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Convergence of Financial and Physical Wellness, *and implications*

Factsheet

Big Tech are expanding their ecosystems and providing financial and healthcare services. The tech giants accounted for almost $900 billion in revenues in 2019, greater than the GDP of six of the G20 nations[1]

60%+ customers say they already use financial products such as payments, cards, or bank accounts from Big Tech/ challenger banks or are likely to do so in three years. 75% of tech-savvy customers are currently using at least one financial product provided by one of the Big Tech[2]

72% of Gen Z customers said they consider mobile apps as an important digital banking channel but less than a third of the respondents in this group said they had a positive experience with this channel[3]

10.7% of the global population has a mental health disorder[4]

Health outcome is driven by social and economic factors (40%), health behaviours (30%), clinical care (20%) and physical environment (10%)[5]

A lack of exercise, poor diet, and other factors lead to a productivity loss of 30 days for every employee per year[6]

Workers attach significant value to their health wellness programs. 74% who use their employer's health wellness benefits say that simply having those benefits available helps them feel less stressed overall[7]

54% of staff cited financial or money matters as the biggest cause of stress[8]

People without health insurance experienced elevated stress levels about healthcare costs over individuals with coverage. On a ten-point scale, uninsured adults reported an average stress level of 5.6 while insured adults reported a stress level of 4.7[9]

The connection between financial wellness and personal health is inherent – in a global survey, 81% of respondents found other goals easier to achieve when finances were in order, while 70% stated that good financial health had a positive impact on their physical health[10]

Preface

A confluence of socioeconomic, demographic, and technology mega trends are expected to **drive fundamental change with respect to how individuals evaluate their well-being** (and naturally their happiness) over the coming couple of decades.

Over the last few decades, the world has witnessed tremendous progress on socioeconomic and health fronts. The proportion of the world's population living in extreme poverty has come down from 75% in 1950s to close to 10% today.[11] Life expectancy has increased on every continent steadily every decade since the 1950s from approximately 25-65 to 60-80 years.[12]

Notwithstanding, over the last decade, we have seen more challenges to such progress. The majority of the world's population remain trapped in levels just above absolute poverty while populations in developed countries have seen a shrinking of middle-class and real wages. Health adjusted life expectancy (HALE) has stagnated or even come down in many countries.

The above recent trends are not expected to get any better as financial and demographic tailwinds that have supported population in developed countries slow down, in most cases these same aspects will become headwinds over the coming decades. The wealth and income effect from over 40 years of steady interest rate declines is more vulnerable to downside risk as rates approach zero. Baby boomers, who have been the engine of consumption growth in developed economies, are retiring whilst a smaller group of millennials and Gen Z have to support them.

On the positive, we are seeing accelerated application of fundamental technologies that will help redefine wellness. Artificial intelligence promises smarter ways of using data. Decentralized ledger technology (such as blockchain) reduces coordination cost across functions. Genomics enable hyper personalized assessments and preventative treatments. A combination of these technologies will reduce silos and drive business models that straddle multiple industries. Both mindset evolution and capability to support more holistic well-being will help drive **a convergence of financial and physical (inclusive of mental) wellness**, which has huge implications for not only financial services but also other industries. This comes at a time when individuals are re-evaluating their wellness more holistically and have higher expectations on user experience.

We posit that the changes to the multi-decade socio-economic situation and consumer expectations, combined with technology applications, will drive convergence of financial and physical (including mental) wellness. This trend has important implications for financial services firms and their business model. Players that can capitalize on this convergence will emerge as leaders for the next decade whilst those that don't will gradually lose relevance to their stakeholders – investors, employees, and customers.

In this paper, we set up an initial framework to assess the opportunity along with implications to the financial service industry. We begin with the key enablers and some of the initial leaders innovating in this space. We also share some best practices and success factors that we have seen in different parts of the world. Whilst our insights are limited because it is still early in this convergence, we hope that some of the takeaways will benefit how you look at wellness either as a financial services player, participant in adjacent industries, or even as an interested individual for that matter.

Matteo Stefanel **Udayan Goyal**

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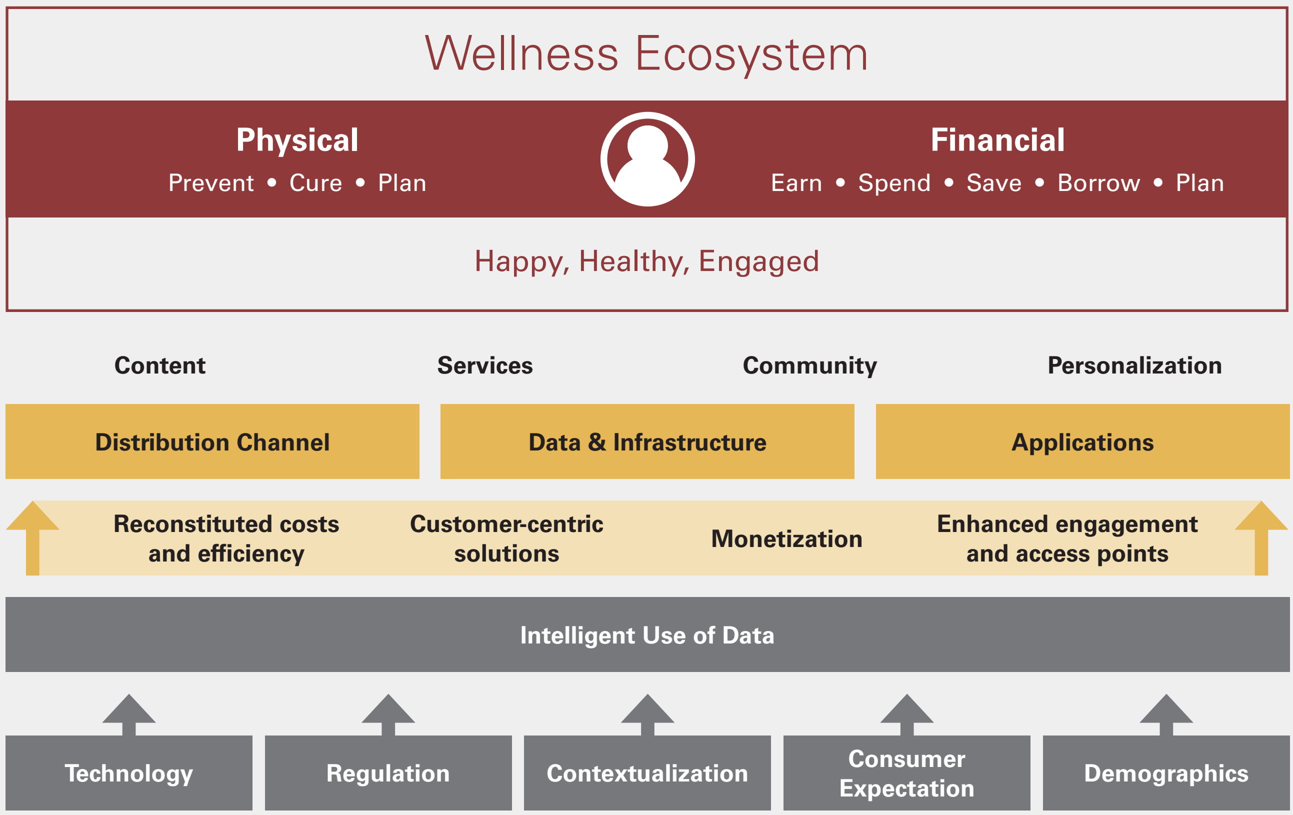
1. Executive Summary

Industry convergence redefines boundaries between sectors and emphasis on usage of personal data. We see an opportunity for wellness platforms to provide true financial and physical wellness to customers through the convergence between financial services and healthcare services. There are a few trends accelerating this convergence, including technology, regulation, contextual services, consumer expectations and personalized experience, and demographics.

Such trends will help generate and leverage a new set of data shared within a wellness ecosystem. As shown in Figure 1, in such an ecosystem, the intelligent use of data could disrupt the companies' existing distribution channel, data & infrastructure and applications. In other words, the disruption includes new monetization methods, customer-centric solutions and reconstituted costs and efficiency. These disruptions could help companies transform and provide their customers with quality content and services, a community and personalisation through a wellness ecosystem. Such a wellness ecosystem could enable customers to cure or prevent disease and manage personal finances effectively. There is potential to offer individuals solutions to manage both physical and financial wellness, and therefore live a happy and healthy life.

Figure 1: Physical and financial wellness system chart



Source: Apis

While Big Tech and some financial institutions are leveraging the use of existing data and building new businesses within their ecosystem, start-ups are also building small ecosystems at high speed. To compete with such innovative companies, financial institutions with legacy technology infrastructure and business model should adopt the new business models, distribution channels and cost structures, embrace these models across different markets, and explore the new investment themes and opportunities emerging from the convergence of financial and physical wellness.

However, financial institutions face challenges in building such ecosystems. They need to formulate the best financial and physical wellness ecosystem strategy that can leverage their core services and advantages. Financial institutions need to know what questions they should ask to decide the right strategy. According to their positions within the value chain, financial institutions such as insurers, banks and wealth managers, must react now by building the relevant products or acquiring (investing in) companies.

Apis is an active investor in this space. We are seeing traction and will continue investing and building complementary companies to the wellness ecosystems for financial institutions.

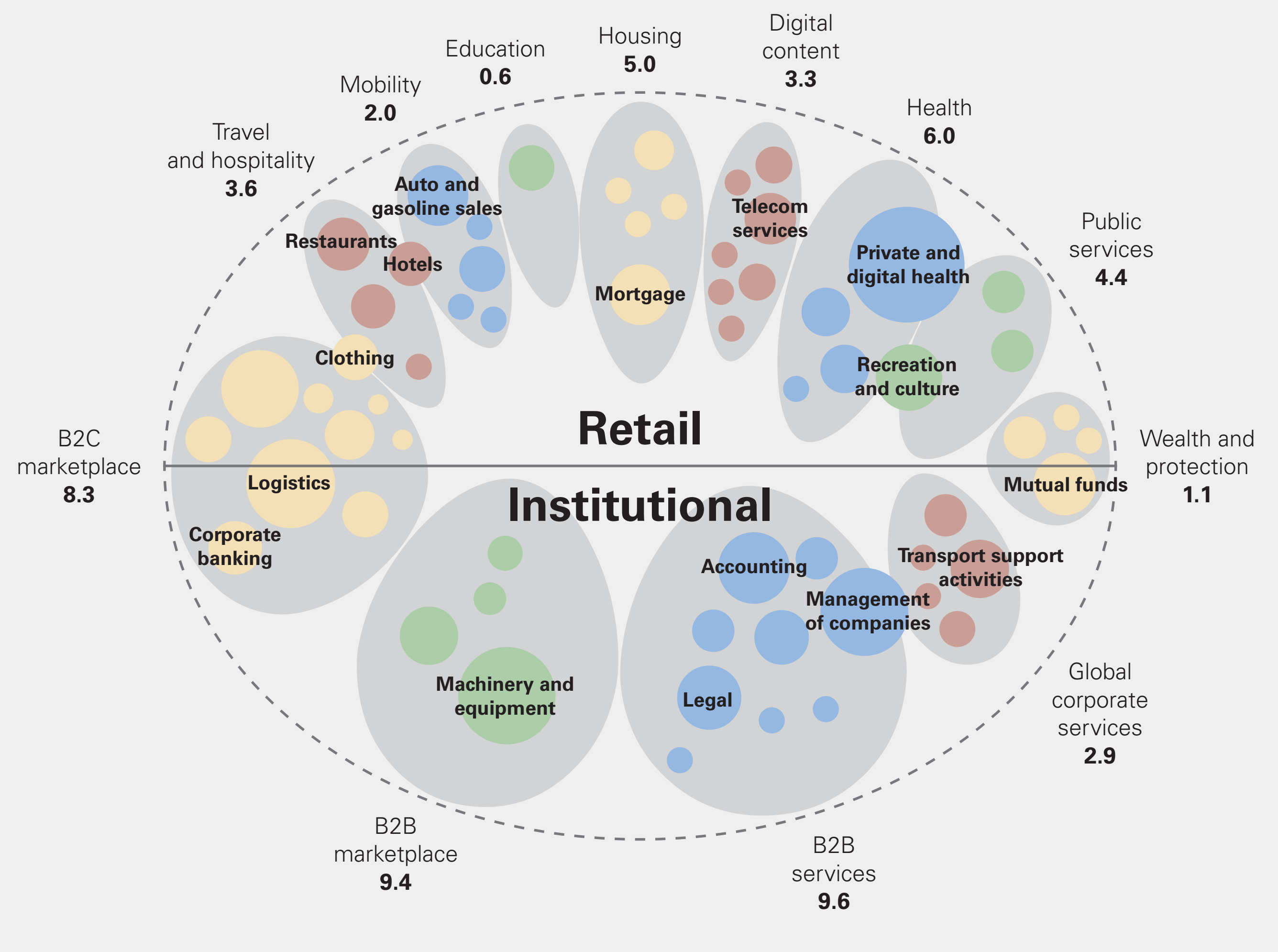
2. Introduction

Convergence of industries

Connecting previously siloed data across industries around a user is opening up new solutions-oriented opportunities. Industry convergence represents the most fundamental growth opportunity for companies, thus redefining boundaries between sectors. We refer to players in an industry starting to offer services that were historically offered by other market actors. For example, ride-hailing companies are starting to underwrite insurance because they have the most accurate driver information. According to an IBM study, over two thirds of global executives saw industry convergence as their greatest challenge and 60% expect more competition from companies outside of their sectors.

