain only allows for adding data, and not editing or removing data – thereby ensuring all parties with access are able to see every historic transaction. Open Banking, fraud prevention and smart contracts will all greatly benefit from blockchain and its key strength of allowing for a distributed ledger which can never be edited.

Biometrics

Key to all developments is the need for secure, trusted technologies and platforms in which customers and service providers can have absolute trust and confidence that privacy will be protected, and transactions secured. Biometric and behavioural technologies, combined with real-time AI security profiling will be used to provide constant, real-time user identity validation, and advanced behavioural profiling. The human element will be removed entirely. PINs and passwords will be gone.

Technological developments in AI based profiling, Quantum computing, biometric security and blockchain will work transparently and in union to provide a secure frictionless, experience to customers.

5G

The introduction of 4G mobile data connections saw mobile internet speeds increase up to 10 times that of 3G, averaging between 20 mbps to 50 mbps. With the imminent rollout of the fifth generation (5G) of mobile data connections, we're expecting to see another significant increase in mobile data transfer speeds. Early tests from Australian telecommunication providers have achieved speeds of over 1.2 gbps (1200 mbps) in isolated cases.

This super-fast, next generation of mobile internet will serve as the enabler of most other technologies of the future, especially Internet of Things (IoT) and cloud computing.

Cloud computing

Cloud computing removes the burden of carrying hardware in order to perform tasks such as storing, managing or processing data, as servers can be instructed to perform the same tasks over the internet instead. This allows for users to perform highly complex and demanding tasks from almost any internet-enabled device.

Banks of the Future will be able to help customers process vast amounts of data using their hardware from data centres, typically reserved for enterprise businesses in our current day. Using the data from a customer's full suite of IoT enabled devices throughout their life, they will be able to help customers identify deep insights into how they're living their lives, and the affect this is having on their financial wellbeing. These insights will allow banks to optimise the lives of their customers, calling out positive spending behaviours, and recommending resolutions of negative spending behaviours – all from the customer's smart phone or wearable device.

Internet of Things (IoT)

The Internet of Things is broadly defined as everyday objects being able to send and receive data via the internet. The relatively broad definition is also aligned towards its broad scope – as there are almost endless benefits for connecting an everyday objects to the internet, such as:

Rubbish bins – Can report reaching capacity to the city garbage collection services to help them improve efficiency.

Sporting products such as footballs and player jerseys – Can begin reporting in-depth live statistics which can help players and teams identify areas of improvement or commentators to analyse strategies during broadcast.

Fridges – Can begin reporting when milk and other products are low, and can help set reminders to pick up a replacement, or even order a replacement for delivery automatically. Products such as smart watches and smart speakers already fall under this category.

With the amount of data IoT is expected to create, there is a high reliance on 5G internet rolling out in order to realise its full potential.

The Internet of Things will allow financial services to track and monitor usage of products aligned to insurance or loans, such as:

High usage of machinery taken out on a loan will increase repayment burdens, while low usage will reduce repayment burdens – as lower usage is more likely to preserve the value of the machinery.

Insurance premiums will be charged based on your performance – rather than based on blanket categorisations such as gender or age. Devices will be installed in your car to monitor how you drive, and a risk profile will be developed using the data generated to charge you accordingly.

AR / VR

Augmented Reality (AR) and Virtual Reality (VR) allow audiences to enhance or change the world around them, and is the next evolution in user interfaces after screens.

AR serves as a visual tool for contextualising the real world – layering in rich information to allow us to multitask and make decisions more effectively. Products on a store shelf could receive virtual information overlays as consumers glance at them, with financial services institutions flagging a similar product is available at a lower cost to help their customers stay on track with their savings goals.

AR could also play a role in helping consumers find the closest branch, with virtual arrows appearing in the real world to guide the customer along their journey.

Virtual environments created by VR allow customers who may have difficulties visiting a branch, such as those experiencing disabilities or living in remote locations, to still receive the in-store experience. A virtual face-to-face meeting will allow financial services institutions to create completely new customer experiences, transforming traditionally mundane experiences into exciting and memorable encounters.

