

Capgemini 

TECHNOVISION
2022

BEING LIKE WATER

FINANCIAL SERVICES

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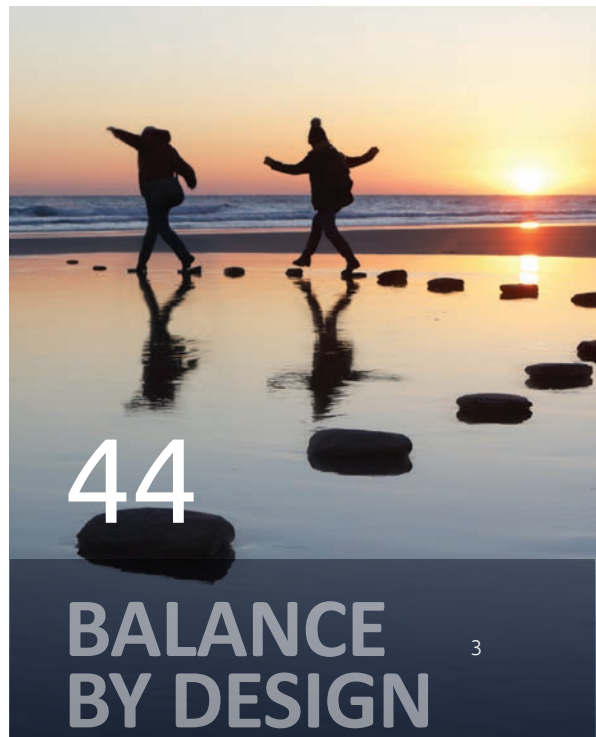
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Foreword



Anirban Bose

CEO, Financial Services SBU, Capgemini

In the four years since the inception of Financial Services edition of TechnoVision, the technology-business environment has witnessed unprecedented change. Market dynamics suggest an acceleration in this rate of change, moving from one normal to another within months and quarters, instead of settling at any specific new normal. Society, governments, and businesses alike need to adapt to this pace of change to be successful.

Through TechnoVision 2022: Financial Services, we share perspectives and knowledge about how change will impact your enterprise and to help you to develop effective strategies. Extending from systems to people, TechnoVision provides a framework that helps both technology practitioners and business stakeholders clearly understand and articulate the interdependencies of the elements that constitute the enterprise value chain.

Being fluid, like water, is the best way to effectively respond to the multitude of changes happening around us; and to this effect, the report not only highlights what we understand about technology, but also highlights how to use technology – by “Being Like Water.”

The report is a culmination of the expertise of architects and technology and domain specialists across the financial services industry, combined with our experience in working with technology and organizations in this space. The insights we derived as part of previous editions have sparked rich discussions. I hope that this latest version of TechnoVision 2022: Financial Services also drives those much-needed industry conversations and serves as a trusted technology guide to carve out your enterprise transformation strategy for tomorrow. I look forward to hearing your feedback.



Introduction

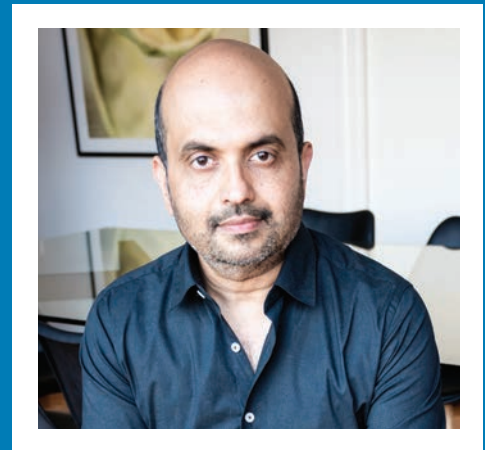


in Pascal Brier
Group Chief Innovation Officer , Capgemini

I am delighted to introduce this fourth edition of TechnoVision for the financial services sector. This is an industry perspective on the technology and business trends that matter, and I encourage you to use this as your guide to technology-enabled innovation and transformation.

Our passion is in unleashing innovation – creating tomorrow together with the imagination and implementation that is needed to **Get The Future You Want**. For this reason, TechnoVision is a key asset of our Technology, Innovation, and Ventures function, and I am especially proud that it continues to be a relevant source of thought leadership in its fourteenth year of production.

An industry-specific view of TechnoVision, as done here, is especially important. We combine our understanding of complex technology with knowledge from our industries and convey it to you in a relevant, contextual, and accessible format. We are, as always, ready to connect and help you in your transformation journey.



in Sudhir Pai
CTIO, Financial Services SBU , Capgemini

TechnoVision 2022: Financial Services is a trusted and insightful technology guide for financial services institutions to successfully navigate the business and technology landscape.

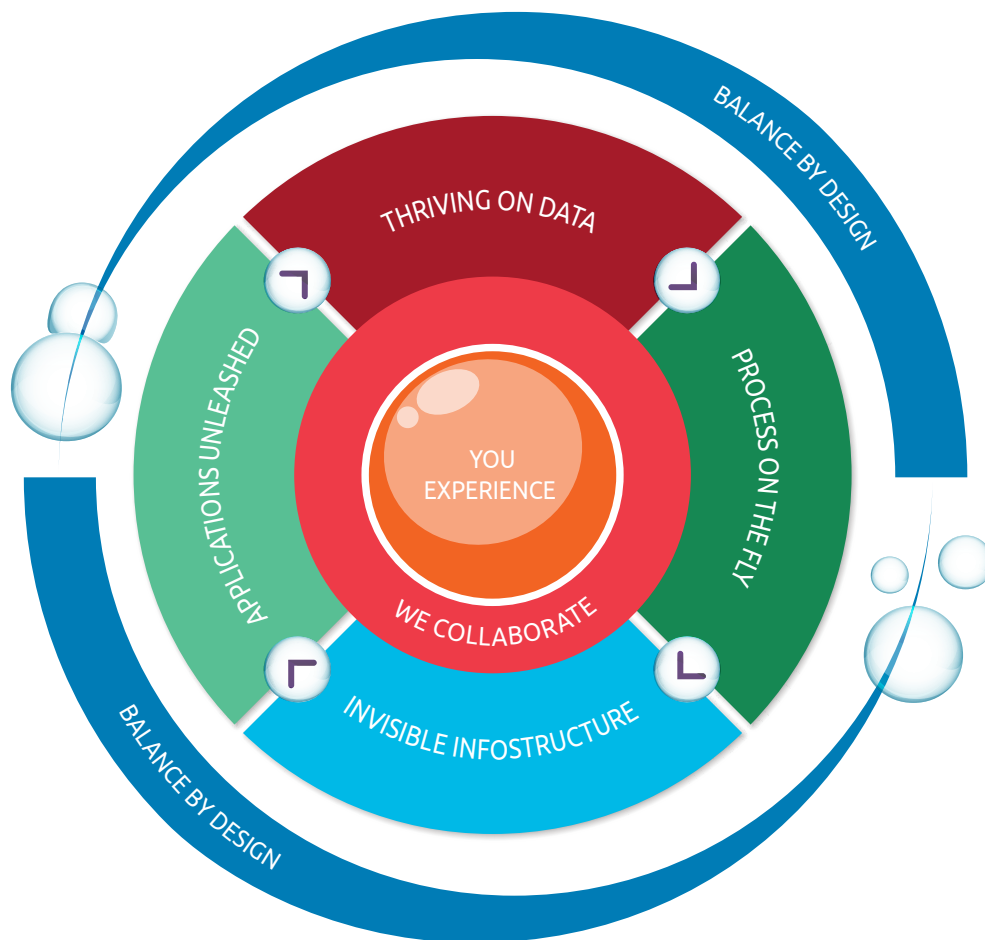
The financial services space continues to face transformative trends, such as the evolution of ecosystem businesses, heightened customer expectations around digital interaction, low-touch, real-time transactions, and digital assets and currencies.

TechnoVision 2022: Financial Services conforms to the overarching framework set by “TechnoVision 2022: Trends for Business Decision Makers” published by Capgemini earlier this year.

The report presents technology trends and their implications to help you carve out your enterprise strategy for the future, by presenting 37 technology-business trends, and over 70 industry case-studies aligned to them. In this year’s report we have introduced ecosystem summaries and Capgemini’s signature portfolio offerings to enable you to accelerate your enterprise transformation journey.

We hope that this report helps you be fluid, like water, and forge a pathway to **Get The Future You Want**.

Overview of Technovision 2022: Financial Services



This Technovision report covers technology trends and their implications for financial services firms in six containers exploring the whole gamut of innovation from different perspectives, or the “what” – ranging from user experience and collaboration, via data and process automation, all the way to infrastructure and applications. A seventh container covers the “how” – design principles to leverage these technologies to create a transformational impact.

Looking at the framework of the report, you will see we place human-centric aspects of experience and collaboration at the center, enabled by four primary technology drivers. All

of these are surrounded by an overarching design principal container to complete the transition from aspirations to actions.

This year’s version of the Financial Services Technovision report brings you technology trends for each container, instances of how these have manifested in the industry, followed by ecosystem implications and activity. Finally, as this year’s theme is “Being Like Water,” each container has a section on how Capgemini can help you plan and execute your enterprise transformation to become fully adaptable to the uncertainty facing your organization.

TechnoVision 2022 technology business trends:

YOU EXPERIENCE

Creating a personalized, seamless user experience for customers and employees

- Experience²
- Me, Myself and My Metaverse
- No Friction
- I Feel for You
- My Own Private Avatar

WE COLLABORATE

Leveraging cross-sector, cross-organization collaboration to exceed customer experience expectations

- Fluid Workforce
- The Team is the Canvas
- Taken by Tokens
- Your Business is a Mesh
- It's All Connected

THRIVING ON DATA

Activating data to drive superior customer experiences, highly tuned operations, and smart, self-optimizing products and services

- Data Sharing is Caring
- Power to the People
- Data Apart, Together
- Era of Algorithms
- Creative Machines

PROCESS ON THE FLY

Building, managing, and running processes that match the dynamics of the digital outside world.

- Process is Mine Mine Mine
- Rock, Robot Rock
- Silo Busters
- Can't Touch This
- Augmented Me

APPLICATIONS UNLEASHED

Creating a connected mesh of microservices built with speed and quality, which is adaptable to evolving business needs

- Kondo My Portfolio
- Honey, I Shrunk the Applications
- When Code Goes Low...
- Mesh Up Your Apps
- Apps ❤️ AI

INVISIBLE INFOSTRUCTURE

An omnipresent IT infrastructure, fluently adjusting to the evolving technology and business landscape

- Lord of the Clouds
- Crouching Tiger, Hidden Container
- Simply the Edge
- Ops, AI Did It Again
- Silence of the Servers

BALANCE BY DESIGN

Overarching design principles to be followed and checked for a technology business to become flowing, adaptive, and responsive

- Technology ↔ Business
- Adapt First
- With Open Arms
- Do Well, Do Good
- Trust Thrust
- IQ EQ CQ Up
- No Hands on Deck



YOU EXPERIENCE



Read TechnoVision, the main report, for a complete overview of this technology container.

FINANCIAL SERVICES IMPLICATIONS

Financial services has evolved from a transactions business to a truly experience business and the pandemic has given a fresh impetus to accelerate this evolution. Investment is shifting toward enhanced customer experience (CX), not only in front-end customer channels but also in all ecosystems that support a frictionless and personal-emotive relationship as financial services increasingly become embedded in all walks of life of a customer, enmeshed with multiple products and services. This experience is not limited to customers but also includes interactions with employees and partners.


Financial services organizations are subject to strict compliance regulations and security concerns that make the application rejuvenation journey long and complex. Automation of internal processes and customer interactions is the increasingly preferred way to answer client expectations quickly and cost efficiently. Managing the data generated by the ever-increasing interactions is more important than ever – especially for retail banks and insurers looking to transform the way they communicate with their customers. Rewards and loyalty programs have started gaining importance as banks look to improve customer engagement and retention, in an attempt to compete with fintechs, Big Techs, and centralized digital exchanges. Each data element has potential that needs to be realized. A platform on which each data element is free to be used in its own way and meaningful insights can be visualized is the need of the hour. Artificial intelligence (AI) and machine learning (ML) is enabling conversational chatbots and voice assistants, making them capable, emphatic partners. AI-enabled, emotional insights interactions within organizations include chatbots, digital assistants, facial recognition, and biometric scanners. Unleash the power of machine learning on all the data points gathered through this emerging “internet of behavior,” and the ingredients are at hand to create a truly frictionless, low-touch experience – one that seems to sense the intent, and the emotions, of the consumer or the employee even before they express themselves.