Such convergence is underpinned by new technology and sharing of data across industries. Getting closer to the customer in a holistic way should be a focus for companies, which is supported by gathering better data about customers. Convergence is leading to the creation of synergistic pools or clusters situated between two or more industries. Most notable are Mobility (auto, tech, transport & logistics), New Health (bringing together healthcare & pharma, tech, retail, and others), Digital Marketplace and Decentralized Financial Services (including financial services, technology and retail). Other clusters, like Smart Manufacturing, Digital Logistics, and Smart Home are also developing quickly.

Figure 2: Ecosystems emerging in retail and institutional spaces, estimated total sales in 2025 in $trillion



Source: McKinsey

Another interesting point is that financial services is not a separate sector in Figure 2. It is because financial services is embedded across all the sectors. Vendors such as Amazon Web Services have made (financial service) infrastructure-as-a-service accessible, less costly and complex to companies in other sectors. We believe every company can derive revenue from financial services in the not-too-distant future.

One of the largest opportunities amidst these convergence trends is at the intersection of financial services and healthcare, in a concept defined as total wellness which encompasses financial wellness and physical/mental wellness.

Before digging deeper, we begin by defining separately financial wellness and physical/mental wellness. These two wellness areas are intimately tied and interdependent, and as such financial services would need to address not only financial wellness but expand to physical/mental wellness to service the customer base sustainably.

What is financial wellness?

Financial wellness[13] is a "state of being" where a person has:

- Control over day-to-day, month-to-month finances
- The capacity to absorb a financial shock
- An understanding of the trade-offs that are a result of financial decisions (i.e., loans, hardship withdrawals, in a retirement plan context)
- The ability to stay on track to meet financial goals
- The financial freedom to make choices that allow one to enjoy life

Like physical wellness, financial wellness may incorporate a wide range of inputs, measures and goals. For example, physical well-being measures and habits such as body mass index, blood pressure and cholesterol, diet, exercise and sleep patterns to assess the sustainability of one's current health relative to long-term health. Likewise, financial wellness programs can measure age, income and wealth, and should also consider family composition, health, financial budgeting, and personal values, among other inputs.

What is financial wellness?

The recent COVID-19 driven financial crisis has exposed the low financial wellness of a majority of the population across both developed and emerging countries. Even before the crisis, consumers had been increasingly looking for products and services that do not just cater to discrete needs but to their overall financial wellness. This includes not only what we think of traditional financial services (e.g. banking, payments, insurance), but also health, education and, in some cases, energy.

This convergence of needs applies to all consumers in the developed and developing world alike, whether they are affluent or under/unbanked. While the traditional approach to financial inclusion has involved bringing low-cost financial products to the market, a new generation of start-ups is creating solutions that embed themselves in consumers' lives instead of treating finance as a pure utility, embracing a 21st-century approach to digital financial services.

What is physical (and mental) wellness?

The World Health Organization (WHO) defines health as a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity. In contrast to financial wellness, physical wellness seeks to address the body's needs, including: eating a balanced diet that fulfills nutritional needs, building a suitable fitness routine, getting regular and adequate sleep, using stress-management and coping skills, avoiding injury and harm, seeking medical treatment for illness, and seeking regular preventive health care.[14]

The linkage between physical, mental, and even spiritual wellness has been highlighted by wellness experts more recently. The associations between mental and physical health are:

- Poor mental health is a risk factor for chronic physical conditions

2. Introduction

- People with serious mental health conditions are at high risk of chronic physical conditions
- People with chronic physical conditions are at risk of developing poor mental health

Key trends in physical (and mental) wellness

Across the world[15], real healthcare spending per capita has grown by 2.2 times and increased by 0.6 percentage points as a share of GDP between 2000 and 2017, partly due to high medical inflation and partly because of demographics (the global median age has increased from 21.5 years in 1970 to over 30 years in 2019[16]). In emerging markets, the main issue is access and quality whilst in developed markets the main issue is outcome and price (in countries dependent of private system like the US). In the US, healthcare cost has reached 17% of GDP with 27% of health spending wasted. Over 25% of family income was likely to go towards health spending in 2015, and 50% of bankruptcies are driven by health costs.[17]

Non-communicable diseases (NCD), not transmissible directly from one person to another, such as Parkinson's disease, cardiovascular diseases, cancers, diabetes, chronic lung disease and kidney disease are the leading cause of death globally. NCDs accounted for an estimated 40.5m (71%) of the 56.9m worldwide deaths in 2016, and for an estimated 17m (57%) of the 29.8m deaths in people less than 70 years of age[18]. The rising cost of global healthcare and death percentage caused by NCD could partly be mitigated through better preventative health care.

Rising stress and anxiety from modern-day issues such as burnout and loneliness are affecting the mental health across the population. 792 million (10.7% of global population)[19] people live with a mental health disorder, including depression, anxiety, bipolar, eating disorders and schizophrenia. However, two-thirds of those living with a mental disorder never seek help from a health professional[20]. As the demand for digital mental health services is growing, employers are now requesting that their insurance companies cover this category better.

Close link between financial and physical/mental wellness

There is increasing evidence to show the two-way relationship between financial wellness and physical/mental wellness. Economic difficulties faced by many in recent years have also taken a toll on physical/mental health.

According to a Mercer study[21], half of UK adults with financial difficulties also have mental health problems. A survey by Bankrate noted that 78% of US adults are losing sleep over everyday expenses, retirement savings, and healthcare costs. A Merrill Edge study noted that mass affluent Americans find that their financial lives weigh heavily on their minds and impact their mental (59%) and physical health (56%). A study by Prudential Financial[22] shows that 45% of health wellness benefit users report themselves in good physical health vs 37% of non-users.

Wellness platform: a holistic approach to support both financial and physical well-being

A consumer typically does not consciously differentiate financial, physical, or mental health products in determining their overall wellness. With the recognition of more interdependence between financial and physical wellness, we are seeing early-movers address both aspects of wellness as an integrated solution. The key is how they are able to leverage data to embed into their customers' lifestyle personalized solutions around financial and physical wellness. Here is an example of a holistic wellness platform that shows how insurers and asset managers are providing relevant and contextual products around an individual by intelligently using data.

For example, on the financial wellness front, financial services firms are equipping consumers with the tools or products (robo-advisors, chatbots, micro-investing) to support their current and future financial security through the healthy formation of assets.

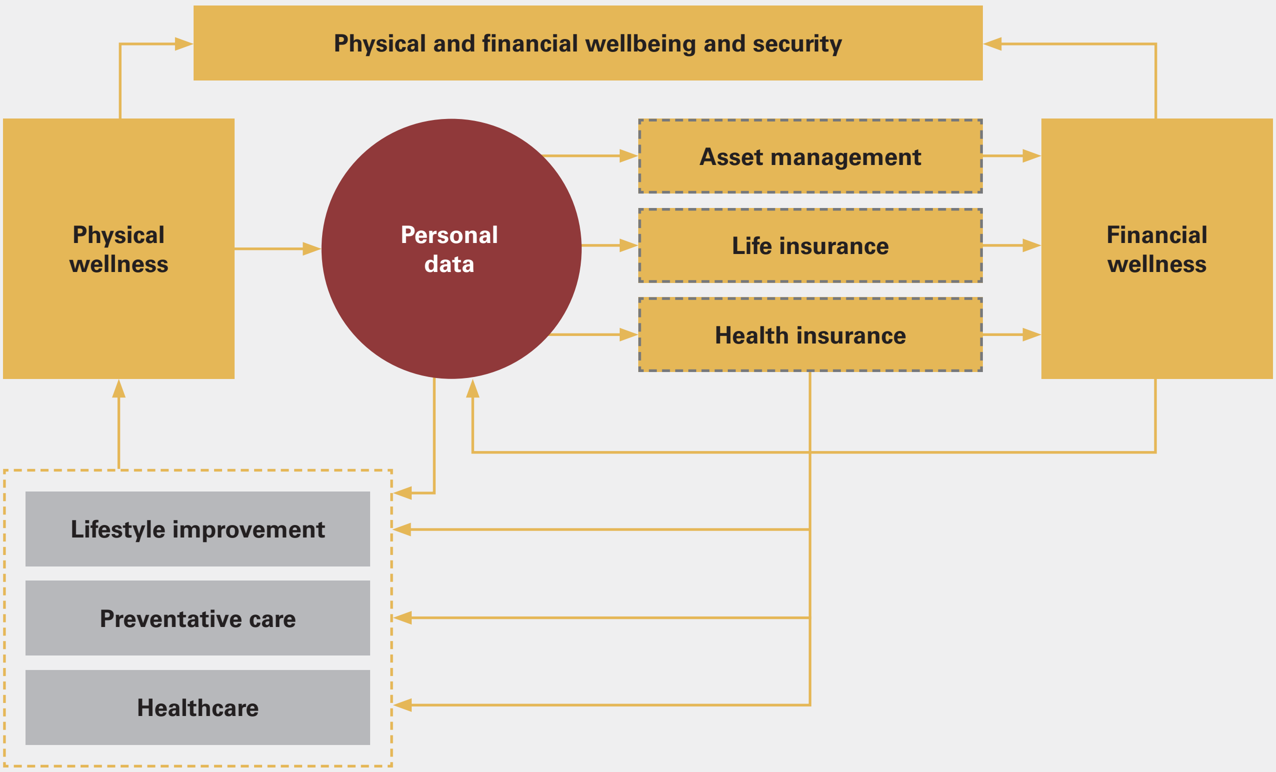
On the physical wellness front, financial services firms are working on preventative measures that help consumers maintain a healthy quality of life that allows consumers to get the most out of their daily activities without undue fatigue or physical stress. Insurers, for example, are using wearable/IoT technology, robotic processing automation (RPA), advanced underwriting capabilities, and modular & adjustable coverage in this context.

Financial services firms that can address both financial and physical wellness would be able to excel in following areas:

- Inclusion: Providers that enable access to financial and physical wellness should be able to address a bigger addressable market

- Prevention: Higher share of wallet will go towards prevention because of higher return on investment and effort
- Better quality of life: Seamless embedding of financial and wellness products into people's day-to-day life should be more effective in steering behaviour and engagement

Figure 3: ecosystems leveraging use of data



Source: Apis

Parallel drivers accelerating convergence

Amidst increasing convergence, we expect to see Big Tech and non-financial or health players enter the total wellness space by also intelligently leveraging data from their large customer bases. Broader adoption of frictionless products is also expanding access for financial and physical/mental health products to lower income populations across the world.

3. Background: Why Now? What is Driving Wellness Convergence?

Multiple structural drivers are contributing to the accelerated convergence of financial and physical/mental wellness and establishment of total wellness ecosystems today.

3.1. Technology

Accelerated application of key technology enables intelligent use of data to (i) disrupt business models and (ii) enable new customized, "experiential" customer engagement. Key enabling technologies that will redefine business and customer engagement models are a combination of ABCD: AI (automation), blockchain (decentralization), cloud, and digitization.

A. **Business models are fundamentally disrupted when manufacturing AND distribution costs takes a massive cost down**. We believe combining ABCD opens up business models to disruption as manufacturing and distribution costs become multiple orders of magnitude lower.

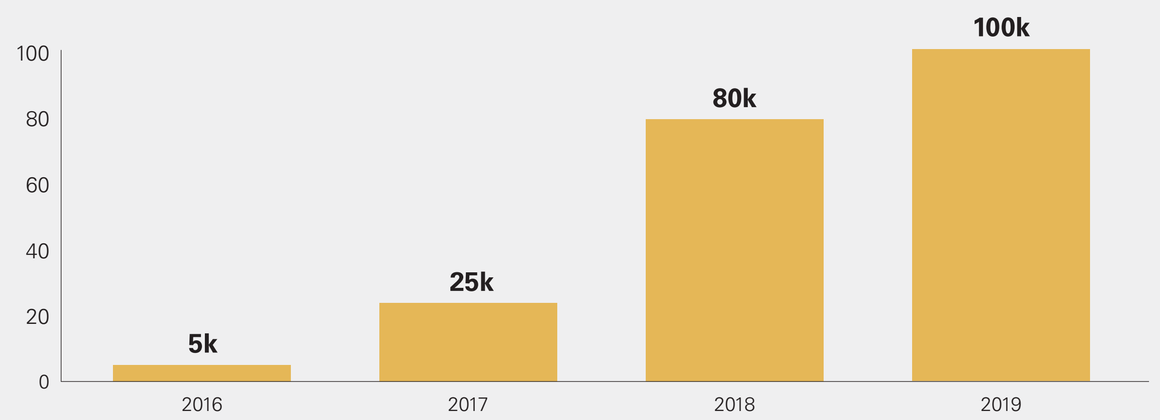
Manufacturing. In the past decade, we have already seen massive disruptions enabled by technology. For example, Facebook and Google reduced manufacturing cost of written content to $0. They effectively monetize via ads on user generated content. Uber reduced manufacturing cost of transportation to $0, proliferating digital transport to disrupt the taxi industry by leveraging real-time geo and supply/demand data. A combination of ABCD is expected to materially reduce production and coordination costs in financial services, thus enabling creation, management, and exchange of new products that were previously not cost effective.