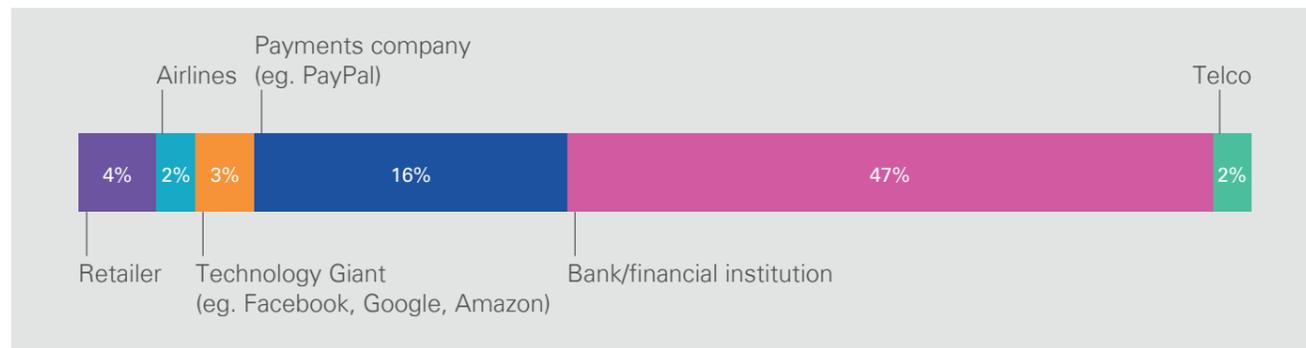
Quantum Computing

The ability to process and analyse vast amounts of data quickly and efficiently is being enabled through developments in quantum computing. Quantum computing enables multiple computations to occur simultaneously as opposed to current computing methods which enable a single computation at a time. Datasets and calculations which are currently challenging to use due to the energy required to process and timeliness of output will become relevant in proactively managing risk, increasing data security, and accelerating transaction speed.

Quantum computing will act as an enabler for these emerging technologies like Artificial Intelligence and Machine Learning, blockchain and IoT which can all be data and computation heavy and require robust security to be trusted and embedded.

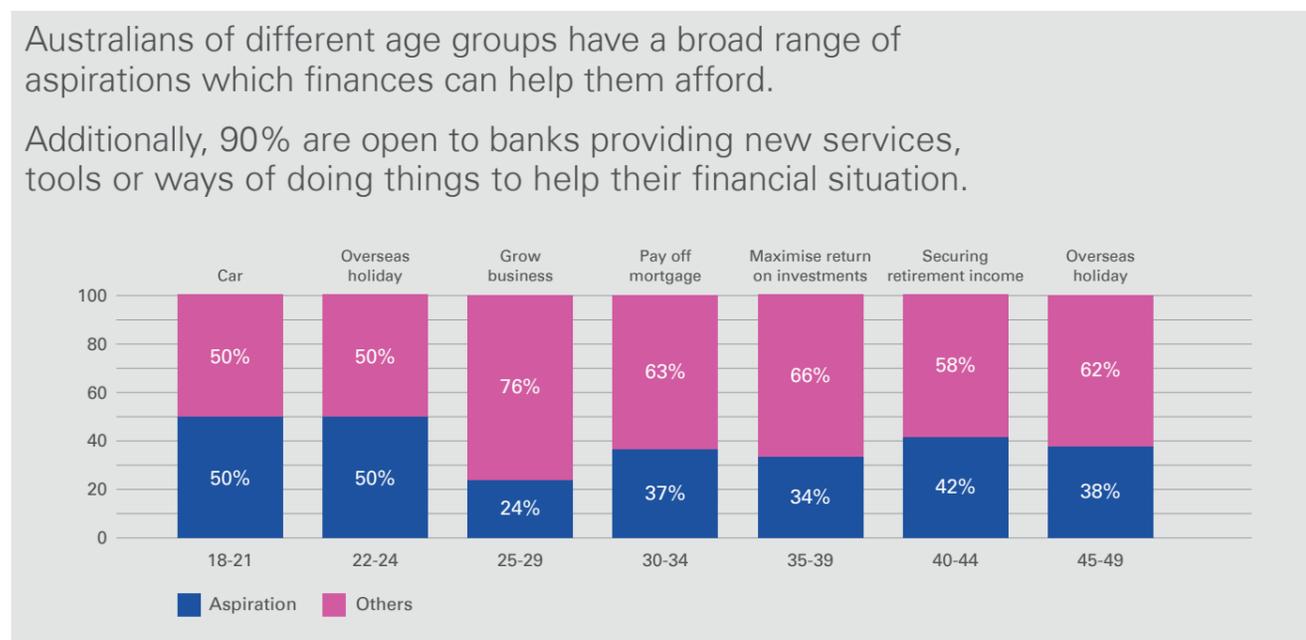
Australian consumer survey results

Trust in banks



Consumers in the survey believed banks (47%) will be the most trusted sector to keep their data and privacy safe, followed by Government (26%), Payment Providers (16%), Retailers (4%), Technology giants (3%), Airlines (2%) and Telecommunications (2%).