Customers expect fast, hyper-relevant service and real-time response to their needs. Delays in service and response may erode long-term confidence. Financial institutions (FIs) need to acquire and integrate real-time data capture and analysis capabilities with their CX offerings. Personalized credit offers can be integrated with e-commerce companies taking into consideration credit risk assessment and customer behavior. Cash to digital payments, frictionless CX with increased use of biometrics, and lifestyle priority changes (such as a focus on savings and safer investments, or on riskier cryptocurrencies with new players such as Coinbase, Kraken) are a few examples.


KEY TRENDS

- Financial institutions can no longer rely solely on automated responses and are moving toward offering a mix of human and AI interaction, such as through training their chatbots to assess sentiments and enabling real-time interaction coupled with automated customer journeys.
- Technologies like predictive analytics, AI, and machine learning enable financial institutions to deliver targeted offers tailored to individual customers. The availability of real-time usage data (e.g., search history) pertaining to each customer helps build a unified customer profile, ensuring that insights are driven out of every interaction, thus opening up new opportunities for FIs to maximize their appeal.
- Automation is helping realize new use cases for FIs in the form of expedited customer onboarding, self-service options, AI-enabled virtual assistants, etc. that not only smoothen the customer experience directly, but also help cut down the back-end processing time to free up resources and ultimately deliver a better experience to customers.
- As the diminishing demand for visiting physical branches renders conventional layouts obsolete, FIs are redesigning their branches to adapt to the new roles they play for their customers and cater to new expectations. A future-oriented branch may now include humanized consultation services, automated self-service facilities, community spaces, and more to deliver the desired experience for each customer.



 **Pedro Ludovico**
Expert in Residence



 **Surabhi Gawde**
Expert in Residence

EXPERIENCE²



Creating a user experience as an integrated whole, seamlessly covering the perspectives of customers, employees, and partners, enabled by all available variants of UX technology

Banking

ANZ Bank

ANZ, one of the largest financial services firms in Australia and New Zealand. The firm is leading its agenda of being the closest advisor and coach for all of the financial services needs of its customers through a comprehensive experience management program. The program involves listening to customers and employees through Qualtrics and using the insights derived to move from digital remediation to personalization. The information captured through the experience management program is used to drive product designs and ideas that enable the firm to offer futuristic customer and employee experiences ahead of the innovation curve.

Insurance

AIG Insurance

If a prospective customer in Thailand has a question about one of AIG's insurance policies, the agent can quickly and easily respond by using a digital portal, MyAIG, that allows her to generate a personalized quote or to offer a new insurance policy – whether it's for a small business owner looking for property coverage or an individual looking for auto insurance. This portal is empowering agents as they no longer have to wait to reply to customers, resulting in a better customer experience. It has a broader significance, too, as an innovation that proactively addresses the future experience needs of insurance agents and customers.

ME, MYSELF AND MY METAVERSE



A new virtual world augments real life, having a potentially profound impact on the way we live, work, and collaborate

Banking

JP Morgan Chase

Virtual goods are worth about \$54 billion each year. Virtual land prices have risen in Decentraland, The Sandbox, Somnium Space, and Cryptovoxels. Between June and December of last year, the average price of a parcel was \$600 to \$12000.

JP Morgan Chase realizes that the metaverse forms an integral part of the future of customer experience. In order to tap into the tremendous prospects the metaverse has to offer, JP Morgan Chase has announced the launch of a virtual lounge on Decentraland, a virtual reality platform based on Ethereum. The virtual location, dubbed "Onyx Lounge," is set in the Metajuku shopping district. Visitors to the lounge will be greeted by a digital photo of JP Morgan Chase CEO Jamie Dimon, as well as a virtual tiger.

Insurance

State Farm

State Farm has joined a slew of companies testing ways to incorporate buzzy non-fungible tokens (NFTs) into their marketing campaigns. The firm is commemorating its anniversary with a range of gifts that span the metaverse and the real world, including NFTs and autographed items. State Farm launched an augmented reality (AR) treasure hunt for smartphone users to find more than 500,000 virtual footballs. Participants in the AR treasure hunt can use their smartphones to find and collect virtual footballs, which they can then redeem for rewards such as NFTs, autographed items, clothes, and gift cards, on a microsite. The firm is acknowledging and moving to the future of customer engagement with such measures.

NO FRICTION



The Experience Economy becomes real, enabling businesses to provide truly frictionless and never seen before “phygital” experiences

Banking

Barclays

Customers in the United Kingdom will be able to use a new, flexible payment method, Instalments by Barclays, to enable them to finance purchases of £100 or more on Amazon.co.uk. The reloadable credit account can be used on millions of items, including those sold on Amazon by thousands of small- and medium-sized enterprises.

Customers will have more flexibility in paying for their purchases with Instalments by Barclays, which offers financing alternatives with durations ranging from three to 48 months. The account may be handled directly through the Barclays App, even if the consumer does not bank with Barclays. This move highlights the importance of a seamless customer experience reaching beyond organizational boundaries.

Insurance

Progressive

Progressive encapsulates its customer focus with the phrase “meeting customers where they are.” The firm ensures every mobile or digital customer engagement is easy to use, personal, seamless, and invokes customer confidences through half a dozen bots. Progressive embeds some bots within its own branded experience and others to third-party endpoints through Facebook Messenger and Google Assistant.

Progressive continues to advance its bots with Custom Neural Voice and text-to-speech capability for a more realistic, seamless “phygital” customer experience. With this strong foundation for meaningful interaction, the firm seeks to increase productivity, reinforce its brand promises, and further enhance user experiences.

I FEEL FOR YOU



Boosting both the individual and corporate EQ by creating a more effective, meaningful, and satisfying symbiosis between people and their technology enablers

Banking

Wells Fargo

Wells Fargo is developing a new virtual assistant for its customer mobile app. The assistant is being designed to equip the app with the capability to answer banking questions and perform tasks through requests rather than having the user navigate the app. The virtual assistant will also offer budgeting advice to customers. Through this virtual assistant, the bank plans to revolutionize how customers interact with service apps, leaping from digital to experiences that are more human.

Insurance

Aflac

Aflac established its “One Digital Aflac” strategy to alter and reimagine the way it engages with customers, agents, and policyholders, with a specific focus on customer centricity. Aflac used AI-powered email bot technology to enhance overall email efficiency, contain more inquires, and resolve customer issues more quickly as part of this objective.

The firm can now classify and assign emails to cases automatically and deploy an email bot to answer less sophisticated enquiries that don’t require an agent’s involvement. Aflac has substantially increased response time through automation, thanks to the email bot’s built-in natural language processing, which recognizes the consumer context and sentiment in each email.

MY OWN PRIVATE AVATAR



Hyper-realistic representations of humans bring unprecedented and unexplored ways to communicate within the context of virtual channels and the metaverse

Banking

Kookmin Bank

Kookmin Bank has built a test environment area within the metaverse platform Gather to construct a “metaverse branch” where only avatars who have gathered in the same virtual room can communicate via video calls. Bankers and customers can “meet” at the virtual window and share the same screens face-to-face while linked by video. Kookmin Bank has also used KB Financial Town to organize meetings and conduct non-face-to-face business with workers who work from home. The firm is adapting to the evolving needs of customers and employees in an increasingly virtually augmented world.

Insurance

AXA

Emma by Axa is an AI-enabled conversational assistant avatar which is designed to help policyholders with a range of healthcare and policy information instantly. Users can converse with this assistant avatar to relay their query and get recommendations for the most suitable policy options for themselves. Through this AI-enabled technology the firm is foraying into the future of customer interaction, i.e., a seamless integration of physical and digital experiences, and is gaining the loyalty of future-oriented customers.



THE ECOSYSTEM CHRONICLES

With disruptions brought by fintechs and insurtechs, a highly personalized, seamless user experience is paramount to businesses success today and is expected by users. Business must realize that the front end of digital customer channels is just one piece of the puzzle and to deliver a superb user experience – a YouExperience – all aspects of the customer journey value chain must be considered.

Customer journey orchestration and analytics are being fused across multi-channel user data to enhance user behavior across channels in real time. [Insider](#) enables financial institutions to deepen trust and customer relationships with personalized, AI-backed user journeys, driving upsell and customer retention. With a focus on insurance, [Zelros](#) enables insurers to drive sales through hyper-personalized recommendations across channels. [FullStory](#), through its next-gen Digital Experience Intelligence platform, enables enterprises to critically understand user experience issues based on data and take rectifying measures quickly.

Financial institutions are moving towards real-time interaction management to deliver contextually relevant experiences, value, and utility at the right moment in the user lifecycle. [Behaviosec](#) is a behavioral biometrics startup enabling continuous authentication for end users based on their interactions across channels. [Ping Identity](#), a next gen identity access management platform and [Onfido](#), a digital identity and facial biometrics verification platform, are rapidly transforming digital identity and Know Your Customer KYC. [Personetics](#) enables financial institutions to deliver real-time user engagement through personalized insights, recommendations, and product-based advice by utilizing AI and transaction data.

Open and as-a-service business models are transforming how financial institutions are interacting with their customers across platforms. There has been a rise in startups, like [Affirm](#), [Klarna](#), [SplitIt](#), [Scalapay](#), and [Sezzle](#), offering a Buy-Now-Pay-later service, letting users pay for their purchases in zero-fee monthly installments. [Minna Technologies](#) lets the banks offer subscription management services to manage user subscriptions and recurring payments through application programming interface (API) integration. [Tink](#) aggregates customer data across banks in Europe to one

single platform, allowing banks to attract new customers, make faster and more accurate credit decisions, and build seamless payment flows. [Boost](#) offers a platform which leading technology companies and high-growth startups can use to offer fully embedded digital insurance products to their customers. [Zero Hash](#) is a digital-assets-as-a-service startup enabling any financial institution or FinTech to integrate digital assets natively in their customer journey and offer digital asset trading and custody services.

FROM ASPIRATION TO EXECUTION WITH CAPGEMINI

Capgemini helps you envision and move to the next level in user experience delighting your customers and employees.

Digital Customer Acquisition

Digital Customer Acquisition helps Insurers provide rich engagement to customers by empowering integrated physical and digital channels and optimizing digital selling by identifying new instruments to build personalized, segment-specific paths and enhance all customer touchpoints.

Contact Center Transformation

Contact Center Transformation for insurers empowers human support throughout the insurance value chain while providing a digital-first service with a combination of data-driven insights and personalized intelligent engagement. A digital customer operations center enables an ecosystem of connected digital solutions working in synergy to enhance the overall efficiency and deliver superior customer and agent experiences.

Human-to-Human (H2H) Banking

The H2H Banking approach offers a new vision of the relational and distribution model, both human-to-human and home-to-home, for customers and bank employees. H2H Banking offers both self-service features and services provided by the advisor leveraging the Salesforce Financial Service Cloud. This new balance, fostering human interactions during online banking processes, nurtures and strengthens the customer relationship.



WE

COLLABORATE

Read TechnoVision, the main report, for a complete overview of this technology container.

FINANCIAL SERVICES IMPLICATIONS

The financial services industry space is increasingly becoming ecosystem-orchestrated, and the need for collaboration is being felt now more than ever before. With financial services organizations increasingly adopting digital mediums, agents and brokers need to collaborate in a digitally fluid environment to exchange data, establish the best coverage, and process quotes. Many firms have started joining forces on building collaborative ecosystems to develop new value propositions driven by the enablement of data-sharing capabilities. This has led to the emergence of meshed, cross-industry business models. Banks are increasingly offering “Banking-as-a-Service” to meet the rising demand of “embedded finance.” A similar trend is being seen in the insurance sector, where collaborating securely with other sectors to capitalize on open business models and to access the next under-insured or uninsured customer segment is emerging as a key win theme. Non-financial organizations (retailers, telcos) are also launching embedded financial services to serve business and consumer segments.

When it comes to ways of working, hybrid work models have been established as a key element of the future of work as organizations have seen unprecedented changes in value creation and delivery, critically without compromising on productivity. Permanent employee teams are increasingly augmented by the gig economy, as enterprises look for more adaptive, more resilient sourcing models.