For example, blockchain enables a secure way to share data amongst entities that do not trust each other. Governance, identity, data privacy, and system incentives can be designed into blockchain networks. In a manufacturing context, this means that programmable, authentic assets can be created and managed in products and markets that were not feasible before because of lower manufacturing costs. This is because such products are built on mutualized, shared processes, and leverage out-of-box features that significantly reduce transaction and operational costs, settlement, capital requirements, and counterparty risks.

Middle Office. Automation drives better productivity and decisioning across all workstreams. Cloud-based software and digitized services structurally reduce set-up and maintenance costs. Both ML (machine learning) and RPA (robotic process automation) are being applied to streamline processes. For example, ML works with NLP (natural language processing) to empower voice bots like Alexa to automate processes, enhance communication and improve customer experience. Voice platforms such as Alexa encourage developers to build new skills on the platforms and help personalise assistance experience across different workstreams.

Distribution. AI reduces information asymmetry between entities, and therefore also structurally lowers the cost of capital gap between borrowers and lenders, large companies and SMEs, and developed markets and emerging markets. This effectively expands the total addressable market, thus democratizing access to traditional financial services.

Figure 4: Number of Alexa skills learnt between 2016-2019



Source: OWID, McKinsey, Statista

B. Technology also enables new customized, "experiential" customer engagement by combining various data sources.

Personalization and engagement. AI reduces data siloes within companies and across industries, thus enabling personalization at scale by leveraging a holistic view of a customer base. AI is also applied to reduce user friction. Seamless and simplified user interface are enabled by natural language (e.g. chatbots), voice (e.g. virtual assistants) and vision (e.g. OCR and vision recognition) which runs off large sets of data around customers.

With the ever-growing base of behavioural data (collected via IoT devices like wearables), wellness advisory services are likely to expand. These services are powered by cognitive computing technologies designed to improve health and deliver advice in the event of new health conditions. Some responses are likely to leverage gaming techniques to reward well-being behaviours.

For example, Discovery, a large insurer in South Africa, has used a wellness program to reinforce desired behaviours in support of its health insurance, life insurance, and auto insurance offerings. Their policy holders earn points based on their behaviours and attain one of four levels, – blue, bronze, silver, or gold. They use their points towards travel, leisure, and shopping rewards. The program offers its members personal guidance that includes six components: disease management, smoking cessation, mental health, nutrition, preventative care, and physical activity. Discovery has effectively shifted their approach towards reward-based prevention rather than treatment or protection. The combinatorial innovation of connected health and the behavioural data that it spawns is one of the enabling platforms for this focus on prevention.

3.2. Regulation

Regulators play an important role in ensuring fair and practical rules that promote the growth and cross-fertilization of the financial services industry.

Open Finance (including Open Banking). Today, regulators across the world are pushing for "open finance" where incumbent institutions are being compelled to open up consumer data with appropriate consent. Open finance could open the door for businesses to gaining insight into transaction history thereby providing their own services to businesses and consumers using that information. Led by the UK[23], many governments are promoting data sharing efforts such as open banking (and over time, open finance). Each government has different motivations: promote more competition and better pricing, nurture a country's fintech ecosystem, offer new and more relevant products with improved experience for consumers, increase transparency in the market, and/or access to underserved consumers. It could also help consumers become rulers of their financial data.

As open banking expands to open finance over time, banks will increasingly need to cooperate and compete with non-banks and non-financial services firms and create a new financial services ecosystem. Open finance could build on this by enabling similar access to a wider range of financial products. It could, for example, improve the financial health of consumers and businesses by enabling them to see all of their accounts from different suppliers in one place and helping them to manage savings, loans, insurance, mortgages, investments, pensions and consumer credit. Examples include facilitating product switches or access to financial advice, and, transferring funds between products to maximize the interest received, possibly doing so automatically.

Other Regulations. Regulations such as GDPR and Payment Services Directive (PSD2)[24] have enabled companies to leverage APIs to connect data from different financial institutions (e.g. banks and insurers) to services providers to users. Such developments have served as a catalyst for the explosion in the range of financial services offered by non-bank and non-financial disruptors addressing consumers' demands for a simple, convenient, and transparent approach to their finances.

Policymakers can support innovation in the financial service space that adopts a more holistic view of financial health and focuses on better serving financially struggling consumers. For example, Anorak (online life insurance platform) has partnered with TrueLayer (authorized to provide APIs under Open Banking and PSD2). Anorak shortens the plan recommendation process by allowing users to share data from financial institutions they have accounts with.

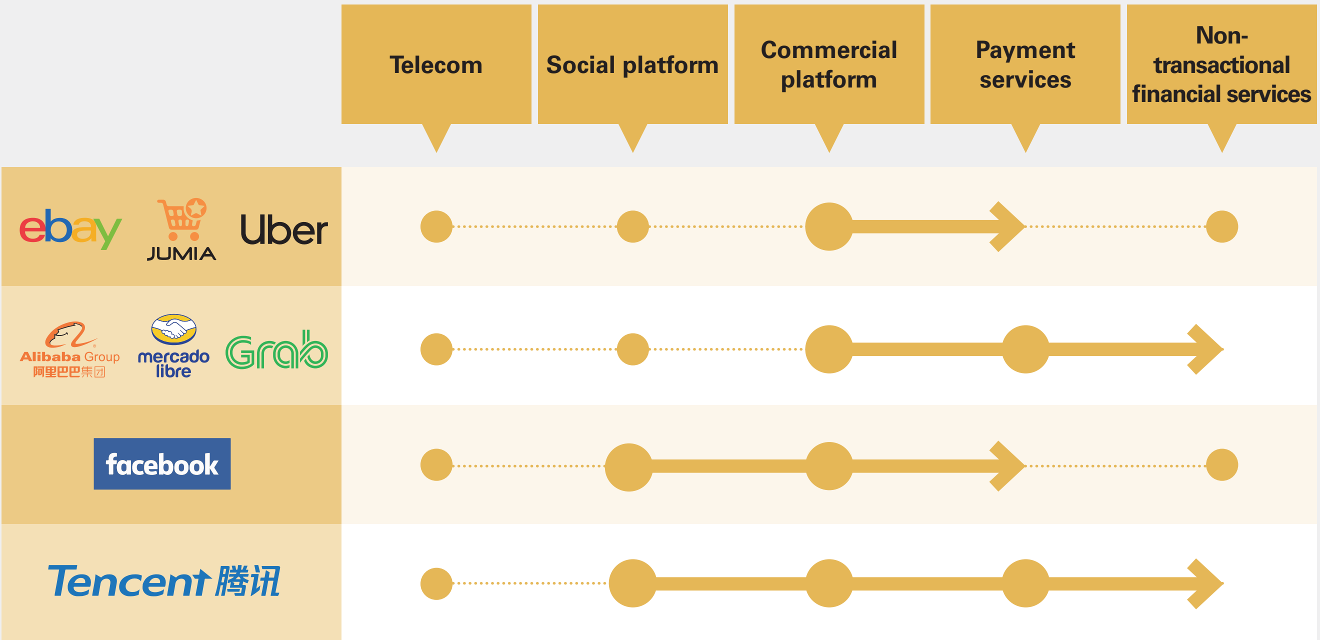
By encouraging the sharing of data within financial services industry and with other industry players, regulators are helping drive convergence and hyper-personalization around the consumer.

3.3. Contextual Services

Consumers are already benefiting from contextual financial and health services offered by open platforms, i.e. people want their banking and healthcare services to meet them where they are, in the products and channels they use. Open platforms combine customer data from other sources (e.g. Google) and other financial services companies to provide customized products to the user, these products are then embedded into the platform (e.g. personal accident insurance embedded in ride-hailing super app).

Open platforms are a transitional step to ecosystems. In such an approach, super apps or incumbent financial institutions establish standards for third-party players or marketplaces to plug-in decomposed financial products and services with minimal curation from the financial institution.

Figure 5: Big Tech adding different business to their ecosystems



Source: GSMA/Sofrecom

Whilst super apps control both customers and user experience, financial institutions plugging in third parties lose the control of the user experience to their new partners. Examples of super apps include marketplaces that can act as a financial service distribution channel by offering access to products from a range of providers, allowing customers to quickly compare prices in one convenient place.

Contextual financial service offerings are becoming apparent in more financial services verticals, especially in product-led and other asset-backed credit sales. Contextual financial services are gaining market share over traditional financial institutions in EM, as they excel across the following differentiators: distribution reach, customer segments, products, price.

Contextual financial services allow providers to more efficiently target customers who they already know are likely to have an inherent demand for their financial product, by weaving themselves within existing products (e.g. off-grid, vehicle financing) or behaviour (e.g. messaging, ride-hailing).

Providers of contextual financial services are gaining momentum due to their customized client-centric approach; leveraging their deep understanding of the asset and the customer, they are able to pursue and ultimately serve their target customer segment more efficiently than traditional financial institutions. Figure 6 - Ecosystem strategies adopted by Big Tech and incumbents shows the hierarchy of contextual finance.[25]

3. Background: Why Now? What is Driving Wellness Convergence?

Figure 6: Ecosystem strategies adopted by Big Tech and incumbents

Greater Unbundling

	Description	Companies	Highlights of specific companies
#1: The Ecosystem Builders	**Distribution-as-a-service:** • Non-fintech companies looking to build fintech arms	1. Udaan 2. Grab 3. Shopify	1. Udaan, a b2b marketplace, provides working capital loans to its merchants 2. Grab, a rideshare platform, provides loans to its riders and passengers 3. Shopify, a SaaS e-commerce enably, provides working capital loans to its merchants
#2: The Pipe Builders	**Connectivity-as-a-service:** • Companies looking to build connectivity between non-fintech companies and fintech companies	1. Qover 2. Plaid	1. Qover provides insurance APIs for business 2. Plaid builds a data transfer network that powers fintech and digital finance products
#3: The Infrastructure Embedders	**Infrastructure-as-a-service:** • Companies looking to embed financial processes natively into other companies	1. Finix 2. Tutuka 3. DriveWealth	1. Finix enables vertical-specific SaaS platforms to be a payment facilitator 2. Tutuka develops end-to-end banking-as-a-service wallet solutions 3. DriveWealth is brokerage infrastructure as a service powering investment experiences (trading, investing and retirement)

Source: Saison Capital

3.4. Consumer Expectations and Personalized Experience

As consumers become more used to timely and contextual services, they increasingly look for single access points that provide solutions that meet all needs. In this context, financial services providers that had offered single products (often a feature) now would need to put together a solution comprised of multiple other products and services that actually address users' needs.

With rising consumer expectations, we are seeing a shift **from a product-centric to a customer-centric solution approach**. A successful customer-centric solution approach is preconditioned on having (i) a holistic understanding of the customer by collecting broad and relevant data and (ii) strong relationships with multiple product and services providers. For example, banks typically have a product-based organization structure (head of mortgages). They may introduce a customer-based structure (head of millennial services) because of this shift.

One of the areas where this shift to customer-centric solutions is playing out is in the healthcare area. In a value-driven healthcare system, the patient is at the centre of the healthcare universe. Since most decisions that determine outcomes for chronic disease, where 80% of healthcare costs are incurred, are made by the patient, family and caregiver at home, one's behaviour outside the clinic will be most important to providers' success going forward.

This shift towards a patient-centric approach by healthcare providers mirrors this shift towards a customer-centric approach by financial services players. For example, just as healthcare providers become increasingly involved in preventative and personalized medicine, insurance providers can work with clients to ensure that they are prepared for financial shocks. Insurers can increase customers' peace of mind by offering tailored guidance and bundled products to meet their coverage needs. Given aligned interest

3. Background: Why Now? What is Driving Wellness Convergence?

Figure 7: Shift to patient-centric health solutions

Providers are altering their goals to reflect this new focus

Care episode reimbursement Traditional Foci	**Long-term health management** Patient-centricity
1. Diagnostics	1. Multi-provider patient portal/tools
2. Technology	2. Medical information is made relevant
3. Drugs	3. Patient-generated data is sought out
4. Beds	4. Portable and on the patient's terms
5. Procedures	5. Collaborative care process with shared decision making tools

The patient will be at the centre of the future healthcare system

Source: Cascadia Capital

to enhancing the wellness of customers, healthcare/wellness providers and financial services providers will have more opportunity to partner.

The value ecosystems that emerge around future disruptive scenarios offer an opportunity to extend the customer experience in terms of quality, frequency, and reach of engagement. A wellness ecosystem is no exception, as companies leverage it to create new compelling customer experiences.