Consumer interest in going beyond banking



Q1) Australians of different life stages have a range different aspirations
 - 18-21: 50% Most common aspiration is saving for a car
 - 22-24: 50% Most common aspiration is saving for an overseas holiday
 - 25-29: 24% Most common aspiration is growing their business
 - 30-34: 37% Most common aspiration is focus on paying off their mortgage
 - 35-39: 34% Most common aspiration is maximising return on investments
 - 40-44: 42% Most common aspiration is securing their retirement income
 - 45-49: 38% Most common aspiration is saving for an overseas holiday

Q2) 90% of survey voters were open to banks providing different services, tools or new ways of doing things.

Methodology: Nationally representative research conducted by KPMG surveying 1,061 Australians aged 18 to 65 years old. The online survey aimed to better understand current and future lifestyle, digital and financial needs and what consumers expect life to be like ten years from now (in 2030).

Lifestyle integration

- Consumers are open to their bank and financial institution providing them with a range of support and assisted services, such as, tailored product, rate or fee information (31%) and paying bills (23%).
- Most Australians (90%) would like the ability to customise their banking app – choice over what information they see when you log in.
- Most Australians (91%) want an alert in their banking app that tells them of rebates they are eligible to claim.

Automated and Intuitive

- More than one in two Australians (55%) would prefer to arrange their finances in the future, in a way that requires minimum time and effort to set up and manage.
- Only a few (9%) are open to complex products (e.g. business finance) applications being automated.
- Australians of today are still coming to terms with the future of invisible payments, with nearly one in two (47%) Australians in support of payments becoming invisible through automated processes, while the other half (53%) are against it. Age plays a significant factor - consumers aged under 50 are overwhelmingly (71%) in support of greater payment automation.

Context and Sensitivity

- A quarter (25%) of Australians claim not to have any savings, of which the vast majority (67%) are aged under 50 years old.
- Many Australians (63%) think that their savings would not last more than a year should they lose their job.
- In 2030, majority of Australians (73%) expect to have insurance (e.g. health, car, life), but only two thirds (66%) currently hold insurance.
- Superannuation is perceived to be the main asset most Australians (63%) hold, with less than half of Australians (47%) owning a home (with or without a mortgage).

Proactive and Forward-thinking

- The majority of Australians (90%) are looking for their bank to provide tools and calculators that enable them to model financial scenarios to see the long term outcome.
- Nine in ten (90%) of Australians want their bank to provide advice about their spending and saving, to help them achieve their lifestyle and financial goals.
- In 2030, majority of Australians (59%) are imagining their life will be focussing on maximising their super and planning their retirement, and less than half (40%) believe they will be living comfortably and able to meet their expenses.

- The vast majority (76%) who are earning less than \$50,000 in income today, do not believe they will be living comfortably in 2030. One in two (50%) affluent Australians who earn more than \$100,000 a year, believe they are unlikely to be living comfortably in 2030.

Pioneers of Trust and Security

- Consumers in the survey believed banks (47%) will be the most trusted sector to keep their data and privacy safe, followed by Government (26%), Payment Providers (16%), Retailers (4%), Technology giants (3%), Airlines (2%) and Telecommunications (2%).
- Two in five Australians (42%) are concerned about potential security risks when dealing with companies online, like their bank.

Banking services to satisfy the 2030 customer – Automate

- Two in three (65%) consumers are looking for banks to automate the process of finding product, rate or fee information, recommendations and advice.

Banking services to satisfy the 2030 customer – Aggregate

- More than two in five (44%) Australians feel very overwhelmed by their current situation and would like to be more in control in the future.
- Before making a choice, consumers are significantly more likely to want further information on financial products and services (40%) out of any other category, followed by energy (9%) and technology (6%).

Banking services to satisfy the 2030 customer – Validate

- Three in four Australians (75%) feel they have a good knowledge and understanding of financial products and services and how they work, but majority (66%) still want guidance and advice from their bank before making a decision.
- More than two in five (46%) of consumers educate themselves on product and services via vthe media (TV, magazines).

Banking services to satisfy the 2030 customer – Orchestrate

- In the future most consumers (70%) are looking to consolidate - preferring to have all their financial relationships with just a few providers.

Other stats

- Nearly nine in ten (87%) Australians want faster, more user-friendly access to a financial adviser (e.g. click to chat).
- Most Australians (71%) feel optimistic and upbeat about the future.

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