Virtual workplaces have necessitated the advent of new productivity tools and techniques, with employees’ lifecycles at the center of the process. An always connected – yet asynchronous – collaborative style of working is breaking down barriers of geography and time zones, redefining what we call “just another day at the office,” now and in the future.

We have witnessed the emergence of a “token economy,” fundamentally changing the way we transact and trade. Tokenization is the representation of an asset which can be digitally traded and is, spreading across areas as diverse as art, retail, real estate, or the metaverse.

At the very foundation of it all are ever-evolving technologies such as the Internet of Things (IoT) and AI, enabled by ubiquitous (5G) connectivity. The sheer volume and speed of connections and data demand more intelligence

and actionability at the very edges of business and IT. That way, technology becomes business, and business becomes technology.

KEY TRENDS

- The rise of agile, collaborative, ecosystem-based models is driving innovative marketplaces and products, such as Buy Now Pay Later. Seamless payment experience are boosting the adoption of embedded finance outside of financial organizations, crossing the barriers of sectors, industries, and regions.
- Over 80% of central banks are exploring central bank digital currencies (CBDCs). Token-based CBDCs will decentralize the currency system, allowing users to operate through wallets and transact in a peer-to-peer fashion.
- Financial assets are being increasingly tokenized and digitally traded through security token offerings in cryptocurrency exchanges or security token exchanges.
- A major chunk of the workforce in financial services firms is choosing to work remotely owing to a shift in ways of working. There is a need to establish hybrid models that can best support this shift.
- With the advent of IoT devices, there has been a steep rise in the launch of integrated financial and insurance products, such as connected car finance, which are backed by ubiquitous 5G connectivity.



FLUID WORKFORCE



An agile, adaptive workforce model that boosts organizational resilience and productivity, saves costs, and addresses the shortages of skilled resources

Banking

DBS Bank

At DBS bank, the future of work is viewed to be hybrid and the firm has developed the concept of synchronicity to help adapt to this new model of working. The concept envisages the creation of operating models for scheduling, engagement, and purposeful interactions as the three pillars for a successful hybrid work environment. To make this model work, the bank is focusing on both tools and policies. It also envisions a future office augmented with technology and services that seamlessly integrate employee experience, irrespective of work location, to unlock greater productivity and employee satisfaction.

Insurance

State Farm

State Farm has introduced a hybrid approach for work to tap into the efficiencies that such a work culture offers for both employee well-being and productivity and for greater customer satisfaction. The hybrid working approach has evolved through developments in connecting technologies, workspace design, and collaboration during the pandemic period. The firm emphasizes the role that human relationships play for the success of the insurance business, and this new work approach enables them to further enhance these relationships.

THE TEAM IS THE CANVAS



Collaborating in teams-oriented workspaces becomes the new natural place for creating next-level business results

Banking

United Overseas Bank

United Overseas Bank (UOB) has advanced their HR approach by focusing even more on the culture, workspace, and technological experiences of their employees at every stage of their careers, leveraging data insights effectively from employee surveys. Changes include using technology to improve efficiency and cooperation as well as expanding learning and development opportunities for everyone. These efforts have enabled UOB to drive greater employee satisfaction and productivity, helping them effectively navigate the talent crunch affecting financial services firms.

Insurance

Manulife

Manulife aims to support the well-being of its worldwide team and to generate a deeper feeling of connectivity, involvement, and inclusion throughout the pandemic. "Fuel Up Fridays" is a new project established by Manulife to improve the well-being of its global staff. It has set aside the second Friday of every month to "fuel up" with a morning of group learning followed by an afternoon off to recharge in support of physical and mental well-being. This initiative has brought greater collaboration and efficiency to their teams amidst evolving workplace trends.

TAKEN BY TOKENS



Emergence of a “token economy” through the convergence of “real” and digital assets within real and digital business models – converging on themselves

Banking

JP Morgan Chase

JP Morgan Chase is looking to make the JPMC coin programmable to allow rules to be built in for transactions such as conditional payments or tax assessments. Building in programmability will help reduce client dependency on the bank. By allowing the coin to automatically act in a certain way based on predetermined criteria, clients will not need to manually send specific instructions to the bank. The feature is being built on Ethereum, a block-chain that enables programmable smart contracts, unlike the Bitcoin which is used for the straightforward task of transferring digital cash from one entity to another.

Insurance

Aon

Aon is involved in a pilot program with Nayms, a platform that allows regulators and underwriters to use smart contracting tools, to allow for Cryptocurrency holders to provide decentralized insurance cover for losses due to software issues. This pilot aims at offering digital asset platforms with insurance cover of choice for various types of risks related to these digital assets and smart contracts. This pilot opens up a gamut of insurance opportunities for Aon in the digital assets space.

YOUR BUSINESS IS A MESH



Enabled by “water-like” technology, it’s easier than ever for organizations to join forces, even if it’s just for one day, for one occasion, or for one customer

Banking

Lloyds Bank

Lloyds Bank has enabled its credit card holders to transfer funds, make withdrawals, and make payments using Mastercard’s Open Banking Connect. The new service allows users to pay their credit card bills through the bank’s mobile app with the option to use any account they specify to withdraw money and pay bills. This solution allows users the flexibility of paying their credit card bills using any account without worrying about which bank the account is located in. This solution demonstrates ways in which financial services institutions are collaborating to generate better business value. These services transcend organizational boundaries and provide limitless innovation opportunities.

Insurance

American Family Insurance (AmFam)

AmFam’s digital exchange subsidiary, Bold Penguin, has decided to partner with Pathpoint, a digital specialty wholesale broker to improve digital access for property & casualty insurance agents. With this partnership, users of the Bold Penguin Terminal will be able to access Pathpoint’s technology platform for non-admitted products. In the initial phase of the integration, small businesses that work with AmFam will get access to Excess and Surplus (E&S) solutions for General Liability coverage. This represents a huge opportunity for AmFam to increase its market capacity beyond admitted market products. Additionally, by allowing agents to quote small business insurance through an integrated application and return multiple quotes with push-button ease, it has a huge potential to create a frictionless experience for customers.

IT'S ALL CONNECTED



In combination with IoT, AI, and Edge computing, 5G connectivity is the catalyst for technology-driven, networked business innovation

Banking

Vanguard

Vanguard in partnership with State Street Corporation and Symbiont, is exploring the use of blockchain for margin processing of foreign-exchange forwards and swaps. This will allow contracts to be signed, executed, and documented on a single unalterable record. By moving contracts to digital ledger technology, the company can automate valuations so that collaterals can be settled instantaneously. Vanguard also aims at reducing counterparty risk and mitigating potential disputes through standardized calculation processes. By creating an efficient real-time common infrastructure for moving assets between counter parties, the company wants to provide a well-rounded and streamlined experience to its customers.

Insurance

Liberty Mutual

As a part of its Mobility Initiative, Liberty Mutual has partnered with Ford to provide customers with better rates on their motor insurance based on their driving behavior. The Connected Vehicle Program creates a seamless, incentive-based insurance experience for customers, powered by connected car data. FordPass Connect is a modem that collects the driving data of its consumers, and sharing this data with Liberty Mutual allows the insurer to seamlessly evaluate the driving behavior of a customer and to provide personalized quotes to these customers.



THE ECOSYSTEM CHRONICLES

The workforce of the future is remote and distributed. This has necessitated the use of new productivity tools and techniques, driving seamless virtual collaboration across teams and geographies. These ever-converging physical and virtual worlds have enabled the creation of a distributed online economy, devoid of custodians and powered by new technologies. The ecosystem around WeCollaborate is extremely exciting and dynamic and is changing the ways in which we see organizations of the future. [Mural](#) and [Miro](#) are changing how internal and external teams brainstorm and ideate. They are cloud-based whiteboarding solutions that engage teams in ideating, building user journey maps, wireframing, and designing product roadmaps together.

The new suite of enterprise collaboration platforms is transforming how teams work. [Notion](#) is a workspace, project management, and note-taking tool which adapts to every team's needs. [Calendly](#), the automated meeting scheduler, integrates easily with calendars and helps schedule meetings with anyone based on availabilities. [BlueJeans](#) is a leading video conferencing solution that fosters productivity via automatic meeting summary and transcription, interoperability with devices, browsers, and meeting platforms, and enterprise-grade security.

[Slack](#), [Trello](#), and [Hibox](#) are leading technology solutions enabling real-time task management by creating task-specific channels, one-click video meetings, and group-specific chats, making collaboration in teams engaging and intuitive, leading to productivity gains.

[Braincities](#), [Lattice](#), and [AmplifAI](#) are people-success platforms, reimagining employee development in an increasingly virtual world. They offer AI-powered custom-career planning tools to help define goals and Objectives and Key Results, managing employee performance and helping employees grow by articulating high-performer personas and defining career advancement opportunities.

With a more decentralized world driven by the evolution of blockchain technology, the tokenization of currency, securities, and physical assets is the new frontier. This shift in blockchain technology is powered by the likes of Ethereum, Hyperledger, Consensus, R3, and Algorand all of which have made it easier for blockchain to scale faster and in a more cost-effective way. DAML, the language for building smart contracts, is leveraged by digital assets enabling organizations to work across boundaries and create trusted, secure, and highly interconnected networks around the globe. [Metaco](#) and [HexTrust](#) are exciting startups that provide an orchestration platform enabling financial institutions to issue, secure, trade, and manage their digital assets.

FROM ASPIRATION TO EXECUTION WITH CAPGEMINI

At Capgemini, we help you establish cross-organization, cross-sector partnerships to enable value delivery anytime, and anywhere.

Embedded (Open) Insurance

The Capgemini Open Insurance platform is a cloud-based, agile platform enabling insurers to seamlessly connect with an ecosystem of partners to create tailored products and services. It enables external and cross-industry collaboration with multi-dimensional security to ensure tight security and authentication, threat protection, and compliance with industry standards and regulations. Open Insurance Transformation helps insurers to scale up on their digital maturity and become inventive insurers, thus becoming a part of the future insurance marketplace with agility.

Insurance Agency Digitization

Insurance Agency Digitization helps insurers reinvent agents' operating ecosystem to provide **convenience, advice, and reach** (CARE) to customers. This offering enables insurers to attract and retain the best agents and become preferred partners by empowering agents to pivot to a digital advisory model via digital marketing, digital engagement, and digital collaboration tools.

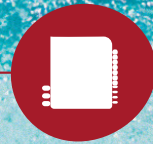
Connected Banking

Capgemini's Connected Banking is a hosted or utility-based ecosystem of banking products and services that enable banks to provide their customers with the best banking experiences regardless of channel. It is a pre-integrated, digital ecosystem of best-in-class banking apps, a highly flexible application processing interface (API), and a fintech-ready ecosystem meant for leveraging collaboration across the value chain.

Digital Asset Custody

Digital Asset Custody offers financial services firms the opportunity to enhance existing custody solutions incrementally to support digital assets or to co-develop a greenfield setup, partnering with niche platform providers to support a digital asset custody solution. This solution helps financial services institutions unlock the power of digital assets in collaboration with various service providers, external wallets, and blockchain networks.

THRIVING ON DATA



Read TechnoVision, the main report, for a complete overview of this technology container.

FINANCIAL SERVICES IMPLICATIONS

Financial services organizations have certainly made the pivot toward treating data as a strategic enterprise asset and a key differentiator. This move and top-down support have resulted in the launch of major initiatives within many organizations -- not only revisiting data management practices across the complete data value chain, but also including the re-platforming of data environments to embrace modern tools and technology, allowing them to scale in a secure, cost-effective, and performant manner.

Several business drivers are forcing upon all financial services organizations the need to be data-driven. The threat of disintermediation by fintechs and DeFi providers is causing financial services organizations to take a closer look at their own data assets and identify avenues for monetization, including positioning themselves as a primary custodian of customer data. Improving customer experience and optimizing their digital journeys can only be accomplished by getting real-time insights into customer interactions, both within the financial services organization itself and with external entities.

The sustainability commitments made by financial services organizations as well as customers demanding more ESG transparency in their investments have tremendous, front-to-back data implications that organizations need to prepare for. The emergence of data ecosystems as a secure and scalable environment that fosters data and intelligence sharing among partners is catching on. A secure and scalable environment that can be used to share transaction data between credit card providers and their retail partners fosters improved collaboration and rapid access to insights for both parties, which in turn leads to optimized marketing spend and improved profitability.