When service providers share data around consumers to offer the best solution, they can create hyper-personalized solutions that straddle both the financial and physical wellness area. Such individualized solutions can extend further as genomics redefine personalized solutions down to the molecular level.

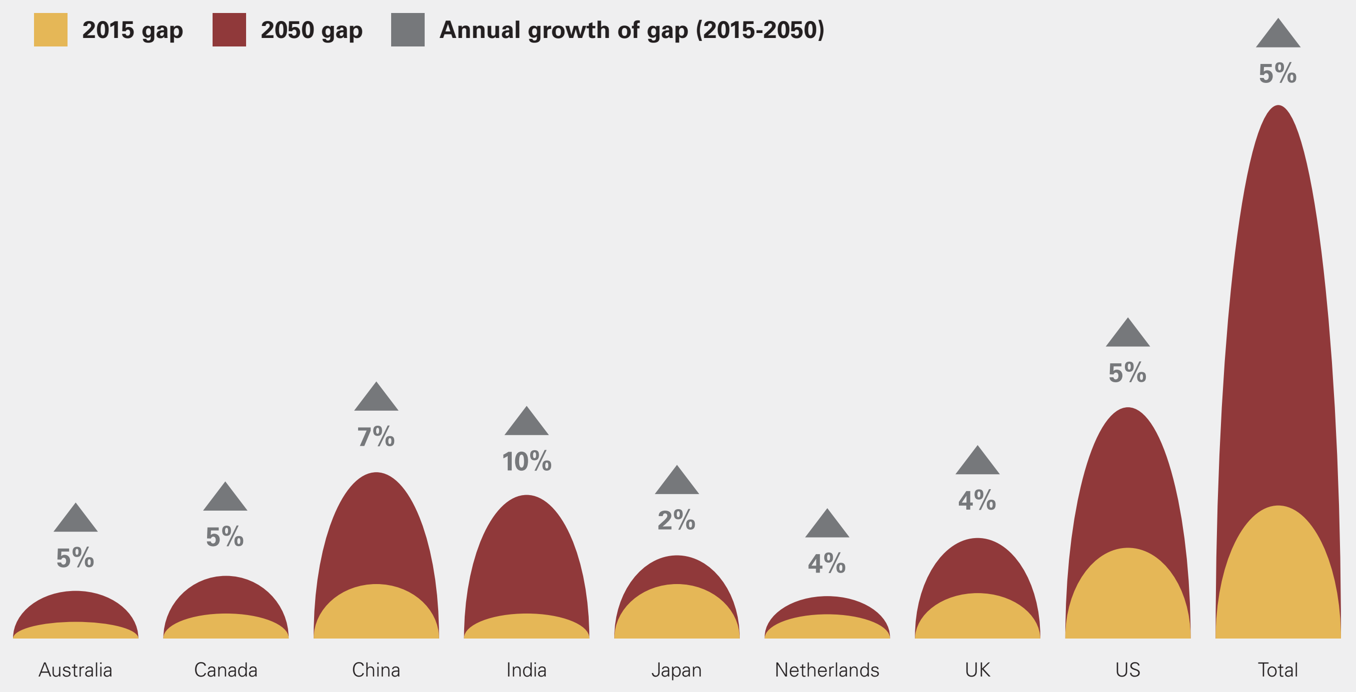
For example, gene testing can be used at the consumer level today for driving preventative measures. A study by Finnish researchers found that telling people how their genes might increase the risk of a heart attack or stroke in the next 10 years encouraged 90 percent of people to adopt healthier habits. Many of the participants already knew that they had high levels of cholesterol. But it was receiving information on their personal genetic risk that triggered changes.

3.5. Demographics

Several salient demographic trends also help drive convergence of financial and physical wellness.

In developed economies, baby boomers, the largest part of the population that have driven economic growth over the last three decades, have hit retirement age while longevity technology is extending people's life span. Retiring or retired age groups facing pension gaps will make economic decisions that are closely tied with their physical health. Notwithstanding, with pension and old-age related expenses reaching as much as 15% of global GDP, opportunities are huge for rightly positioned financial and health services firms.

Figure 8: Size of the retirement savings gap ($trillion)



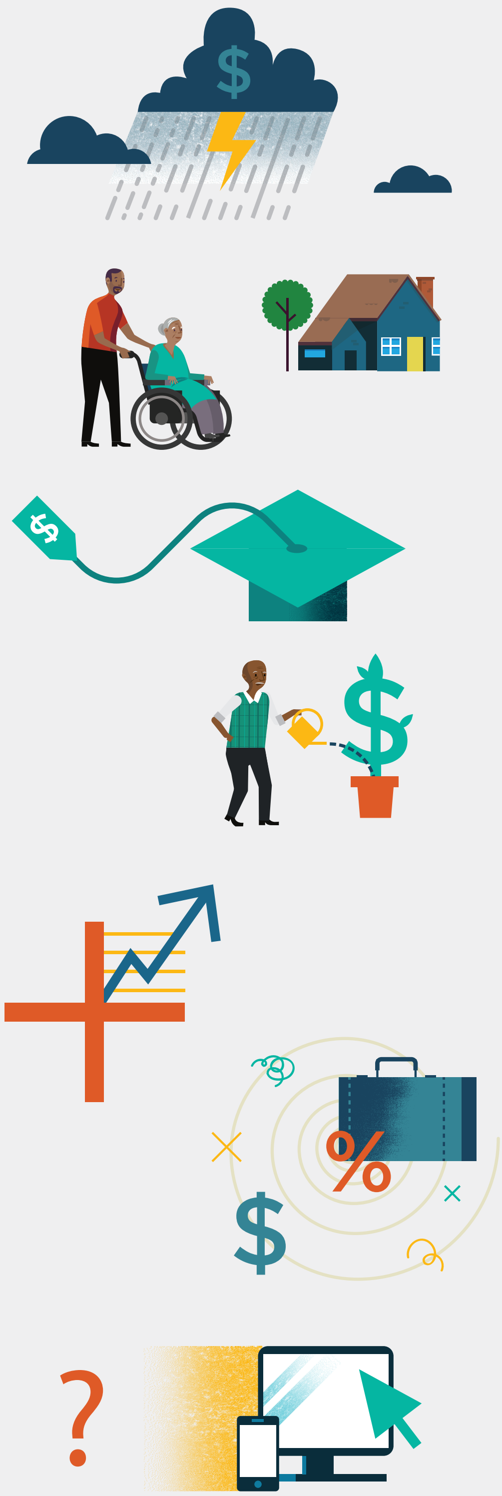
Source: Mercer

Millennials are now the largest category of the labor force and could reach 75% of work force in 10 years. They are starting families and paying attention to healthcare. Millennials also represent a sicker group[26] compared to the Gen X. Nevertheless, they are also driving major change in health, which is partly evidenced by impact on fast food and soda consumption in this group. Millennials are digital natives and will be more open to engaging financial and physical services online. Millennials' psychographics (values, attitudes, lifestyle) indicate they are looking at financial and physical wellness more holistically.

In the majority of developing countries, the population is still young, and the middle-class segment continues to grow. Younger populations will drive higher digital penetration along with applications like financial or health services online. A larger middle-class will also drive more spend as a percentage of income towards affordable financial and health services.

3. Background: Why Now? What is Driving Wellness Convergence?

Figure 9: 21st century financial stress factors



1. **The impact of unexpected expenses and financial emergencies.** The increase in the number of dual-income households has enabled couples to lift their standard of living and flex their buying power. However, households that stretch to buy or rent in the best school districts are at heightened risk if they suffer unexpected expenses, financial emergencies, and their seismic shake triggered by events such as a layoff, divorce, or an illness.

2. **The realities of caregiving for parents.** Many adults financially support and care for parents, often from a great physical distance. Many anticipate that expenses of financial dependents will decline after children leave home and instead these costs are often replaced by those associated with caring for aging parents.

3. **The burden of student loans.** Rising college costs have put many 50+ consumers in a position to bear the burden of multigenerational student loans for their children, their grandkids, and sometimes even their own decades-old debt.

4. **The personal responsibility of saving for retirements.** The shift from defined-benefit pensions to 401(k)s and other defined-contribution plans is forcing ever-growing legions of ill-prepared workers to assume responsibility for saving for retirement, tending investments, and drawing down assets.

5. **The rising cost of healthcare.** Healthcare costs are forcing more Americans to evaluate complex medical insurance plans, budget and shop for affordable care, and track and document mounds of bills, deductibles, co-payments, and reimbursements.

6. **The overwhelming complexity of financial products.** The growing variety and complexity of financial products are overwhelming for many Americans whose financial understanding leaves them ill-prepared to take a comprehensive view and balance the interplay of investments, taxes, insurance, and regulation.

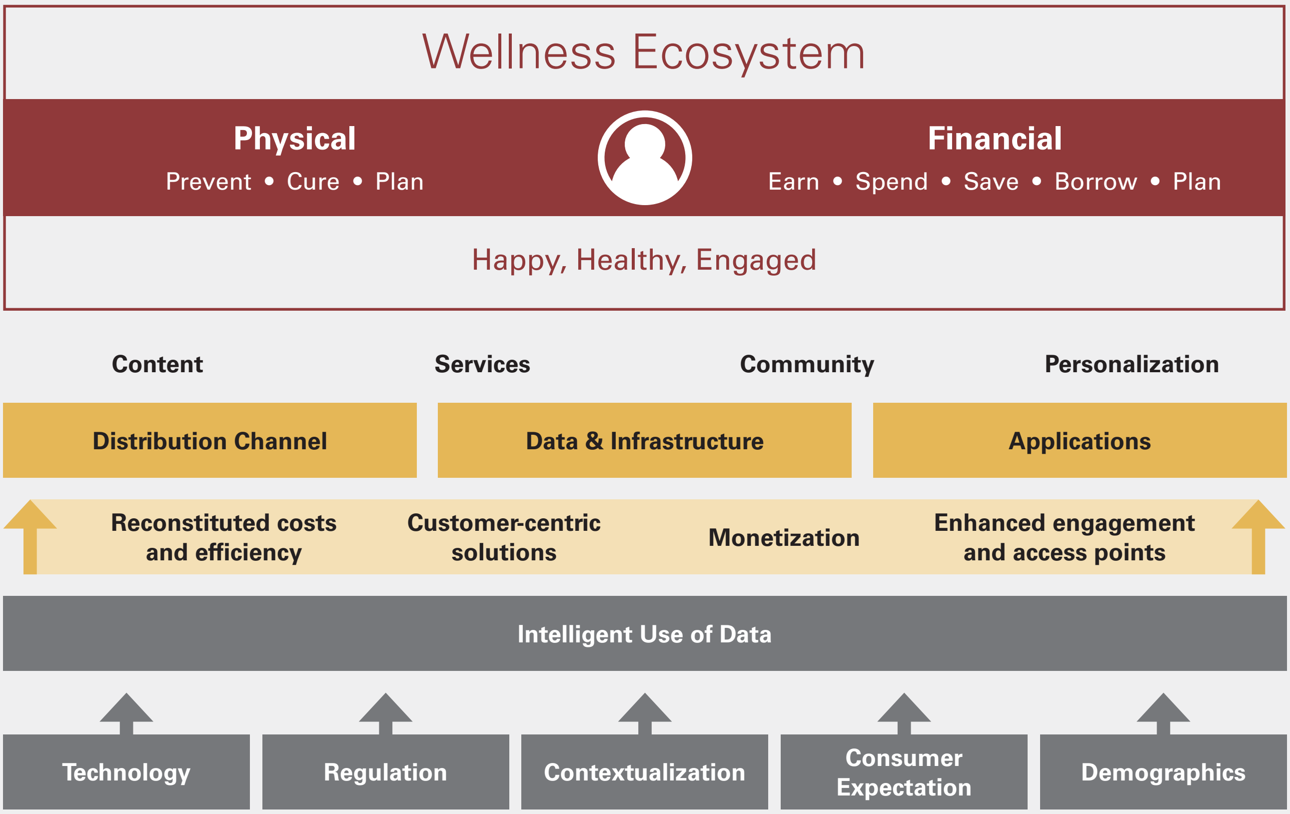
7. **The lack of tailored and helpful digital tools.** Ready access to digital information has empowered Americans to be self-sufficient, and there is no lack of tools aimed at helping Millennials manage their spending and burgeoning financial lives. Yet today's digital tools typical fall short for the do-it-yourselfers in the 50+ segments, let alone those with less financial experience and digital knowhow.

Source: AARP

4. New business models and investment themes reflecting the wellness convergence

First movers (incumbents and start-ups) are building an ecosystem to collect data and invent new business models providing financial and physical wellness to customers.

Figure 10: Physical and financial wellness system chart



Source: Apis

Establishing total wellness ecosystems with totally new cost structure and engagement channels

The world is moving towards a total wellness ecosystem that provides holistic solutions around the user. This is driven by technology, regulation, and changes in customer mindset and expectations (tied closely to socioeconomic and demographic trends). Successfully adapting to such change requires developing new business models and engagement channels that intelligently leverage data.

Financial institutions of the future will **seamlessly embed and adapt to consumers' changing life stages through more timely preventative "solutions"**, which is the next step to current protection products. From consumers' perspective, financial and physical/ mental health are intertwined in contributing to their well-being, and inability to provide holistic solutions risks losing relevance. As consumers' data is shared across previously siloed functions and industries to better engage and help the consumers, so will new products and delivery channels arise. In this context, building an adaptive open ecosystem is critical to not only competing effectively but also to grow new addressable markets that cut across industries.

Developed market players have a comparative advantage to succeed in building the wellness ecosystem. A mature regulatory environment would encourage healthtech, insurtech, and fintech companies to innovate new business models. Developed market players have more local technology and multidisciplinary talents to help build the wellness ecosystem. Incumbents may find it hard to transform the large legacy business into a more agile organization. However, incumbents have (i) financial resources, (ii) experienced talent who understand the financial products and regulation, and (iii) existing partnerships that allow them to distribute innovative products across their large distribution channel.

With little incumbent or entrenched infrastructure, emerging markets players are quickly catching up with their developed market counterparts with a younger more digitally savvy population who can embrace innovative products and digital channels. With technology adoption, the cost to start and operate companies (lower barriers-to-entry) or reach new consumers (new markets) are continuously coming down. The structural cost of capital gap between enterprises and SMEs or developed and emerging economies will also come down thanks to lower information asymmetry from the adoption of technology.

If we dig deeper into how technology would affect financial institutions (and potentially all other companies over the next decade) the following would be the key implications:

i. **The convergence of industry verticals and disciplines** (eg. integrated services around health and life insurance) requiring incumbents to build partnerships and reconstitute their organization to holistically address customer needs;

ii. The center of gravity moving **from closed platforms (or large enterprises) to open networks** of federated nimble players working together as an ecosystem that provides holistic solutions that embed around a customer's life; and

iii. The maturing of **generation-defining tech (AI, blockchain, and genomics) redefining business models** via re-bundled services that may disintermediate incumbents.

To best capitalize on the above trend, we believe financial institutions would require the following building blocks (in order of priority, of course, below are not sufficient as they would have to be accompanied by a mindset and culture that embrace customer-centricity, speed, and innovation):

i. New distribution channels built on ecosystems that engage and delight consumers more frequently;

ii. Infrastructure that massively reduce product manufacturing cost and accelerates delivery time;

iii. Applications that enhance operational efficiency.

4.1. New business models reflecting the wellness convergence

4.1.1. New distribution channels that engage and delight consumers more frequently

In this section, we explore variations of different ecosystem models (A, B) and customer engagement interfaces (C, D). We then retrace how Big Tech have leveraged their ecosystem to expand their presence in financial services (E) and conclude with implementations in the health services (F).

A. Ecosystems where each access point supports holistic and customer-centric solutions

The business model convergence that transcends sector boundaries represents one of the most fundamental growth opportunities for both financial services and adjacencies. Such convergence is driven by more effective data sharing as AI and blockchain penetrate the infrastructure layer that interconnect industries. With broader data around customers, companies should be able to offer holistic solutions directly rather than point products which the customer had to put together themselves historically to solve their problems.

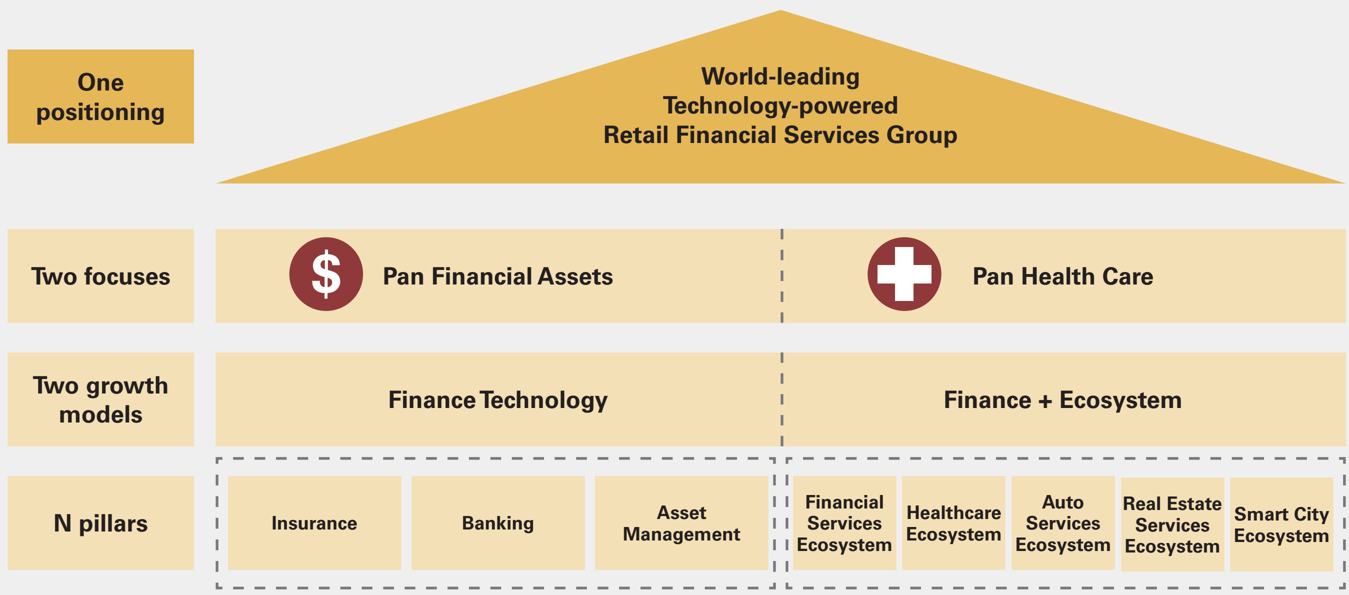
The younger generations of consumer will become a larger part of the customer base for financial institutions. This group of customers have higher expectations around customer service and product offering. They are also sensitive to price, transparency and convenience. They are digital savvy and want to get access to information such as their insurance policies, medical records, fitness data, and household purchases so that they can measure the impact on their wellness from their daily activities.

Across the industry, large financial institutions, Big Tech, and start-ups are working towards the ecosystem model that can offer such comprehensive services for different types of customers.

Ping An is building multi-ecosystem

- Chinese insurer, Ping An has built up an extensive ecosystem of convenient, value-adding services. In addition to insurance, it has expanded its reach to offer healthcare consultations, auto sales, real estate listings, and banking services to more than

Figure 11: PingAn ecosystem



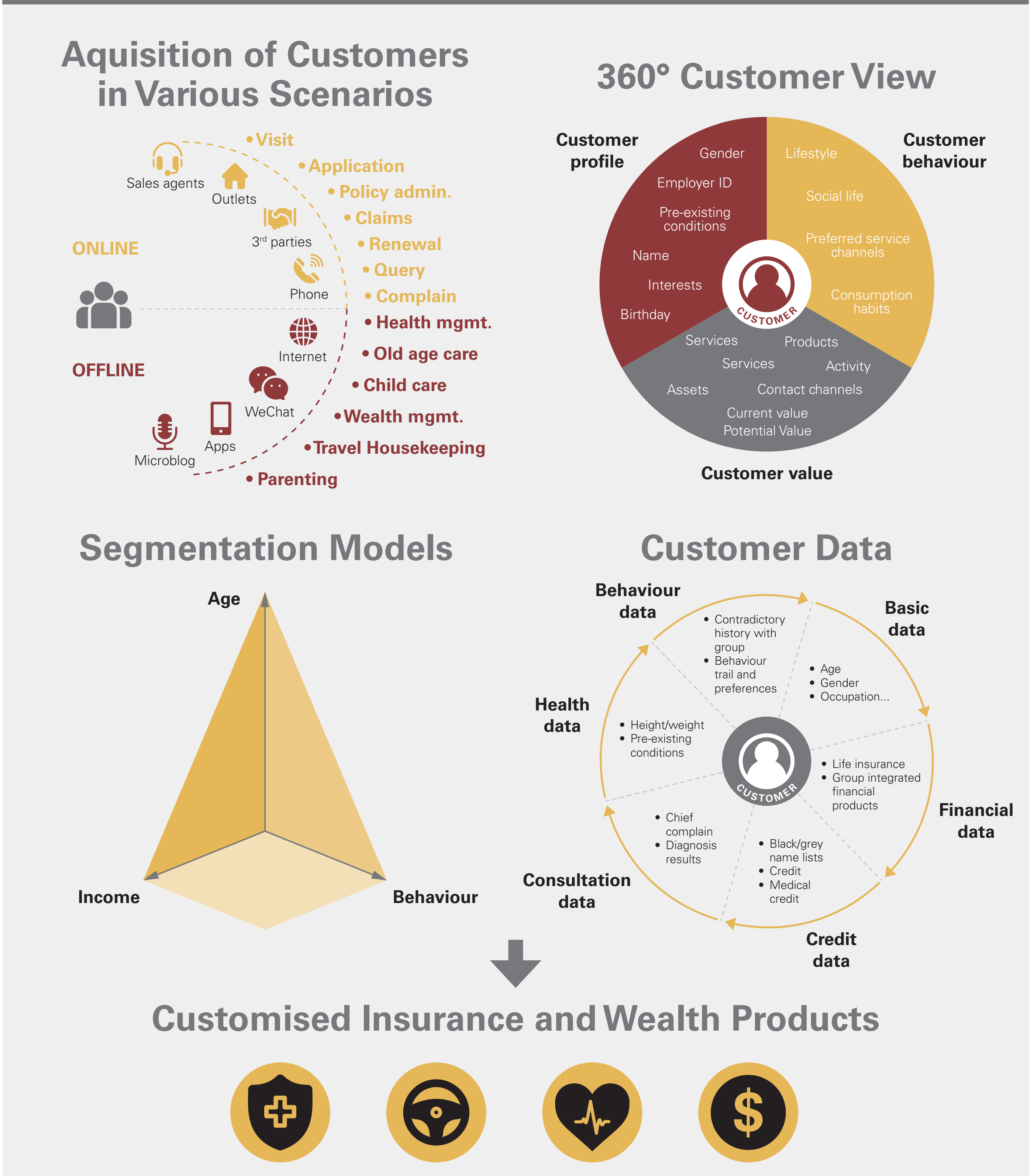
Source: PingAn annual results, 2018

350 million online customers through a single customer portal called the One Account. One Account serves as a gateway to offerings such as Good Doctor for healthcare, personal finance, insurance claims, housing etc. This new activity also generates customer traffic for Ping An's core services and has helped the company become the world's most valuable insurance brand

- Ping An's objective is to position itself as a "personal financial service provider" underpinned by health and financial assets. It uses technology to connect its ecosystem partners and offers a cost-efficient and user-centric end-to-end insurance value chain. In addition to insurance, Ping An has built one of the largest digital wealth management platforms (Lufax) in the world, the largest retail online broker in China, and the largest non-bank lending business in China. Through a broad suite of financial offerings, Ping An is able to collect one of the most comprehensive datasets around a customer's financial wellness
- To extend its understanding of the same customer beyond its core, Ping An has built or partnered with non-financial services companies. Its non-insurance apps (Good Doctor, real estate app, shopping loyalty app, etc) engage more than 185m users in its ecosystem and build better understanding of consumers.

4. New business models and investment themes reflecting the wellness convergence

Figure 12: Ping An provides customised products leveraging data from their ecosystem



Source: PingAn

4. New business models and investment themes reflecting the wellness convergence

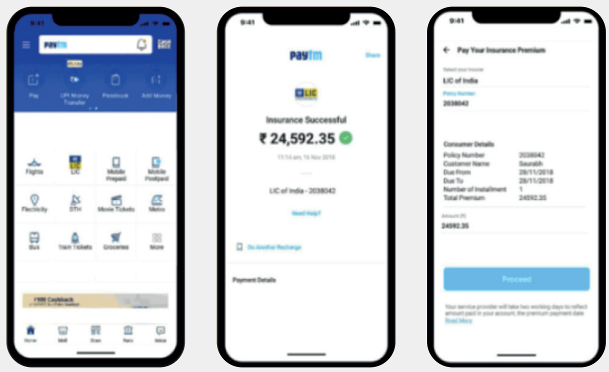
PayTM and ecosystem challenges

Despite growing the number of transactions from 2.5bn in 2018 to 5.5bn in 2019, PayTM has been struggling not only because of competition and a tough funding environment, but also because of the eroding infrastructure moat as India adopted Unified Payment Interface (UPI).[27]

PayTM could have taken advantage of its early mover and scale advantage to build vertical product within payments but chose to branch out into adjacencies to build a broader ecosystem and get higher commissions. By owning the ecosystem, PayTM can get as much as 8-20% commission versus peers that only earn origination fees by partnering.

PayTM has built a broad category of services outside payments on its wallet. They include providing movies, travel (38m bookings in 2018 vs 54m for category leader MakeMyTrip), payment bank, games, e-commerce mall, insurance, credit, mutual funds, and custom products.