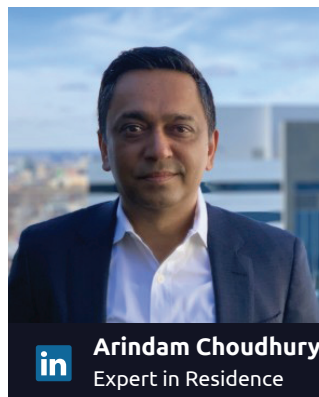
AI application and adoption is now mainstream, with financial services organizations using AI across a plethora of use cases, including personalization, next-best-offer, fraud detection, and complaints prediction, among others. The success of these algorithms depends on clean, trusted data, and organizations that have made the investments in data governance and data quality initiatives will reap the most immediate benefits.

KEY TRENDS

- Data estate modernization has made a definitive shift to the cloud as organizations are seeing tremendous cost benefits in moving away from legacy data appliances. This once-in-a-generation shift is introducing new opportunities to modernize business intelligence (BI) and analytics landscapes, thereby reducing total cost

of ownership and improving productivity, efficiency, and scalability.

- To avoid vendor lock in, clients are looking at hybrid cloud options, including private cloud, for highly sensitive data. Containerization of data movement applications is a resulting key initiative.
- Commoditization and broader application of AI is driving up the demand for AI/ML ops – automation of the insights supply chain, model lifecycle management and governance, and explainable AI.
- Emergence of low code/no code platforms that deliver AI-driven automation is bringing more capabilities that can be delivered by business users. It is also increasing the urgency for sound data governance and data management practices to prevent the proliferation of bad data.
- Data monetization, with effective data sharing to both internal and external consumers of the organization, is picking up speed.
- Near edge analytics concepts will help organizations reap the benefits of the data much faster.
- Augmenting the value chain with data models to attract the best consumer, offer the best product, and provide the best claims service is possible today and will become a bare-minimum customer expectation in a few years.
- Because of the ever-evolving risk landscape, it has become important to share exposure/risk data with all stakeholders to make insurance models more resilient.
- Financial organizations are also looking at exploring quantum computing and metaverse avenues to use their data effectively and find opportunities to improve business.



DATA SHARING IS CARING



Participating, collaborating, or even leading in data ecosystems gets more value out of data – creating new connected products, services, and experiences, boosting enterprise performance, and contributing to a better society

Banking

Credit Agricole

Credit Agricole is making use of the data virtualization capabilities of the Denodo Platform to build a data fabric that enables business consumers to access multiple data systems. The logical data fabric allows the bank to pursue data centric initiatives to democratize data and simplify data sharing and publishing between different business departments. This way, users can publish domain-specific data as reusable data services in varied formats such as Simple Object Access Protocol (SOAP), Representational State Transfer (REST) and Open Data Protocol (OData) web services. With easy access to data, Credit Agricole has implemented operational analytics projects like providing real time data for front-office trading.

Insurance

Guardian Life

Guardian, a Fortune 250 company, offers insurance and wealth management products to customers in America. Guardian has a partnership with Human API for its enterprise health platform. This platform enables Guardian to use health data from digital records to make underwriting more effective, create personalized products for its customers, and foster greater customer satisfaction. The data collection and analysis are facilitated through electronic health records (EHR) – digitized health records of consumers. This data is gathered through engaging customers to share their medical data, which is deemed to be one of the most challenging areas for life and health insurers.

POWER TO THE PEOPLE



A growing scarcity of specialized skills, the need to activate data as close to the business as possible – plus powerful AI and automation tools – are all driving the unstoppable self-service data revolution

Banking

BNP Paribas

International and cross-nation transfer for companies is made complex by a large network of stakeholders and the compliance needed with multiple sets of rules and regulations in order to complete any given transaction. BNP Paribas has created BENetracker, which is based on the SWIFT Metroline gpi and provides real-time visibility to international payment issuers. The bank's corporate customers can offer payment traceability to their beneficiaries in real time through highly secured channels ensuring transparency, trust, and security.

Insurance

The Auto Club Group

Insurance policyholders have always looked for a single source of accurate information and data augmented by efficiency and speed in handling claims. The Auto Club Group has partnered with Geospatial Property Weather Monitoring and Analytics to enhance its response to the demand for better policyholder customer experience by providing real-time weather monitoring and identifying storm impacts. The solution's proprietary weather technology helps insurers with catastrophe planning, assessment, and response by quickly visualizing and querying severe weather and wildfire events against policies in force.

DATA APART, TOGETHER



A federated, actively collaborating “mesh” of data producers and data consumers – owned and governed by the business domains themselves – brings data as close as possible to where it is picked up and used, a hallmark of a true technology business

Banking

ABN AMRO

Banks are prioritizing the ability to incorporate a layer on top of existing IT infrastructure and deploy rapidly and easily. Projects to optimize strategies and introduce new engagement and payment options that are time-consuming and reliant on antiquated technology stacks are no longer possible. Receivee’s cloud-native, all-in-one platform was chosen by ABN AMRO to future-proof experiences for its most vulnerable clients and to enable strategy execution across foreign markets. ABN AMRO can construct and implement a unified picture of the customer on top of their current technology and data stack using Receivee’s data-driven and client-focused digital capabilities in weeks, not months.

Insurance

Progressive

Progressive opened its advertising data for analysis by open-source data analytics tools, while at the same time the business continued using the data. This move allowed for the unlocking of insights transcending multiple customer interactions online, driving a more effective online ad strategy by Progressive. The firm has moved from the classic metrics used to measure online ad effectiveness and spend to longitudinal data analysis and deeper insights, sharpening its online ad effectiveness to reach desired customers.

ERA OF ALGORITHMS



Challenge everything you’ve tried so far: next-generation AI algorithms bring brand-new, awesome ways to solve problems, innovate, and bring out the very best in humans

Banking

Discover Financial Services

Organizations that are well-versed in data and analytics may find it difficult to build dependable, automated data pipelines to support machine learning methods. Discover Financial Services has designed a cloud-native data fabric that automates much of the work required to fully exploit machine learning and actual data insights. The Cloud Data Fabric is a homegrown platform that connects several services in the cloud to provide metadata-driven automation, real-time ingestion/loading, and built-in governance.

Insurance

Generali

HITS and Jeniot, two Generali innovation firms, aided Generali in recruiting young Generali parents in Italy and Switzerland to help test its BabyT translator with their infants in order to collect more baby cry data. The collecting of baby cry datasets was used to train an AI system.

Generali recently released bAlby, an AI-powered device that can translate a newborn’s cry. The BabyT translator from bAlby utilizes artificial intelligence to decipher a baby’s cries. These cries are a universal language that includes five distinct sounds that express hunger, tiredness, discomfort, trapped wind, and stomach pain during the first six months of the baby’s life.

CREATIVE MACHINE



Unleashing the generative capabilities of AI to enable individuals and organizations to express themselves better in different creative ways, even if they lacked the capabilities or manpower for it in the past

Banking

CIMB

Chatbots help in simplifying banking processes for small- and medium-sized enterprises (SME) customers, and their availability 24 hours a day, seven days a week, helps to handle many simultaneous queries from SMEs, with the help of artificial intelligence and natural language processing.

In line with this trend, CIMB has unveiled Eva, the first-in-market chatbot for commercial banking in Malaysia. The chatbot offers the eligibility check feature to suggest the most suitable products, efficiently substituting lengthy communications and correspondences with the bank's representatives. Customers also benefit from one contact point internally when they leave queries and their contact details, enabling a representative from CIMB to reach out to them directly. The platform was developed in collaboration with Pand.ai, a Singapore-based AI fintech, and aims to support SME customers digitally with real-time banking needs.

Insurance

Chubb

It is important to shorten the development cycle and improve application quality while being able to manage bias or any deterioration in the production performance of insurance providers. To achieve these ends, Chubb uses Snorkel AI, a data-centric AI platform company powered by programmatic data labeling. The Snorkel Flow solution adopted by Chubb accommodates noisy labels, labeling disagreements between subject-matter experts, and many classifications, thereby making customer query workflow handling increasingly more efficient.



THE ECOSYSTEM CHRONICLES

A data ecosystem can unleash the true value of data by sharing and leveraging it both internally and externally. The next generation of data exchanges, data catalog, Ops, collaboration platforms, data security providers, and advanced analytics and AI providers enables trusted data collaboration without compromises in privacy, security, and ownership, thus truly activating data for value generation.

[Dawex](#), a leading data exchange platform, leverages sophisticated technology to accelerate and facilitate data circulation among stakeholders, allowing the data to be sourced, distributed, monetized, and exchanged securely and at scale.

[Harbr](#), a next-gen UK-based data collaboration platform, allows direct collaboration with customers to deliver what they need and thus powers high-margin data product businesses by enabling customized data product design and delivery at scale to drive new revenue streams.

[Alation](#), a leading data intelligence platform, enables enterprises to catalog their data from a wide range of sources and improves analysis accuracy through behavioral intelligence, seamless collaboration, and active data governance.

[Cosmian](#) and [LeapYear](#) are two exciting startups that have taken different approaches to solving data privacy challenges. Cosmian utilizes advanced cryptography for encrypting data for confidential sharing and confidential computing, without accessing the IP. LeapYear leverages the concept of differential privacy to deliver the full value of sensitive data without compromising on privacy.

To derive maximum value from enterprise data, a sophisticated AI-powered data platform is essential. [Dataiku](#) is a one-of-its-kind AI-driven, cloud-agnostic centralized data platform that allows the user to integrate data, build and automate sophisticated data pipelines using machine learning and to perform in-depth statistical analysis. [H2O.ai](#) is an advanced AI cloud platform with expertise in AutoML solving for AML, transaction fraud, credit risk lending, trade failures, and customer churn. [Feedzai](#) is a RiskOps platform transforming risk management across the value chain for banks, merchants, acquirers, and payment processors.

FROM ASPIRATION TO EXECUTION WITH CAPGEMINI

At Capgemini, we enable financial services firms to unlock the value of data, making it a strategic asset and a key differentiator.

Perform AI

Perform AI, Capgemini's comprehensive portfolio of AI and analytics services, provides the ability to leverage the full transformative power of data and AI at scale. By activating data and insights at the heart of your business in your everyday decisions and actions, you will augment your organization's intelligence and amplify the business outcomes that you expect from data and AI.

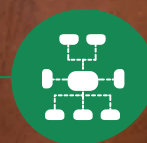
Customer 890

As an activator of data analytics, 890 by Capgemini will inform you so you can engage in speedy decision-making, flex and grow at scale, increase efficiency, automate processes, and make products and services that will truly connect with your customers. Being a plug and play solution, 890 is available on any cloud, is ready to go, and enables users of data-powered organizations to make collaborative business decisions, faster and more intuitively – all from one single trusted interface.

Data Powered Underwriting

We bring together powerful data-driven capabilities across the underwriting value chain - touchless submissions, rule externalization, pricing precision powered by Earnix, telematics, and an 890-powered underwriting workbench. These capabilities power you to move to the future of underwriting with real-time data availability, continuous underwriting, and close integration with sales.

PROCESS ON THE FLY



Read TechnoVision, the main report, for a complete overview of this technology container.

FINANCIAL SERVICES IMPLICATIONS

Most financial institutions have implemented numerous process improvements in the recent past. Covid-19 has clearly accelerated the need to adapt and further digitize corporate and intercorporate processes. In addition, the drive to connect everything virtually (IoT, 5G, wearables) leads to huge amounts of data continuously flowing through systems, faster than ever. Consequently, financial institutions need to embed real-time monitoring and decision-making into their processes. In financial services firms, the process is fully implemented as information technology without operational technology or devices or digital twins, and hence robotic process automation (RPA) and intelligent process automation (IPA) become the key capability sources. Furthermore, it has become key to have the right agility to adapt the process itself to thrive and excel in a VUCA (Volatile, Uncertain, Complex and Ambiguous) world.

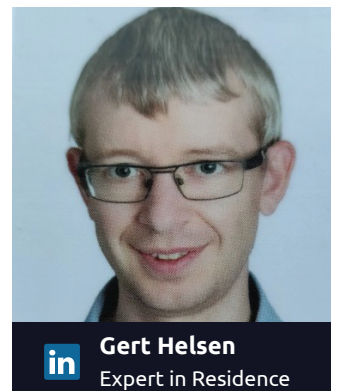
As the backlog for process automation is growing rapidly, the need to support the prioritization of digital process improvement use cases has increased significantly. Besides using RPA to gain some time and freedom to think, plan, and focus, creating digital twins will allow financial institutions to experiment, better understand, and simulate alternative scenarios and options.

AI solutions have found their way into the RPA world, leading to powerful smart automation and orchestration platforms. This expanding technology toolbox fuels the need to integrate all components in a smooth and standardized way. Next to APIs and API management platforms, event processing platforms become a necessity to enable processes to act upon real-time events. There is an increasing demand for touchless or right-touch services by insurance consumers during claims.

A big challenge for financial institutions is to find the right balance between agility and stability. On the one hand business operations teams expect to have the autonomy to automate their own processes, while on the other IT divisions want to stay in control to keep applications robust and safe. This clearly fuels the need for IT controlled citizen-development platforms, where business teams have the freedom to build their own tools within certain IT-controlled guardrails. Besides defining those guardrails, IT teams must put the right technology enablers in place and offer reusable building blocks accessible via APIs.

KEY TRENDS

- Modeling techniques and task-mining technologies are being used to get a better understanding of existing business operations. Simulation tools are then used as accelerators to make better and faster choices among the different options when enhancing or even rethinking business processes.
- RPA technology vendors are expanding their platforms to benefit from AI solutions. Intelligent orchestration and IPA are bringing the back office and process automation to a next level by further reducing the dependency on human interventions.
- Driven by the need to democratize automation, financial institutions are redefining their governance models to enable citizen development while keeping sufficient control mechanisms in place to ensure the stability of the systems.
- Combining data from multiple internal and external sources enables financial institutions to truly innovate their products, service offerings, and processes. APIs and real-time event processing play a key role in integrating many siloed applications without having to change the systems themselves.
- Powered by business rule engines and dynamic case management systems, static processes are gradually being replaced by dynamic alternatives. Also, with a continuous stream of data flowing through the systems, automated and real-time decision making is key to retain and further improve effectiveness and productivity. Powered by AI to recognize and predict client behaviour, processes are adapting themselves on the fly based on the context and personal client expectations.



PROCESS IS MINE MINE MINE



Using digital twins to inject continuous process innovation, making it the envy of the entire flock

Banking

ING Groep NV

ING maintains areas of improvement/attention in a database called iRisk. They have developed a robot, Nadia, that can scan this database worldwide and find entries with expired and imminent due dates. This allows the specific risk owners to provide an update that is further captured into the database. The bot Nadia replaces the need for risk owners to police due dates and inherently improves the risk monitoring process by intuitive monitoring of risk. ING has found success with Nadia and has deployed it across seven countries.

Insurance

Munich Re

Munich Re introduced Allfinanz Spark, its digital, automated life insurance underwriting solution. The solution provides access to new data sources and analytics, including predictive modeling and machine-learning algorithms for life Insurers that help reduce time spent on underwriting routine cases. This solution equips life insurers with the ability to reach new markets and new customers at an accelerated pace.

ROCK, ROBOT ROCK



Robots become a dependable, digital companion, giving us the time and freedom to think, plan, and focus

Banking

Deutsche Bank

Deutsche Bank has collaborated with WorkForce to transform its KYC process from manual reactive screening to a digital screening methodology. The legacy application used by the bank meant its employees had to spend more than 40 hours per account in screening basic customer information, leaving little time for anti-money laundering (AML) analysis.

The new automated process allows Deutsche Bank to leverage AI to perform the screening in a faster manner, bringing up much deeper insights. Being a self-learning automated platform, little programming knowledge is needed to operate it, and Deutsche Bank's employees can concentrate on potential account risks or compliance concerns. The forward screening model also allows the bank to track AML activities rigorously.

Insurance

Royal & Sun Alliance Insurance Group (RSA)

RSA has adopted RPA and intelligent automation to gather real-time data regarding KYC details and integrate it into daily automated workflows to perform repetitive, time-consuming tasks quickly. This allows RSA to simplify customer journeys, enable self-service, and reduce processing time, thereby minimizing disruption to customers. It also helps to proactively identify and resolve issues within the scripts, which has driven down manual processing for RSA by more than 45%. With little manual effort needed for monotonous tasks, data scientists at RSA can now leverage automation throughout the analytics value chain to build and deploy models quickly.

SILO BUSTERS



Busting corporate silos by adding flexible process layers on top of them, rather than breaking or rebuilding already established structures

Banking

Morgan Stanley

Morgan Stanley at Work has teamed up with Wilson Sonsini Goodrich & Rosati, a leading technology law firm, to create an API that allows mutual clients' equity information to flow effortlessly between the equity management provider and the law firm. By facilitating open data sharing, it creates a single source of truth between the two firms and their client to create an integrated digital experience. Through the open data ecosystem, Morgan Stanley aims to ensure that all parties work with the same capitalization data every time new funds are secured.

Insurance

Zurich Insurance Group

Zurich Insurance Group introduced a new robotic operating model to scale intelligent automation to provide its workforce with skills needed to navigate the evolving workspace. The model breaks up siloed units into three units focused on new development and one on ring-fenced production. The model has allowed Zurich to rapidly increase automation exposure across the business, using 68 robots to carry out 140 processes and supporting 85% of Zurich UK's functions, resulting in 88,583 hours saved in a year by robots processing manual activity.

CAN'T TOUCH THIS



A process seamlessly adapting to its environment, optimizing itself without human intervention or support – is that even a process anymore?

Banking

Commerzbank

Commerzbank is the first bank to have successfully executed a live commercial transaction based on blockchain technology, demonstrating irrevocable payment commitment to a supplier. The payment by open account was replaced by an irrevocable payment undertaking, with digital exchange and matching of trade data. The payment commitment is based on the exchange and successful automatic matching of digital trade data in the blockchain network, thus providing financing options. This payment system opens up a plethora of payments opportunities with automated verifications for Commerzbank, irrespective of the complexity of transactions.

Insurance

USAA

USAA has partnered with CCC Intelligent Solutions Inc. to launch the first-ever touchless auto estimates system. Using advanced AI, the system derives detailed actionable estimates with help of insurer-driven rules within seconds. The estimates include line-level detail such as parts, labor operations and hours, and taxes. Moreover, the system can be customized for claim eligibility thresholds and desired policyholder communication experiences. Touchless estimating capabilities mean USAA's teams can now focus on making communication personal and customized.

AUGMENTED ME



Adding AI to business operations to accelerate decision-making, create a symbiotic relationship, and bring harmony to both human and machine

Banking

HSBC

HSBC has created an artificial intelligence powered tool called iCash for data-driven forecasting of cash withdrawals from its ATM machines in Hong Kong. Historically, customer demand forecasts were created manually, sometimes leading to situations where customers found ATMs empty. With iCash, HSBC uses live data and predictive ML to forecast cash demand by considering geographical location, season, holidays, and recent withdrawal trends. Its live dashboard feature has reduced lead time on cash replenishment from 36 hours to only 15 minutes. HSBC has also seen a 15% reduction in refill trips, which amounts to savings of USD 1 million a year in third-party deliveries.

Insurance

USAA

USAA is leveraging natural language processing (NLP) to analyze the reason behind each customer call through automated processes without the need to depend on call transcripts. This enables the organization to take proactive steps to improve customer experience and enhance operational efficiency. By identifying key words spoken during the call, USAA can understand in real time when a customer needs an intervention. The organization is also utilizing NLP to digitize paper-based medical records and speed up the process of reviewing the records, thereby reducing time needed for underwriting.



THE ECOSYSTEM CHRONICLES

Process mining tools identify inefficiencies, bottlenecks, and exceptions in a process flow and adapt it to generate gains. [Celonis](#) is a cloud-based process mining platform that uses its Execution Management System to connect data across the organization and identify hidden inefficiencies and fix them. [Skan's](#) Process Intelligence Platform, using computer vision and machine learning, generates an end-to-end view of digital processes and provides actionable recommendations for process automation. [Braincube's](#) smart IIoT platform collects and centralizes data from machines and IT systems and digital twins help highlight process optimizations and perform self-service analytics.

Robo-advisors are transforming the investment behavior of users. [Betterment](#) enables wealth advisors to streamline their back-office processes, automate their portfolio management, and integrate with other tools. [Sofi](#) helps employers to empower their employees with an automated investing service that helps create a plan for each goal and automatically rebalances the investments on a quarterly basis to diversify the risk. [Acorns](#), on top of digital investing and savings services, educates users about money, investing, and building wealth.

Automation in key parts of the value chain is generating value for financial institutions. [Shift Technology](#), with its AI-powered suite, enables insurers to automate and settle a higher volume of claims, leading to lower turnaround time while also being capable of detecting potential fraud in insurance claims. [Clara Analytics](#) improves claims outcomes with its AI-powered suite, leveraging image recognition and NLP to extract insights from claims documents and using predictive analytics to reduce claim costs.

Energy-efficient computing platforms perform real-time application performance management to optimize energy and resource usage for computing. Startups like [Virtana](#) and [StackPath](#) provide energy-efficient cloud IT environments, with focus on infra migration, optimization, and edge computing. Virtana provides software for computing infrastructure (on-premises, public cloud, hybrid cloud) deployments that leverages AIOps, ML, and data-driven

analytics to optimize efficiency of cloud migrations, capacity, and the cost of the infrastructure. StackPath is an edge-computing platform that provides edge-infrastructure-as-a-service for running applications closer to end-users and devices to reduce the cost of data transfer and ensure availability without the need for costly data center hardware infrastructure.

FROM ASPIRATION TO EXECUTION WITH CAPGEMINI

Capgemini can enable your organizational processes to be like water, from concept to execution.

Instant (Real-Time) Payments

Capgemini offers an end-to-end payment-hub-based transformation framework including advisory services, implementation, and support for product solutions from vendor partners. This solution enables a highly flexible, adaptive, and swift payments system with the ability to interface easily with a multitude of business services and adapt in different infrastructure models.

Touchless Claims for Insurers

Touchless Claims transform the entire claims value chain, applying automation and innovation on top of claims processes and right-shoring by leveraging technologies such as automation, machine learning, insights from data, and a rich ecosystem of partners to enhance operational efficiency and improve claims accuracy.

Intelligent Process Automation

Intelligent process automation enables you to plan and start on your automation journey, scale up operations, enjoy the advantages of sustainable automation, and pursue capability growth and innovation. The solution is infused with RPA, AI, and process analytics to deliver an unprecedented level of process intelligence and automation to your organization.



APPLICATIONS UNLEASHED

Read TechnoVision, the main report, for a complete overview of this technology container.

FINANCIAL SERVICES IMPLICATIONS

At the heart of any technology business is its applications portfolio. It is the heartbeat of the organization – part of the business, responsive to every demand. These applications mirror the new business dynamics: built and continuously changed at high speed, to a high quality, and in whatever incarnation necessary. Yet, changes are afoot, dear Watson! Many applications no longer look like the ones we used to know, as they morph into a connected mesh of microservices. And where is that old-fashioned user interface again? With agility and minimum viable products no longer the “new normal,” but instead the “well and truly established,” the quality of application services needs to be at an enterprise level – with the trust balance of the organization secured by design and a continuous, flawless deployment throughout all business operations.

To satisfy rapidly changing demands, personalize experiences, facilitate real-time decision-making, and enable innovation around transaction services, these applications need to be built on cloud-native and microservices-based capabilities.

Prompted by huge maintenance costs, increasing data regulations, and security threats, financial services organizations are heading to replace legacy applications with cloud-based alternatives. In the last few years, financial services companies have aggressively adopted the latest technology and agile software development practices, such as DevOps, continuous integration and continuous delivery. Insurers, especially, are increasingly harbouring dreams of creating global business platforms and composable applications with increased M&A activity.

And, to add even more decisiveness and transparency to the mix, adopting open-source principles within the organization can be a phenomenal culture-building tool, too.