Figure 13: PayTM offering a wide range of services through the payment app



Source: PayTM

Companies that build bespoke and affordable wellness platforms that dynamically offer solutions to customers can differentiate themselves from their peers that offer traditional point products. The wellness ecosystem play will simplify the user experience and drive higher customer engagement and satisfaction. The variety and veracity of data collected from solutions create unique insights and further loop back to reduce acquisition, production, and processing costs.

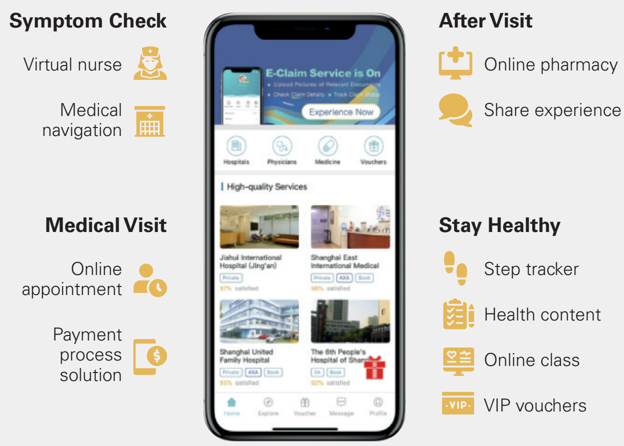
Customer-centric solutions

With rising customer expectations set by digital native companies, companies can only stay competitive by offering customers personalized experiences that delight them. The success of shifting from a product to customer-centric/solution-oriented organization is underpinned by the ability to offer timely value to consumers.

Fintechs like CareVoice (an Apis Insurtech Fund portfolio company) in China acts as a middleware, facilitating ecosystems for established insurers, re-insurers, and brokers. Through its SaaS platform, CareVoice enables insurers to plug and play into third party health and wellness ecosystems quickly while achieving customer-centricity. It helps private health insurers attract, engage, and retain policy holders, while also reducing costs associated with underwriting and claims. It is the only Chinese SaaS provider to insurance companies that offers end-to-end services from consumer lifestyle (e.g. step tracker) to their clinical needs.

As physical and financial wellness are converging, we believe financial institutions should extend the product offering to other dimensions such as mental, social and emotional wellness when designing their products.

Figure 14: CareVoice helps insurers achieve customer centricity



Source: CareVoice

4. New business models and investment themes reflecting the wellness convergence

Around the world now, problems such as the spread of loneliness and mental illness could deeply affect physical health and wellness of the population.

Implications for financial institutions are that the successful customer-centric solutions approach is preconditioned on having (i) holistic understanding of customers by collecting broad and relevant data and (ii) strong relationships with multiple product and services providers.

B. Vertical business models with highly targeted customer base

Tailoring solutions to specific segments of the population can better serve their unique needs, as seen with unbundling general aggregators or platforms (e.g. Craigslist, Yahoo). Suppliers can communicate with users more easily in a social network / community targeting a specific segment, thus iterating their products faster according to users' needs. As the specific networks serve users with better content and build a more dynamic community, providers such as healthcare companies could distribute specific tailored plans to the targeted networks more effectively.

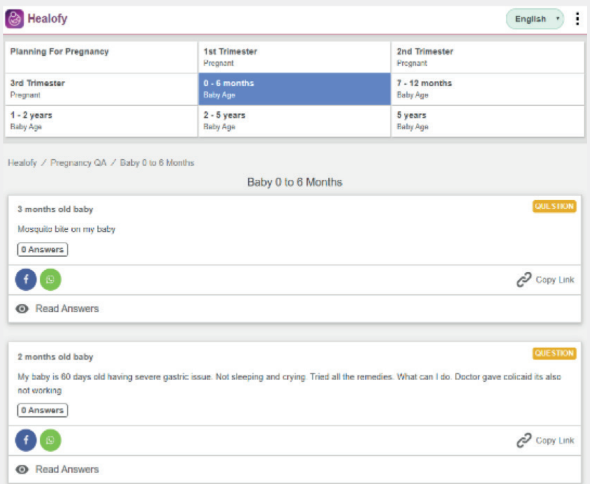
For example, women wanting to have children have a distinct healthcare need. Insurers can distribute both family health or life insurance products through this channel because mothers tend to drive the majority of healthcare decisions for themselves and their families. Such user groups could purchase both financial investment and health / life insurance products over time and bring high lifetime value to the vendors. Healofy and Mylo are pregnancy and parenting platforms / social networks in India. They have built vibrant online UGC communities where Indian mums can consume relevant content and speak to other mothers at different stages effectively.

The implication for healthcare providers or financial institutions is that they can partner to expand their customer base and distribute relevant solutions via a special network to specific populations (e.g. Asian-focused care in diabetes). For example, Patientslikeme is a platform enabling people with life-changing diseases to connect with others who have the same disease and share their experience. It can collect various information such as treatment history, side effects, quality of life etc. Financial services companies would benefit from partnering with such companies for distribution as evidenced by United Health's acquisition of Patientslikeme in 2019.

In the future, we anticipate market networks that combine SaaS workflow emerging. Healthcare or wellness providers could supply services on such marketplace where users (patients) could connect to other users with the same interest.

In such market networks, vendors might need to collaborate with other vendors for a comprehensive solution which would be supported by the workflow facilitated on top of the market network.

Figure 15: Healofy pregnancy platform interface



Source: Healofy

Figure 16: Market network, NfX

Source: NfX

4. New business models and investment themes reflecting the wellness convergence

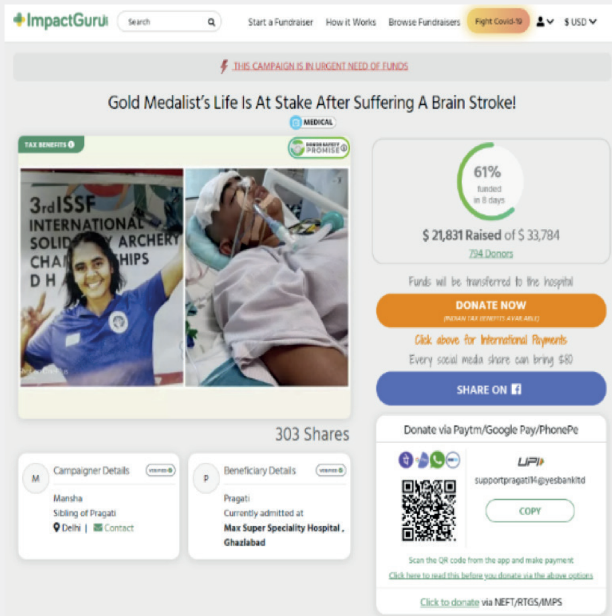
C. New access points through social networks

Financial institutions can leverage strong family and friend ties more prevalent in certain countries to acquire customers more efficiently. In China, online crowd funding platforms provide forums for patients to raise medical emergency funding from family and friends. The donation process for a medical emergency is a trigger point for family and friends to evaluate insurance protection. Such crowd funding platforms are able to upsell more effectively health or life insurance as donors are more aware of the value of protection. By leveraging the social network of the fund raisers with technology, such crowd funding platforms enjoy lower customer acquisition costs.

ImpactGuru is a medical crowd-funding platform that leverages social context, intent and technology (e.g. story bots, automated personal video creator) to maximize reach and donation cheque size in the shortest time for the fundraisers facing medical emergencies. The fundraiser's broader social circle are the key drivers of successful funding. In the future, like the Chinese model, ImpactGuru will distribute critical illness and life insurance in India.

In emerging markets with high underinsured populations lacking financial education, it is essential to adapt to new business models that match relatively high customer acquisition cost to lifetime value. Leveraging social engagement for insurance policy distribution at scale, and targeting to users with strong intent, could enable insurers to stay ahead of competition.

Figure 17: Healthcare expense crowd-funding campaigns on ImpactGuru website



Source: ImpactGuru

D. Contextual sales: using technology to embed sales at key customer "choice-points"

Sales channels are moving beyond traditional intermediaries (e.g. bancassurance) in many emerging markets. Low penetration of bank branches and under-developed independent financial advisor (IFA) markets further support this trend. More innovative firms are embedding financial products closer to where customer needs arise. Contextual financial services allow providers to more efficiently target customers who are likely to need their financial product. Customers purchasing vehicles will probably need financing solutions. Drivers providing ride-hailing services will probably need auto-insurance. Financial service providers may even move into actual underwriting over the longer-term once they have accumulated enough data.

An example of contextual financial services is Trussan in China. Trussan (an Apis Insurtech Fund portfolio company) offers a massive open online course (MOOC) platform that posts articles on baby/child health and financial education for middle-class families. Such middle-class families are often interested in learning how to choose the financial planning and protection products that fit their family's needs. After channeling prospective customers through its MOOCs, Trussan keeps them engaged

Figure 18: Parenting advice on Trussan content platform

Source: Trussan

through its social channels, online Q&A, and online wealth planning courses. Trussan collects data on interactions with their family users and their respective financial situation and risk appetite. This data helps Trussan effectively embed insurance and investment product sales opportunities along the user journey.

The longer-term implications for financial services are that origination and customer relationships are gravitating towards these technology-enabled "contextual financial services providers". Such providers are not necessarily traditional financial services firm, and at the same time, could potentially disrupt traditional players reliant on current channels (via bank branches or offline agents).

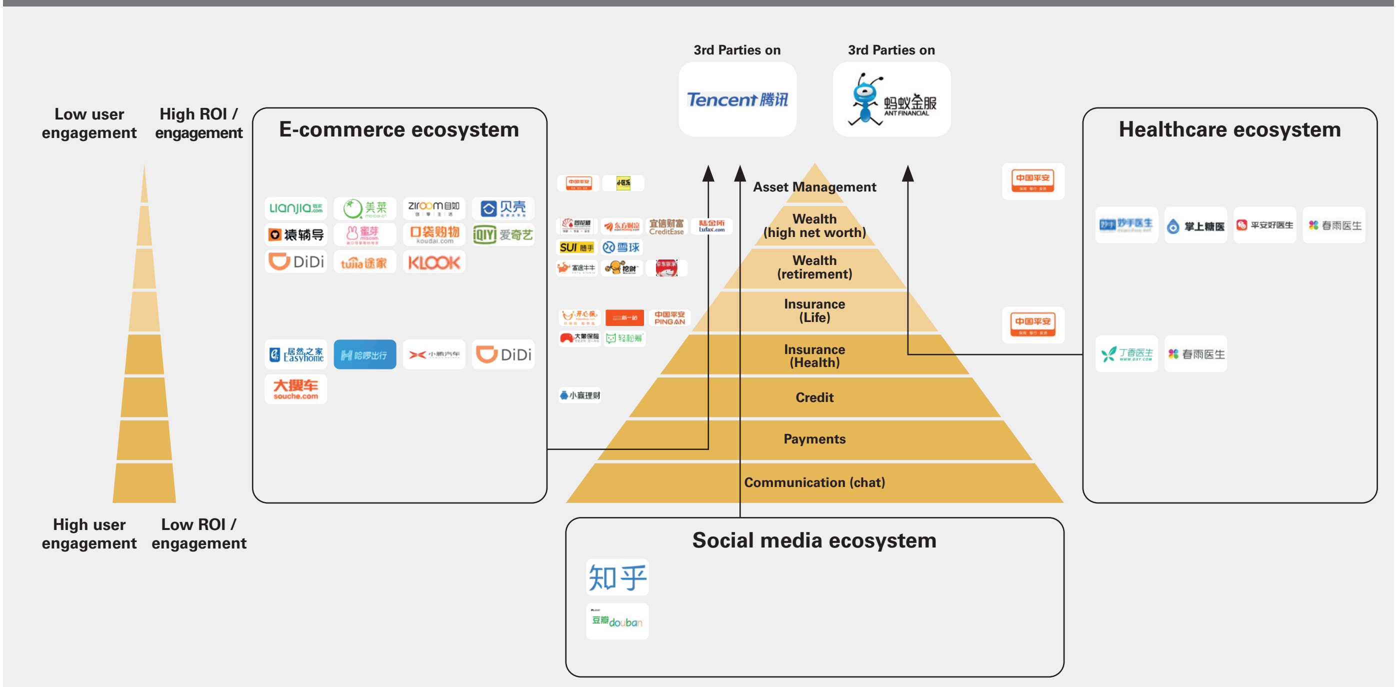
E. Big Tech vertical expansion into distribution and underwriting risk

To be able to offer a holistic solution around consumers requires seamlessly integrating various products and services that cannot be provided by one provider alone. To facilitate this, providers are partnering with multiple adjacent players and building ecosystems. Big Tech are riding the convergence tide by leveraging their scale and installed base and embedding financial and health products into existing services.

Both Chinese and US Big Tech have steadily built ecosystems with differing approaches and focus. In China, Tencent has built an *open* ecosystem with more partners whilst Alibaba has built a more *closed* ecosystem with controlled companies - see below number of 3rd parties for the two companies on their ecosystems.

- Tencent's WeChat Pay is expanding the scope of insurance products it distributes within its wallet which is seamlessly integrated into their customers' daily lives. The wallet enables P2P payments, bank transfers, and bank transfers alongside food delivery, grocery orders, and taxi bookings. WeChat leverages frequent engagement of users to build trust and create ample opportunities to upsell. Users can get health insurance products on WeChat or policies from other insurers (such as Taikang Life Insurance) via their Mini program on WeChat (a closed-loop ecosystem that tracks user engagement with all the apps). Its engagement model allows Tencent to capture a larger chunk of the value created
- Alibaba has leveraged its installed base to launch Alipay, a mobile wallet that has 520m+ users and 110m+ partners across 15 countries. The activities it supports span from financial services to social platforms, merchant resources, and life services

Figure 19: Chinese Big Tech - Tencent & Ant Financial (Alibaba) are building ecosystems across ecommerce, finance services and healthcare



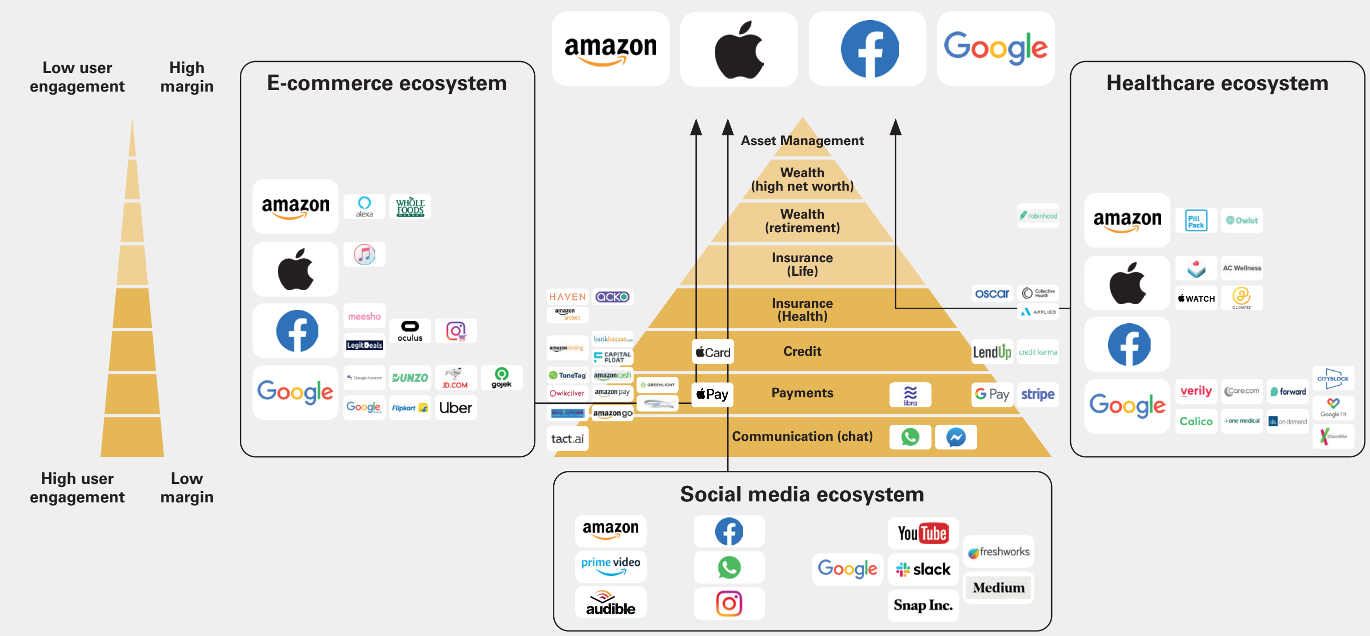
Source: Apis

4. New business models and investment themes reflecting the wellness convergence

We also note that the Chinese ecosystems are supported and highly aligned with government policies. For example, unofficially, Tencent has been encouraged to develop more the healthcare ecosystem whilst Alibaba/Ant Financial has been tasked more for supply chain related areas.

In the US, Big Tech players have made inroads into financial services and healthcare through partnerships, acquisition, and internal development.

Figure 20: US Big Tech - Amazon, Apple, Facebook and Google build ecosystems through partnership, acquisition and internal development



Source: Apis

- In 19Q3, Apple rolled out a virtual credit card with Goldman Sachs to capture more customer data and keep them loyal and entrenched in the Apple ecosystem. Apple will add a feature for iPhone financing. For Goldman, the card will enhance the bank's focus on its Marcus consumer banking brand. Health insurance company Aetna has also partnered with Apple Watch and offered a wellness program that will track and offer personalized health recommendations to Aetna's policyholders. The policyholders can redeem points for gift cards or toward payments for an Apple Watch by meeting activity goals and health-related challenges. Although the information gathered by the program will not be used for underwriting, premium or coverage decisions, both Apple and insurer can access the data and improve the custom health recommendation for users. Apple will become a more important distribution channel for health-related services / financial products over time.
- On June 18, 2019, Facebook announced Libra (virtual currency). Whilst Facebook has faced a series of setbacks since, it aspired to use Libra as a tool to offer financial services for billions of people, especially those in developing countries who have no access to banks or financial services. Libra creates a digital token representing a basket of assets and a payment system designed to make it easy and cheap to send money around the world.
- In addition to setting up financial pillars across payments, cash deposits, and lending, Amazon has partnered with JP Morgan and Berkshire Hathaway to set up Haven Health that would help build its own healthcare ecosystem that drives outcome and value. This is a case of building ecosystem around health, life, and financial services to provide the most optimal benefits for the employees of the involved entities. It contrasts with strategic moves by CVS and Aetna that have vertically integrated to own the customer and reduce cost along the value chain.

Tech players, that have historically acted as aggregators for traditional financial institutions, not only represent a new sales channel but future competitor. For example, in insurance, Big Tech are increasingly leveraging established self-insurance structures within their closed loop ecosystem to bypass the local underwriters and capture a larger share of the profit pool. Big Tech can also proceed to capture other parts of the value chain (e.g. express diagnosis, specialist appointment which insurers are also trying to expand into). Traditional insurers, lacking product management and tech capability, are handicapped against such agile tech native players. Whilst today, tech players limit themselves to short-term insurance, longer-term, they could partner with asset managers and re-insurers to provide savings and term life products to customers. The partners have direct access to customer and better underwriting ability based on the relevant data captured in the ecosystem, thus pose an increasing threat to traditional insurers.

F. Direct healthcare services subscription

In certain markets or segments, consumers may not be interested in purchasing life and health insurance because they don't understand the product or trust the insurer. However, the same consumers may be happy to try healthcare applications such as Babylon Health (UK), Doctor Anywhere (Singapore), and Doc Prime (India). Similar healthcare service providers have gained traction with health service subscription models, which cover the cost of clinical services and prescriptions for a fixed monthly price. In this context, one could think of health insurance to include a bundle of healthcare services offered by the likes of healthcare apps mentioned above. We know that the more transparent the pricing of each service within a bundle, the more likely customers will understand the real value of the bundle. Customers subscribing to such direct healthcare services could potentially be interested in purchasing health insurance if packaged and sold the right way. We expect to see more insurers providing healthcare services directly to consumers.

Insurers could benefit in a few ways. (i) By providing the healthcare services through ownership or partnership, insurers may increase the pool of potential customers. Additionally, direct healthcare services such as digital triage and virtual/online GP consultation could potentially reduce risk of claims. (ii) By providing services tied to outcome, insurers could have more control in the claim costs. (iii) Insurers could access relevant risk data of customers. Leveraging such data, insurers should be able to build better prediction models and provide health insurance coverage at a more accurate price to their installed base.

Through subscription-based services, financial institutions can engage customers more frequently. For instance, a health insurer can add value added content (e.g. well-being tips on diet or exercise) while reminding customers about an upcoming appointment. Retention rates are also usually higher in subscription models.

The implication for financial institutions is that direct healthcare service providers could provide a contextual selling channel for health insurance. By providing quality healthcare via such channels, financial institutions can build trust with customers more easily. Financial institutions could later cross-sell complementary financial products and provide better physical or financial wellness protection to those customers in the ecosystem.

4.1.2. Data and infrastructure that enable better monetization and reduce production costs

A. Health and life data monetization

Many tech platforms provide utility to the public for free by monetizing user data through advertisers and marketers, researchers, and partner companies (e.g. life sciences companies). Through smartphone and wearables, social networks, and various digital services, tech platforms can access data about user preference, behaviour and financial strength. These players can use such data to create significant value by identifying unserved customers, and cross-selling products.

A case in point is Jio, India's largest mobile telecom operator. Jio offers the world's cheapest mobile data and accordingly has 388 million subscribers. As a result, Jio can collect a wide range of data including health and life data. Together with Jio Platforms and Reliance Industries, the "Jio Group" is building a multi-industry digital app ecosystem and the largest connectivity platform in India. With Facebook as its largest minority shareholder, Jio can not only leverage Facebook's ecommerce and mobile payment capabilities but also get access to millions of users across WhatsApp, Facebook, and Instagram. Jio plans to monetize the data generated from the users on its network and provide a bundle of applications and services across different segments in its ecosystem. Jio Group has invested in or acquired multiple technology companies, including Saavn (music streaming), Haptik (conversational AI), Embibe (learning and edtech), Reverie (Indic language software), NowFloats (SaaS for SMEs), Den Networks and Hathway (cable and broadband), Radisys (5G and IoT). The Jio ecosystem services range from grocery, ecommerce and payment, to health services, gaming and media.

Figure 21: Jio platform ecosystem

MyJio	Telecom and utility	
JioSaavn	Music and audio streaming	
JioCinema	Movies and video streaming	
JioTV	Live and catch-up television	
JioVR	Immersive 360° VR content	
JioBrowser	Data-light web browsing	
JioNews	Multi-language news/magazines	
JioSecurity	Mobile and data security	
JioHealthHub	Health and e-diagnostics	
JioChat	Messaging, voice/video calling	
JioCall	VoLTE calling	

JioCloud	Cloud storage and backup
JioMart*	Ecommerce and kirana
JioMoney	Digital payments
JioMeet	Multi-party video conferencing
JioGames	Online gaming
JioGate	Apartment security/gate management
JioHome	Access control
JioPOSLite	Community recharge
JioMotive	Live vehicle tracking
JioSmartSecurity	Cloud-based smart camera/doorbell

*App yet to be launched, service live on web

Source: Yourstory

Tech platforms that have built ecosystems have even more avenues to monetize data. For example, based on historical clinical data, health insurers can build predictive analytical models and partner with healthcare/wellness providers to service targeted customers or sell these models in data marketplaces. Population-level longitudinal clinical data are useful for hospitals to predict re-admission within populations with certain chronic conditions or for pharma companies to measure drug adherence of patients and understand drug efficacy better.

Some elderly care providers have installed motion detectors, bed sensors and medical devices to capture real time data and adjust their care services accordingly. The data will not only be useful for caregivers, nurses, and family members, but will also be beneficial to financial institutions in creating customized lifecycle based financial products for the elderly. Insurers will certainly need to build more advanced analytics models to cater their offering for the aging population.

Insurance broker Aon has recently launched a digital wellbeing platform with Dacadoo, a technology solution provider for digital health engagement and health risk quantification. Decadoo has over 300 million person-years of clinical data. It provides (i) a real-time health score system to measure individual health (e.g. workout, sleeping, daily steps) and (ii) risk engine for real-time scoring of mortality and morbidity. Leveraging Decadoo's solutions, Aon can provide better health and wellness guidance to employers and their workers.

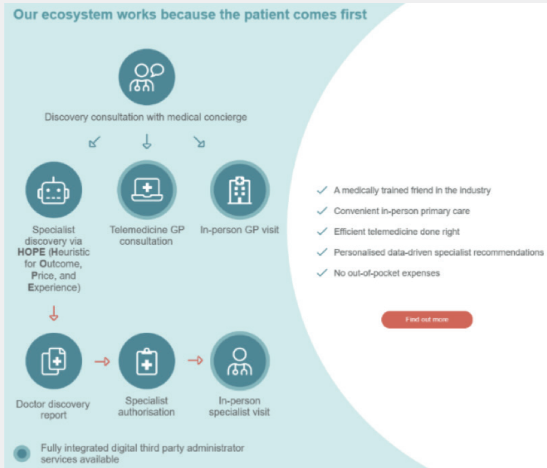
The implication for financial institutions is that many consumers are willing to share personal health data for the benefit of the best medical care. Larger financial institutions and ecosystem providers have the advantage in aggregating customer data across different dimensions. In doing so, they are able to capture (i) direct value by selling data insight to other providers, and (ii) indirect value by leveraging the engagement data to improve the core offering or bring relevant services to customers (e.g. recommending the most relevant healthcare services with the best outcome).

B. Health and life data converging in underwriting and engagement

Insurers are launching hybrid life insurance and health management products to drive revenue and meet consumer needs. To facilitate a sale of health and life insurance product, both insurers and agents must establish a continuous relationship with the user. This is preconditioned on building trust and knowing intimately customers' life patterns. This makes it critical to be the first of mind destination for critical health and life events (birth, terminal illness, etc) when the user is in biggest need or at a key decision point. Large corporate customers are working directly with insurers of tail risk to create bespoke risk products (e.g. riders, term insurance) that directly distribute to their employees (e.g. Haven Health).