KEY TRENDS

- Banks and insurers have started adopting microservices architecture and are implementing the concepts of application service mesh to establish secure communications and stable connections between these microservices.
- The change of business pace coupled with heavy reliance on IT professionals (staffing challenges), heavy application backlogs, and in certain cases overloaded assignments are leading to the adoption of low-code and no-code platform tools. A low-code platform helps democratize application development by empowering the business and IT to collaborate and rapidly build solutions tailored to the needs of the end users.
- Organizations are making smart-AI-powered applications to achieve digital transformation without any disruptions to existing systems. [Mizuho Bank's](#) AI-powered forecasting tool for financial markets draws on two decades of historic market data to forecast more accurately future price trends and volatility for balance sheet and treasury funding and risk optimization.
- The rising implementation of 5G has given a push to the growth of edge computing applications to process and analyze data at the edge of the network.
- CFOs are showing rapid interest in gathering knowledge on digital assets, currencies, and other blockchain applications.
- The metaverse – an immersive three-dimensional Internet which allow participants from around the world to interact with each other in real time – will provide a significant use case for Web 3.0 technologies in 2022 and beyond. NFTs representing “skins” (clothing or visible displays on a user’s character, or avatar) or other items in the metaverse will be built on Web 3.0 technology, and in-metaverse payments would be made directly between users on a peer-to-peer basis without relying on a bank or payment processor to route the payment through the traditional financial system.
- Financial services organizations are now incorporating sustainability into their products, operations, and services. From carbon footprint reducing to paper consumption, an array of use cases are being explored with respect to sustainability.



KONDO MY PORTFOLIO



Tidying up the applications portfolio in a systematic, decisive way to make room for innovation, agility, and the next generation of powerful application services

Banking

Royal Bank of Canada (RBC)

RBC has implemented Azure hybrid cloud solutions with Azure Arc-enabled data services to deliver on-premises database-as-a-service (DBaaS). It offers features like automation for setting up high availability and elastic scaling without application downtime, allowing RBC to reduce time-to-market by shortening delivery cycles by several weeks to months. The new model takes less time to add and manage infrastructure, freeing up developers to bring innovation and build capabilities around disaster recovery and self-serve integrations. By employing hybrid cloud models, RBC can choose where to host data to comply with security requirements. Additionally, RBC can realize cloud benefits in environments without continuous and direct Azure connectivity. As operational overhead expenses are borne by Azure, RBC looks to save millions per year in capital expenditures.

Insurance

Aflac Global Investments

Aflac GI is leveraging Snowflake's data cloud on AWS to speed up calculations for investment portfolio analysis. For each model run, Aflac GI needs to store around 300 million data points, which earlier limited the number of runs supported at a time to 10. This hindered decision making, slowing time to market. After migrating to Snowflake, the firm can run multiple concurrent calculations, handling up to 8,000 processes simultaneously. This has cut down model run time from 1-7 hours to about 12 minutes. Moreover, the company has saved 50% in total cost on database software and infrastructure. Using the data vault modeling approach, Aflac GI has created a data lake that stores all the market and operational data since its inception. This enables real-time data-driven decision-making, allowing the company to build solutions faster and react quickly to dynamic requirements from market scenarios.

HONEY, I SHRUNK THE APPLICATIONS



Next-generation agile and response "light" application services are built on the concepts of Microservices, APfirst, Cloud native, and Headless

Banking

Standard Chartered

Standard Chartered has adopted SAP Multi-Bank Connectivity – a software-as-a-service cloud-native solution integrated to SAP S/4HANA and SAP ERP – to simplify connectivity, automate financial transactions, and deliver banking services in real time. The API offers on-demand real-time debit and credit notifications to clients as soon as they receive cash and triggers a workflow to refill the client's credit line for new purchases. Standard Chartered now has end-to-end visibility of the payment status even though the file and message exchange is fully automatic. Full integration with the bank's SAP system helps to simplify the technical architecture, making it easier to maintain data integrity, debug issues, and deploy updates.

Insurance

The Hartford

Upon acquiring Navigator's Group, The Hartford was faced with the challenge of data center consolidation to integrate the company's specialty lines and reinsurance business with its existing divisions. The consolidation was carried out by embracing a cloud-first infrastructure strategy. The firm migrated over 100 applications, 16 services and six databases into the AWS cloud – enabling the retirement of three data centers and saving up to 15% of infrastructure costs. The Hartford can now make deployments such as adding capacity or enabling elastic load balancing at an increased speed.

WHEN CODE GOES LOW...



Low-code and no-code platforms make building next-generation application services a high-productivity matter, for both IT and business specialists

Banking

Rabobank

Rabobank felt the need to become more agile in responding to rapidly changing market conditions, customer preferences, and government regulations. Together with Capgemini Sogeti, the bank implemented a low-code strategy using Power Platform to build a single company-wide data and app development platform. This allows its employees to automate processes and create dashboards on their own. At the same time, classification of data to be used by a new app is recorded to ensure internal requirements and external regulations are met. By empowering employees, Rabobank has made a significant step toward delivering value at the speed demanded by today's financial markets without losing grip on governance and security.

Insurance

Miller Insurance

Catering to the increasing demand for software to deliver and support insurance and reinsurance products, Miller Insurance has turned to low code. Through low code, Miller employees with limited coding experience can create applications without needing to ask for permission. The primary focus is to create software to speed up data capture and automate processes such as sending policies to clients, which take a lot of time and effort when done manually. Since implementing low code, Rabobank has been able to create targeted customer-facing software solutions that run on large platforms exceptionally quickly.

MESH UP YOUR APPS



A "mesh" of highly accessible, secure, and agile application services that are ultra-easy to connect with and combine, both inside and outside the organization

Banking

Nordea

Nordea is using service mesh platforms to provide API solutions that can be embedded in external channels and applications. This enables the bank to carry out financial operations in the user's preferred digital environment. A mesh of inter-connected applications integrated directly with the user's systems makes it easy for the user to access their account without the netbank interface. Nordea can now provide information and services where and when the user needs them and at the same time automate manual routines, remove time lags, and lower identified risks.

Insurance

Willis Towers Watson (WTW)

WTW has implemented Radar Live, its advanced pricing delivery software, for Chubb to help the insurer respond quickly to changing market conditions and deliver an exceptional customer experience. The software seamlessly integrates across multiple channels to create an agile environment. WTW's advanced analytics and ML models also generate sophisticated insights in real time. An added advantage is that Chubb can directly use insurance pricing models and replicate their results in a calculation engine interfaced directly with IT administration systems.

APPS AI



Systematically infusing new and existing applications with AI capabilities, making them smarter, autonomous, and valuable, with a positive impact on society and the environment

Banking

Synchrony

In a bid to combat fraud and deliver frictionless customer experiences, Synchrony is relying on AI use-cases like intelligent automation, an intelligent virtual assistant and ML. The bank has implemented a system that uses ML to learn from and adapt to customer behavioral changes – helping it achieve greater than 90% accuracy in detecting the legitimacy of transactions. Synchrony has also deployed AI in areas including credit decisioning and speech analysis – to gather insights about customer sentiment based on data, such as speaking tone and pace. This helped the company gauge how its pandemic relief programs were affecting customers.

Insurance

Prudential Financial

Prudential Financial has adopted AI-augmented underwriting to analyze all historical data as well as data from third-party underwriters to understand whether a potential customer engages in risky behavior. The AI system classifies a customer into one of eight risk classes, which makes the application eligible for either instant approval or an expedited review by an underwriter.

Pre-classification into risk classes cuts down the review time by an underwriter by more than 45 minutes per customer. Prudential Financial has been able to develop powerful statistical models that predict underwriting risk, enabling instant or accelerated decisions for more than 60% of individual term life insurance applications and over 80% of group life insurance applications.



THE ECOSYSTEM CHRONICLES

A majority of fintechs are working to simplify, rationalize, and decommission existing or new applications. They are looking to find ways to make applications truly “unleashed.”

For years, the banking world has worked on and created applications with the main objective of robustness and absolute security. Today, the industry is evolving toward more agile tools that are much more configurable and, above all, provide a much smoother, more transparent user experience. Firms are now opening their systems to integrate fintechs to improve the user experience even further.

Neobanks were the first to apply this liberated application process. [Lydia](#) has created a global platform, open to other fintechs to best meet the growing needs of consumers. New users have new needs, and this platform provides the perfect open environment to support these needs.

In the same spirit, [Tink](#) has opened its APIs to allow others like KYC players to integrate their solution to meet the needs of the B2B customer first, followed by the B2C customer. They can now offer personalized finance management solutions, payment, and reconciliation at a global level.

The Insurance business has traditionally been very process-oriented, from underwriting to claims processing to payment. While some legacy systems are cost-effective even today, others lack the agility and data analysis capabilities needed to create a data-driven enterprise. Several insurers are moving toward digitalizing their architecture to provide openness and flexibility. [Wakam](#), previously known as La Parisienne, is a France-based insurer that is offering over 50 open insurance APIs. It is scaling its open insurance model rapidly across Europe, partnering with highly visible companies like IoT network provider [Sigfox](#) to offer connected insurance solutions. Wakam reports that its integration-platform-as-a-service (iPaaS) currently handles more than 10 million API requests a month.

FROM ASPIRATION TO EXECUTION WITH CAPGEMINI


Capgemini can help you unleash the power of your application portfolio with speed and quality.

Open Banking Platform and APIs

The Open Banking Platform and APIs enable banks to open their ecosystem and data to third parties and brings in a multitude of benefits – new revenue channels, differentiation through unique partnerships and customer experiences, seamless compliance with local regulation, and continuing relevance in an increasingly digital economy. All these benefits come in the form of a mesh of microservices that enable flexibility and continuous adaptability to changing business needs.

Innovation Island for Insurance

Innovation Island is a cloud-based InsurTech container to help create products and apps quickly. This includes Sandbox Playground, Ecosystem Simulator, and Beta Business Creation to help insurers address their needs while continuously innovating to achieve leapfrog growth in today’s market. Innovation Island helps foster a collaborative community of innovators sharing technologies, data, and knowledge and helps implement industry-leading security and compliance and enables agile product development.



INVISIBLE INFOSTRUCTURE

Read TechnoVision, the main report, for a complete overview of this technology container.

FINANCIAL SERVICES IMPLICATIONS

Financial institutions are implementing business capabilities and end-to-end business operations through secure, compliant, and resilient cloud-native workloads. IT operations for and around cloud native workloads are built and configured as part of implementing these business operations – not as an afterthought, but by design.

Software-driven configuration & execution, standardization, and simplification technologies, such as containers, AI-driven intelligent automation, built-in cybersecurity and reliability, all add up to the capability of having a scalable, always available, resilient IT infrastructure -- one that makes IT infrastructure move and morph in exactly the same cadence as the business operations it enables.

Cloud-native development enhances the ability of financial services institutions to embrace private-cloud, multi-cloud, and hybrid-cloud strategies. Multi-cloud or hybrid-cloud strategy empowers organizations to distribute their cloud-native workloads across multiple cloud environments while mitigating risks and eliminating costs associated with individual cloud environments. Multi-cloud or hybrid-cloud IT infrastructure goes further and enables widespread growth and helps with ROI, superior security, low latency, and autonomy, and is less disaster prone. This modern IT infrastructure allows for a faster time to market, enabling hyper-personalized services and facilitating rapid scaling in line with time-sensitive demand.

To reap the full benefits of the cloud journey, financial institutions need to keep the following points in mind:

Multi-cloud infrastructure is, on average, 33.6% less expensive than moving to a single major cloud provider.

Sustainable cloud technologies provide one way for companies to improve their commitment to reducing carbon emissions. Intelligently optimizing the use of available IT assets – and recycling them whenever possible – not only brings cost benefits and agility, but also raises the corporate ESG score.

Regional data governance and security regulations should be taken into consideration while investing in cloud strategy. The most security-focused workloads are kept in the private cloud while running regular business data and apps run in cost-effective public cloud networks.

When it comes to compliance, cloud-delivered systems must be in line with internal audits and external regulations. Some examples are the European GDPR, HIPAA, DARPA, and so on.


Interoperability is a major consideration in a multi-cloud or hybrid-cloud environment. Varied architecture, configuration for storage, networking, load balancing, and security management are a few challenges to call out.

Talent challenges are accompanied by complexities related to multi-environment engineering, ever evolving cloud capabilities, and a continuous change management.

KEY TRENDS

- Financial institutions are migrating to cloud, hybrid cloud, and multi-cloud strategies to accelerate the digital transformation journey. These solutions provide the agility for testing new products and services, improve interoperability between assets, and enable a positive feedback loop for recalibration of the digital strategy, if needed.
- Companies are increasingly opting for confidential computing as it alleviates data security concerns for financial institutions by encrypting data even when it is being processed. Confidential computing creates an isolated computing memory called a trusted execution environment to avoid exposure of sensitive information.
- Advances in AI/ML, the advent of 5G, and development in the IoT tech space are leading to rapid cloud-edge integration. Facial recognition technology, automated claims validation, and virtual tellers are low-hanging use cases to drive a more personalized customer experience.



 **Kalpesh Sharma**
Expert in Residence



 **Hemanth Kumar Lakshmi Narayanan**
Expert in Residence

LORD OF THE CLOUDS



Cloud adoption moves far beyond the middle-earth realm of cloud migration, now also driven by sustainability, distribution, sovereignty, “FinOps” and multi-cloud forces – all for that precious, better business flow

Banking

Barclays

Barclays, with the help of HPE GreenLake edge-to-cloud platform, has launched a hybrid multi-cloud and digital transformation strategy. The resilience, scalability, and efficiency of the underlying cloud technology will facilitate providing an intelligent, contextual, and personalized digital experience to Barclays customers. The model will allow the bank to pay only for the resources it consumes, with the option to reserve workloads and run them on-demand. Barclays will be able to manage costs, utilization, compliance, and security across the entire private cloud estate – through a unified global dashboard.

Insurance

Willis Towers Watson (WTW)

Willis Towers Watson has announced the launch of Igloo Cloud, a platform that will make use of Microsoft Azure to enhance its capital modeling capabilities. The platform will reduce reliance upon limited, complex, and expensive data centers and provide access to effectively unlimited and flexible computing resources within Azure. This will give users the flexibility to select the right resources for a job, thereby enabling a pay-as-you-go cloud computing model. WTW no longer needs to spend large amounts of money or effort on material installation tasks as the modeling users can be set up quickly with little need for training. Resources can thus focus on improving business performance, creating competitive advantage.

CROUCHING TIGER, HIDDEN CONTAINER



All the complex infrastructure an application needs, nothing to see but next-generation, energy saving containers that will run anywhere, delivering multiple critical consumer-facing business services

Banking

ANZ Bank

ANZ Bank has moved its digital banking services to the Red Hat OpenShift container platform. The containerization allows young developers to work with a next-gen product which is more mature to handle automation. A highly available control plane with fully managed master and application nodes frees developers to focus on building consumer-facing business services. The applications can be built and deployed quickly allowing ANZ to compete with new digital banking players across the region

ANZ was able to process \$9.2 billion worth of payments within an hour of switching to the new platform, with 45000 customers actively transacting. This demonstration of reliability, scalability and ease of use has prompted ANZ to ramp up rapidly the automation of testing processes.

Insurance

Bajaj Allianz Life Insurance Company

Bajaj Allianz Life Insurance Company (BALIC), has established a dependable microservices environment for digital applications using Red Hat OpenShift, supported by 3scale API Management and single sign-on technology. By leveraging containerization, BALIC has improved time to market and enhanced application security with API management and role-based access. The company has also been successful in eliminating downtime across the hybrid IT environment. Additional benefits include centralized tools for analytics, access control, monetization, and developer workflows. In the near future, BALIC plans to use OpenShift to consolidate from 100 to 45 applications.

SIMPLY THE EDGE



Intelligent devices, at the “edge” of central IT and close to operations, add a powerful dimension to the existing IT infrastructure

Banking

Industrial and Commercial Bank of China (ICBC)

ICBC is increasingly investing in opening smart banks across China that provide a hyper-personalized experience to customers. Powered by new age technologies, the banks aim to create tailored experiences at each possible customer touchpoint. Smart banks use 5G, AI, and AR/VR, along with a holographic projection, to allow customers to scan their faces and drink a cup of coffee tailored to their needs and preferences. The banks also give customers the option to commission an art portrait of themselves from a gallery. LED columns onsite the hall have screen displays that allow for virtual welcomes, motion engagement, radar contact, and information release, among other things. ICBC plans to open 18 5G smart banks across the country in 16 locations.

Insurance

Chubb

Chubb has partnered with Rappi, a Latin American SuperApp to co-create customized digital insurance offerings for users of RappiBank and RappiTravel, two multi-service verticals of the SuperApp . Through Chubb studio, a digital insurance platform, customers will be able to obtain tailored insurance solutions through an intuitive, user-friendly experience where quotes, bill payment, and account management are transacted digitally. The platform is developer friendly, with customizable microsites, embeddable widgets, and APIs that enable partners to rapidly deploy embedded insurance products.

OPS, AI DID IT AGAIN



AI renders IT operations fluid, proactive, and resilient, improving efficiency and reliability, while it learns on its way to full, handsfree autonomy

Banking

Credit Suisse

Credit Suisse has partnered with Azure DataBricks to increase the speed and scale of AI/ML led operations across the organization. The company’s core objective is to leverage the massive volumes of customer data to make human-centric smart decisions. The new architecture can scale on-demand to adjust to diverse workloads, supports multiple clouds to take advantage of cloud-agnostic capabilities and can extend to support next-generation technologies for AI and ML. Credit Suisse can now harness a variety of data along with structured and unstructured data streaming in real-time. This allows the company to more rapidly test, experiment, and deploy models into production.

Insurance

Zurich Insurance Group

Zurich Insurance Group has acquired AlphaChat, an Estonia-based company that provides conversational AI technology for customer service automation. The acquisition is a step towards advancing Zurich’s customer-focused strategy. Using virtual assistants that can understand natural language and authenticate users, Zurich aims to create personalized insurance offerings that deliver a top-notch customer experience.

SILENCE OF THE SERVERS



Building a highly automated, self-optimizing IT infrastructure, which is so entwined with business operations that it is no longer distinctly noticeable

Banking

Goldman Sachs

Goldman Sachs' internal incubator GS Accelerate is exploring an AWS serverless solution for the bank's client-facing APIs. Because a majority of the computations that GS carries out are batch operations, it leads to long periods of low activity interspersed with brief periods of very high demand. Serverless architecture can provide the bank with an option to scale up and scale down on demand. In this way, infrastructure cost can be aligned to the demand. An additional benefit is that, because there are no servers to manage, the operational costs are also reduced. Moreover, multiple developers can work independently on multiple feature branches due to the containerization provided by AWS.

Insurance

Liberty Mutual

Liberty Mutual has migrated its on-premises systems to AWS cloud to accelerate digital transformation across the organization. By pursuing a serverless approach, Liberty Mutual has reduced its operational burden by transferring infrastructure management tasks, like capacity provisioning and patching, to AWS. Serverless architecture also helps the company to experiment more, get quick feedback, and create multiple iterations in a short span of time. The company's general ledger financial central services processes 100 million transactions in one run at the end of every month, leading to enormous cost savings as it stays offline during the rest of the month.



THE ECOSYSTEM CHRONICLES

In the edge computing space, the solutions that have seen the biggest market traction are edge-to-cloud connectivity, cloud-native virtualization and orchestration, edge application development software, and edge AI/ML-based data analytics platforms.

[Storj](#) provides decentralized cloud storage, which encrypts the files, splits them, and distributes them on a global cloud network, helping to keep them secure and available anytime, especially while building and scaling cloud native applications. [Peaq.io](#) is an end-to-end blockchain-as-a-service company driving blockchain-powered innovation for device-to-device payments for use cases such as decentralized identity and access-based transactions platform infrastructure for IoT controlled vehicles, machines, and devices. [iExec](#) provides a platform to run distributed applications on blockchain with scalable, secure, and easy access to needed services, datasets, and computing resources. The technology relies on Ethereum smart contracts and allows for the building of a virtual cloud infrastructure that provides high-performance computing services on demand.

[Microsoft Sustainability Calculator](#) enables carbon accounting to track greenhouse gas emissions associated with using Azure and other Microsoft cloud services to estimate energy consumption and further emissions reductions that can be achieved by moving additional apps and services to the cloud. [SAP Product Footprint Management](#) is a cloud-native solution built on SAP Business Technology Platform, designed to measure and report greenhouse gas emissions, covering emission factors for raw materials, energy, direct emissions, and transport. [Salesforce Net Zero Cloud](#) uses preloaded datasets for carbon accounting and measures Scope 3 emissions by matching procurement spend to the value chain categories associated with reporting based on the Greenhouse Gas Protocol.

Startup solutions that optimize computing workloads and energy consumption of a software stack, deployed on 5G edge devices, are proving to be strong challengers to large cloud providers in the edge infra computing space. [Pensando](#) platform delivers highly programmable software-defined

cloud, compute, networking, storage, and security services at the edge, helping optimize a software stack that is deployed at the edge with minimal latency and low power requirements. [Mutable](#) provides a server sharing operating system solution that is designed to convert public cloud into edge cloud or edge data center (micro cloud centers that are located closer to the users). [Macrometa](#) offers software to program serverless applications and build APIs faster by surgically extending computing infrastructure closer to users, using serverless computing, a low-latency feature of 5G networks associated with a low-carbon footprint, bringing in energy efficiency.

FROM ASPIRATION TO EXECUTION WITH CAPGEMINI

Capgemini can help you realize a truly invisible IT infrastructure that is omnipresent yet invisible.

Resilience by Design

Resilience by Design helps financial services organizations mitigate enterprise IT risks that have arisen from the current crisis, ensuring future readiness. We use a four-phased approach; namely – Re-Assess, Re-Imagine, Remediate and Revitalize to balance near-term response with long-term preparedness. This solves key issues related to infrastructure and connectivity, data privacy and security, communication and collaboration, ways of working and process excellence, and people management by making the enterprise IT infrastructure invisible but effective.

Enterprise Cloud Transformation

Through our enterprise cloud transformation offering, we help financial services firms develop a cloud vision and strategy; a cloud journey roadmap with a target operating model and full implementation, including moving their IT, data, and the whole business to cloud. As a cloud-based enterprise, the firm can attain the desired speed and flexibility while not being concerned with managing the underlying infrastructure.



BALANCE BY DESIGN



Read TechnoVision, the main report, for a complete overview of this technology container.

FINANCIAL SERVICES IMPLICATIONS

In the past year, financial institutions have further intensified their focus on investments in flexibility, cost efficiency, and customer centricity. Insurance policy terms are rising to combat the evolving landscape. This must be balanced by striving toward insurability with the power of data and public-private collaboration – related to “do well do good.”

Further, sustainability is rising on the priority list of CxO's. Here, the specific challenges for bank and insurance companies are slightly different. Where banks are faced with expectations and transparency rules on their credits and investment portfolios, insurance companies are confronted with the impact on their core products and services.

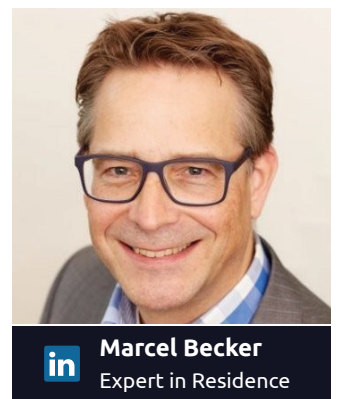
To cope with increased expectations on speed and time-to-market, business processes must be further digitized using the various options of hyper-automation. The effectiveness of these new technologies is dependant on timely availability of the right data. The role of data still cannot be over-emphasized and upgrading data quality, availability, and use is key in many organizations.

In the end, however, it is the organization's workforce that must deliver and operate all this. To attract and retain the right resources, it is essential to create an inclusive environment where people can grow, work more autonomously, and take up the responsibilities expected in an Agile and DevOps context.

Focused on innovation, sustainability, and talent attraction, organizations need to make efficient use of limited assets and resources, so a balanced approach is key. New technologies should be applied where they bring added value, not just because they are there. This brings a renewed focus on and expectations from an enterprise architecture capability to support decision making based on an integrated view on the organization and its ecosystem, with deep insights into available technologies.

KEY TRENDS

- From product to experience: The focus on providing products and services to customers is replaced by a focus on creating a customer experience. Continuously improved and seamless experiences are supported by smooth customer journeys and automated self-services. The choice for every service provider is what role to play in the ecosystem.
- From data to value: To remain relevant, any financial organization must leverage data in creative ways across the value chain – to gain insights, to open new revenue streams, to drive new experiences, and to create smooth customer journeys. For this, data centricity is key. Only having accurate and relevant data, available when needed and of the right quality, can create added value.
- From insight focused to a partnership: Banks tend to approach products/services with the end goal of owning them completely, which limits the variety of offerings they can provide as well as the client base they can reach. Instead of a drive to build and buy solutions or other assets, effective partnerships are essential for value generation. Fintechs should be less seen as a threat, and more as an opportunity to engage in new markets.
- From fit for purpose to sustainability: Within the financial industry there has been a focus on sustainability for a long time. Given the increased pressure from regulators, the scope is extended to 'sustainable business operations', forcing IT departments to have a closer look at their carbon footprint. But sustainable business operations should be tackled comprehensively, simultaneously addressing the biosphere (climate, biodiversity, clean water), society (poverty, education, access to energy, and to health services), and the economy (decent working conditions, reduced inequalities).



TECHNOLOGY BUSINESS



Move from alignment to unity of business and IT, creating a seamless technology business strategy and operations

Banking

DBS

DBS is taking measures to transform into a technology company by digitalizing its core and rewiring the organization to have a startup culture and mindset. The company has established experiential learning platforms, introduced new ways of working, re-designed office spaces, and fostered ecosystem partnerships to encourage innovation among its employees. DBS is also increasingly hiring talent that specializes in new technologies such as 5G, IoT, AR/VR, and AI. Resulting in greater experimentation and innovation, 99% of DBS' applications have been migrated from physical servers to the virtual private cloud. The adoption of agile software allows its developers to release changes faster, making the organization resilient.

Insurance

Prudential Financial

Prudential is embracing new-age technologies along with modern development approaches such as Agile and DevOps to create a seamless technology business strategy. Major steps have been taken to embed innovation at the heart of the company's culture. Prudential's digital product strategy combined with its redesigned development process is helping to reduce time to market and increase its competitive edge. A hybrid-cloud strategy has allowed Prudential to offload some administrative tasks to SaaS and focus on leveraging its data to provide better capabilities to its employees and customers. The end focus is to build delivery as a cross-functional capability so that business and technology can come together to achieve the right customer outcomes.

ADAPT FIRST



Move adaptability from afterthought to prime time

Banking

MUFG

MUFG is modernizing its infrastructure to create a flexible and agile core banking system. The objective is to read changing customer preferences quickly and offer improved capabilities efficiently while also maintaining security. The company has adopted the open banking approach to allow data to be shared transparently and open new ways of serving the client. Using Agile principles, the MUFG team rapidly prototypes and iterates a range of solutions and ideas that are then moved back into the business to either shelve or scale.

Insurance

Munich Re

Munich Re's Location Risk Intelligence Platform based on Microsoft Azure can predict how extreme weather events will impact high risk locations in the coming years if no mitigation efforts are made to combat the risks. Using historical data, Munich Re has been able to simulate 12 natural hazards and create probability curves to help their clients analyze the risk of their assets, with real-time data and applied predictive analytics. By predicting risk exposure and financial impact years in advance, clients can pro-actively protect their assets, rather than putting in hurried efforts once disaster strikes.

WITH OPEN ARMS



Upgrade your technology platform to the ultimate technology business platform: a superior, open set of attractive services, acting as a magnet for active collaboration, internally and externally

Banking

Société Générale

Société Générale has adopted two models, “bank-as-a-platform (BaaP)” and “bank-as-a-service (BaaS)” to facilitate a collaborative approach to banking. Through BaaP, the company provides its customers with offers from external partners in platform mode. Crédit du Nord, a retail banking network founded by Société Générale, offers an open architecture to external partners to design banking products and services. SG Markets, a financing and investment products platform, allows clients to co-construct structured products. To offer BaaS, the bank acquired Treezor, a 100% API-based platform that allows fintechs to couple their own technology with Société Générale’s banking services to create innovative products.

Insurance

AXA

AXA has created a collaborative ecosystem called the Cloud Broker Team to prevent silos and foster new ways of working. The ecosystem regularly scales up cloud capabilities to provide the right technical expertise to stakeholders across the organization. Global and local Cloud Brokers work collaboratively on secure cloud foundations and integrative solution architecture, also ensuring consumption management and compliance. The company is also developing migration, security, and change management communities to foster transparency and communication and create channels to share expertise between its entities.

DO WELL, DO GOOD



Boost the organization’s societal purposes by saying “yes” to technology that boosts sustainability and saying “no” to what is energy-wasting or non-essential

Banking

Citibank

As part of its 2025 Sustainable Progress Strategy, Citibank has decided to integrate ESG analysis into client engagements across the firm. The bank has partnered with Truvalue Labs to enhance its innovative, next generation ESG research platform. This will allow Citibank to integrate real-time AI-driven ESG data with company-reported sustainability disclosure information. The bank will then evaluate each client’s performance against sustainability criteria developed by the Sustainability Accounting Standards Board, allowing it to better manage internal risks.

Insurance

Achmea

Achmea has put in force the socially responsible investment (SRI) policy. Under this policy, the company measures the social risks and impacts of its investment portfolio based on carbon footprint. It excludes activities it believes to be irresponsible from its portfolio and does not invest in countries that violate international climate change standards. Achmea also influences the policies of firms it invests in to create a positive social impact. Achmea’s Green Finance Framework also defines the loans or investments eligible to be funded by the proceeds of Green Finance. Instruments issued by the company.

TRUST THRUST



Power up the entire trust ecosystem – from the organization’s core to its edges – securing your existing business and pushing forward to its next permutation

Banking

First Abu Dhabi Bank (FAB)

First Abu Dhabi Bank has collaborated with Gulf Data International (gDi), to launch a liveness detection and 3D face authentication software. This allows FAB to provide heightened security while onboarding new users or verifying existing customers via any device. During onboarding, the software creates a 3D face map of the user and verifies it with the profile ID. Every time the user returns to the bank, authentication is done by matching the face scan with the existing 3D face map. Post implementing the authentication software, FAB has been able to improve security and thereby customer trust and experience.

Insurance

Allianz SE

Allianz SE, jointly with Munich Re has created Cloud Protection Plus, a new commercial cyber-risk insurance solution for customers enrolled in Google’s “Risk Protection Program.” With this solution, Allianz aims at combating the ever-evolving cyber risk due to increased cloud exposure for clients. By utilizing Google Cloud’s proprietary assessment tools, the company can move toward a more data-driven risk evaluation and underwriting process. This will allow Allianz to reduce business interruption due to security issues, which currently accounts for 60% by value of all cyber claims.

IQ EQ CQ UP



Ensure a properly measured and monitored balance between three – sometimes conflicting – assets: the corporate intelligence quotient, creativity quotient, and emotional quotient

Banking

Bank of America

Bank of America’s virtual assistant Erica has grown its user base to an all-time high of 19.5 million in 2021. A major reason for this increased user adoption is the fact that the bank has worked immensely to improve the cognitive and emotional capabilities of Erica. The virtual assistant now boasts a way to respond to more than a million unique financial questions, quadruple the initial number. Efforts are being made to further enhance Erica’s emotional intelligence to help it to connect with users in a personalized manner, emulating human-human interactions.

Insurance

NN Group NV

NN Group NV has employed data modeling techniques to analyze flood risk from coastal and fluvial flooding in the Netherlands and map it to current and future flood mitigation measures. The firm used global datasets from The Intergovernmental Panel on Climate Change (IPCC) to determine the value at risk for a baseline (2021) scenario and a 2050 scenario. The analysis uses the current composition of the mortgage portfolio, aggregated at national, provincial, and postal-code level. As a result of this analysis, NN Group now has insights into portfolios that have a higher risk of flooding in 2050 and can take appropriate measures proactively. It can use these insights to offer products that could provide additional coverage for its customers.

NO HANDS ON DECK



Assume full, hands-free automation as the default for all new technology business processes

Banking

MUFG

Mitsubishi UFJ Financial Group (MUFG) has collaborated with Ripcord, a Silicon Valley-based provider, to accelerate its digital transformation journey. The bank plans to combine robotics digitization with a SaaS platform to digitize critical and sensitive documents kept in a central location that aren't readily accessible to branch locations. Through RPA, MUFG will be able to make the documents immediately accessible to all the branches, thereby cutting down time needed to retrieve customer information. This can in-turn enable MUFG to provide a better experience to its customers.

Insurance

MetLife

MetLife Gulf has teamed with Munich Re Automation Solutions to introduce ALLFINANZ, a solution that allows digitization of the sales process. Leveraging the software, life insurance brokers, agents, and Bancassurance partners can retrieve all necessary consumer information within 24 hours to quickly form a proposal. This will steeply reduce the time and effort spent by agents on the document retrieval process. Moreover, by removing multiple agent-customer interactions, it can also help to improve the customer experience.



THE ECOSYSTEM CHRONICLES

The focus today has shifted to providing users with a wow experience, using data to drive real value, leveraging ecosystem partners to create new offerings, all the while focusing on fostering sustainability. By leveraging solutions like [Vlocity](#), [Zelros](#) and [FullStory](#), financial services organizations can orchestrate customer journeys, manage real-time interactions, and make use of the open and as-a-service business models to deliver a personalized experience.

By leveraging the full power of data, financial services institutions can drive value to their users. Solutions like [Harbr](#) for data collaboration, [Alation](#) for data cataloging, [Cosmian](#) & [LeapYear](#) for data privacy, [Dataiku](#) for building data pipelines, and [Toucan.Toco](#) for data storytelling enable them to gain deeper insights into their customer base and tailor recommendations.

Partnerships with ecosystem players resulting in open and as-a-service business models can lead to newer ways to engage customers and generate revenue.

Organizations need to be aware of their carbon emissions and take active steps to reduce them. Carbon accounting solutions provide a view of the carbon footprint, actionable steps to reduce emissions, and visualization capabilities. [Normative](#) provides a platform to measure sustainability performance, with automated data collection, a tailored reduction plan, and recommends high-impact actions. [Sweep](#) provides a platform to reduce carbon emissions in the business value chain. It helps connect organization data to an emission factor database and provides tailored market insights, including benchmarking against similar players. [PlanA](#) provides solutions like an automated decarbonization plan and automated data collection to calculate and offset carbon footprint.

Sustainable IT solutions focus on reducing energy consumption and carbon impact of enterprise IT infrastructure and applications. [GreenSpector](#) helps IT teams to lower the energy consumption of software they develop

or integrate. [StormForge](#) helps optimize energy efficiency by enabling IT teams to perform real-time application testing, application optimization, and automated resource tuning by easily creating and uploading automated load tests. [Cloud&Heat](#) strives to reduce the carbon footprint of data centers by providing energy efficient, scalable IT infrastructure solutions.

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Capgemini can help you balance your strategy, technology, and operations to always be ready for tomorrow.

Inventive IT

Inventive IT is the simultaneous transformation of the technology and the operating model that enables Business results through three pillars – Agile transformation, innovation & competencies, and transformation catalysts. We help financial services organizations frame their transformation, solve business issues, and unlock value, scale progressively, and build technology and operating models from the ground up.

Sustainable IT

We want to help organizations seize the opportunity of Sustainable IT by infusing a life cycle thought process while de-risking the operationalization of impactful actions. The initiative is based on four pillars – sustainable strategy, sustainable IT transformation, sustainable employees, and IT for sustainable business. Through this offer we enable financial services firms to reduce the carbon footprint of digital technology and support the sustainable business models of tomorrow, while balancing this change with the other business and technology priorities of the firm.

TECHNOVISION 2022: Financial Services

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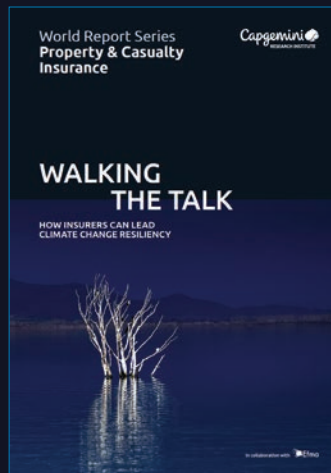
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