Case in point is DocDoc (an Apis Insurtech Fund portfolio company), which is a patient intelligence platform optimizing specialist matching based on objective metrics (outcome, price, and experience). DocDoc offers a unique knowledge graph[28]-based doctor discovery engine that matches end-users with the most appropriate specialists at medical procedure and patient condition level. DocDoc does not only enable insurers and corporates to differentiate their health insurance services, but also enables insurers visibility into the specialists' outcome down to the user level, thus helping underwrite better and improving leads for the future.

Figure 22: DocDoc is creating an ecosystem through its specialist doctor discovery engine



Source: DocDoc

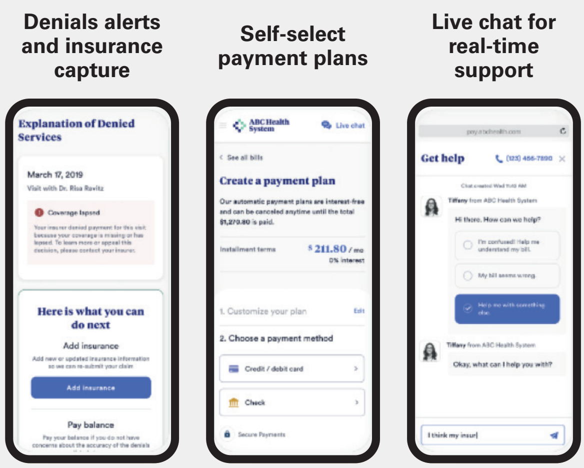
The implications for insurers are that they need to build trust and continuous customer engagement so that they not only differentiate products at time of sale but also access consumers at opportune times for the most appropriate life insurance product. It will eventually lead to enhanced brand experience and enable the insurer to genuinely differentiate its product, especially in markets where insurance products are viewed as commodities.

C. Payment and collection solutions for affordable medical plan

Patients in all geographies often have problems paying off their medical bills. Such issues arise because patients cannot (i) find a suitable and affordable health plan fast enough or (ii) pay on time due to miscommunication with service providers. As a result, patients are often adversely affected by the bills and hospitals receive payments late or have to write off bills. Solving this problem would require the healthcare sector to provide more personalized medical plans so that patients can pay the medical bill they can afford at the right time. A few start-ups are working on this front.

Cedar empowers patients to resolve medical bills with better financial outcomes. They provide (i) fast-track payment with readable bills to patients and (ii) a healthcare financial engagement platform that creates customized interactions for each patient. Features such as denials alerts, insurance capture, personalized discounts and payment plans can help healthcare providers to optimize engagement with patients.

Figure 23: Cedar insurnace payment interface



Source: Cedar

PatientPay focuses on billing services for acute, ambulatory and specialty care. The company partners with revenue-cycle management companies and communicates billing information to patients. Its software helps reconcile insurance claims and patient payments and matches up a patient's bill to the explanation of benefits from patients' payer. PatientPay's digital solutions for patient payments could not only help providers drive more payments but also provide a positive billing experience and lower the cost of care for patients.

Simplee (acquired by Flywire) can segment patients by capacity to pay and matches patient needs with payment option. It provides patients with a convenient self-service billing and payments solution such that patients can easily maintain insurance and payments online.

The implication for financial institutions is that ecosystem providers should engage patients and address patients' affordability for healthcare services with personalized payment solutions. Leveraging solutions enable financial institutions to collect valuable data. For example, financial institutions can better understand actual payer of bills, payment timing, or payment installment amounts. Such data can help financial institutions determine (i) how much each individual is likely to pay, (ii) which patients need options like payment plans and at what amounts and (iii) what the best payment method for specific patients are.

4.1.3. Applications that enhance operational efficiency and improve engagement

A. Using customer engagement and rewards to steer customer acquisition towards lower risk groups

Financial institutions can use customer engagement and rewards to skew customer acquisition towards lower risk groups. Launched by Discovery, a South-African health insurer, Vitality offers a wellness program that rewards policyholders with various discounts for engaging in healthy lifestyles. The program is now offered on a standalone basis in several developed insurance markets including UK and US. Such program allows insurers to attract lower risk groups (e.g. health conscious population) and price products more accurately. Vitality has focused on developing an ecosystem centered around rewarding customers for actions (e.g. regular exercise) which reduce actuarial risk. Customers receive rewards for their healthy lifestyle choices, which in turn lead to better health outcomes and fewer insurance claims. Such incentive schemes have engaged clients more (contrast with years lapsing in between engagements) and allowed Discovery to build up data about customers' lifestyles, health and spending patterns, thus better price each customer on an on-going basis. Discovery was able to leverage Vitality ecosystem to selectively pick healthier cohorts of customers and steer existing customers to reduce claims cost. Traditionally, it has been difficult to correlate healthy behaviours and their impact on life expectancy. However, insurers can create an explicit link between well-being behaviours and how they impact life expectancy and quality of life. It was also able to leverage strong customer engagement to successfully build a life insurance business which was almost nil to close to 1/3 of S African market in less than five years.

A similar example is FirstDollar in the US. FirstDollar enables consumers to get more use out of their healthcare savings accounts (HSA) and treat HSA as an investment account. FirstDollar provides health and wealth management services through solutions that cherry-pick the most attractive segments in a growing demographic segment.

The traditional limited engagement between financial institutions (insurers in particular) and clients is being broken down, which will benefit insurers who build the flywheel of engaging clients more frequently, collecting more data, and providing more customized pricing to better engage client with more relevant services.

B. Utilizing AI to automate workflow and build financial products

One of the key challenges for financial institutions in the emerging markets remains customers' lower purchasing powers. To capture this emerging middle class, financial institutions must engineer a structurally different cost-model and product design compared to those in developed markets. Doing so successfully requires <u>orchestrated automation across end-to-end workflow</u>: origination, administration, collection, and claims handling (for insurers).

Players such as Arya.ai and Qibao have focused on using deep learning / machine learning for origination, administration, claims handling and collection. Financial institutions benefit from cost efficiencies stemming from low manufacturing cost inclusive of fraud and/or claims.

- Arya.ai, a deep learning-based workflow automation SaaS company, enables banks and insurers to quickly deploy deep learning to automate core workflow (learning without any human intervention) end-to-end: underwriting, fraud monitoring, and claims processing.

- Qibao, a specialized insurance chatbots technology software vendor, provides insurers/reinsurers with a natural language processing (NLP) chatbot (Qibot) based on a comprehensive insurance knowledge graph. Qibot is an all-in-one automatic insurance chatbot that can fully understand insurance plans, and has functionality across pricing, quoting and binding, issuing and underwriting.

These providers can help financial institutions (i) reduce staff costs and improve customer experience by promoting standardized services, less misleading selling practices and reducing time for training (faster implementation); and (ii) lower transaction costs by providing customer service and claims management through industry specific AI bots.

The same could be applied to the wealth management industry. Companies can extract useful information when onboarding customer with AI chatbot solutions. More roles of a traditional human financial advisors are being taken up by AI/automation solutions. Companies such as Vise or Trussan unpack and automate solutions to assist customers to explore optimal tax planning strategy for the portfolio, identify best timing to purchase investment products, run return scenarios based on macroeconomic factors and personal goals, and recommend optimal asset allocation based on risk preference. Automation does not only bring down staff costs for providers but also enhances investment outcome for customers.

Traditional business models will need to be rethought for nascent emerging markets, where the traditional tied agent / IFA model might not be cost effective. Technologies such as AI and automation should be utilized to drive better productivity and decisioning across all workstreams, hence lowering costs and serving products to emerging market customers with lower purchasing powers.

C. Leveraging big data to better price risk and underwrite new financial products

The explosion of health data from the Internet-of-things (IoT) allows financial institutions to build granular risk profiles of potential customers. For example, Apple and Discovery combine real time health metrics for better underwriting and pricing decisions. Having a rich profile of customer data has the benefit of improving profitability, as banks and insurers are better able to price risks.

Eureka.ai (an Apis Insurtech Fund portfolio company) is a big data platform that applies mobile user data to generate new revenue streams for enterprises such as bank and insurance. With its mobile operator partners, Eureka can combine unique mobile data with existing credit, underwriting, and fraud scoring to enhance the outcome for lenders and insurers. Eureka then combines mortality data with data from telecom providers and creates a scoring product that benefits banks, wealth managers, and insurers. Wealth managers can use health score and wealth score to offer most relevant wellness and wealth product. Insurers can use similar data to underwrite better and prevent claims fraud. For example, data related to an individual's time and venue coordinates can be used to verify the authenticity of that person's claims (e.g. presence in specific hospital for treatment).

Another example that big data can help financial institutions to price risk fast is "accelerated underwriting". Examples involve fully automated mortgage underwriting or life insurance issuance without a medical exam. The speed, cost, and accuracy improvement mean some segments of the population who were unable to access such products can access more of such products. To ensure accurate pricing, banks and insurers assess changes in financial and physical health conditions of the borrower or policyholder on an ongoing basis, rather than just at the time of application. For example, Gen Re's 'NOW' app applies facial analytics technology to estimate a user's age, gender and BMI from a selfie, generating a life insurance premium more quickly.

Companies in the wealth management industry can apply big data to calculate investment risk faster. Rule-based systems can help conduct hundreds of analyses per second and achieve real time decision making.

Big data analytics will play an increasingly important role in policy pricing and risk analysis. In emerging markets, where traditional credit or insurance data on clients is typically limited, big data will play an even more important role in product pricing.

4.2. Potential investment areas for wellness ecosystem players

COVID-19 is likely to have long-lasting consequences in terms of how the public views health/well-being and related services and infrastructure. Increasingly, people are perceiving health as the new wealth which has implications for financial institutions and their business priorities. Accordingly, corporates and asset managers will allocate more capital and investments from other industries into biotech, wellness, healthtech, preventive medicine and longevity.

Financial institutions will benefit from the commercial return from investing in the health sector, as physical and financial wellness converge. Additionally, financial institutions can gain strategic advantages. For instance, financial institutions can use wellness to reinvent their public images, as their NPS is usually low. Customers may not be satisfied with the slow administrative processes and nature with financial institutions. With wellness engagement, financial institutions can enable customers living a healthy lifestyle and associating positivity towards the financial institutions' business in the eyes of customers.

We believe financial institutions should act early and consider the new investment opportunities based on the upcoming trends of financial and physical wellness.

4. New business models and investment themes reflecting the wellness convergence

A. Financial inclusion, affordable access, and health outcomes

Increasing penetration of digital payments, bank accounts and assets can open up new markets serving the underprivileged and improving their financial and physical wellbeing. The financially excluded need basic financial services such as digital bank accounts for payroll, daily payment, and savings. This population often is more vulnerable and cannot afford healthcare services. With access to finance, people can start planning their life and financial situation to cope with future health related events. Financial access could be the entry point for underprivileged to get better understanding of basic health knowledge and purchase affordable health insurance products.

For example, penetration of digital payment and wallets in China has driven rapid adoption of peer-to-peer health and life insurance with low monthly premiums in the country (led by **ShuiDi, QingSongChou**). Other examples of payment oriented fintech solutions include mobile based health savings accounts, low interest loans, and remittances used specifically for healthcare. Such solutions increase the access and affordability of care for low to moderate income populations that might otherwise be difficult to reach.

There are new means of financing to deal with rising healthcare cost. Unexpected illness, injury, or even standard treatments can lead to substantial medical debt. The un/underinsured will have problems in keeping up with their monthly payment, thus kicking off a vicious cycle. Savings suffer potentially driving lower credit scores, which will make it harder for them to fund future medical spend. A study reports that provision of health insurance reduces levels of stress and cortisol levels through a "peace of mind" effect[29], leading to fewer health problems. Some providers, especially in the emerging markets, are therefore increasing access to financing for healthcare bills. In India where the majority of the population is un/underinsured, critical illness bills are so prohibitively high that even an upper middle-class Indian family would have difficulty financing them through savings, loans, or asset sales.

In such environments, providers like **Letsmd** offer synthetic financial saving products to convert surgery and treatment bills with 0% interest monthly installments. **ImpactGuru**, India's leading healthcare crowd-funding platform, enables consumers to raise donations for their critical illness bills. The company capitalizes on adoption of social networks and the wide spread of frictionless payment rails to efficiently reach out to patients' family and friends' network. It also combines heightened awareness of critical illness and life needs with technology to drive low customer acquisition and high conversion of critical illness and life products.

B. Decentralized ledgers and digital assets

Decentralized ledger technology (DLT) and digital assets will help democratize access to health, scale data-based business models, and facilitate better price discovery. With broader adoption of AI, businesses are gathering more user data to drive better engagement and services at a time when consumers are becoming more aware of their data privacy, especially in healthcare. Notwithstanding, most consumers are open to sharing their health data if they get to share the benefit proportionally. Because DLT provides a way for payment natively on the network rail, they would facilitate easier transfer of value for access to high value data.

Indeed, DLT enables the sharing of data by parties that inherently don't trust each other (e.g. customer-vendor or multiple vendor and partner relationships). DLT would (i) enable users to decide how to get better health insurance pricing by sharing partial health data with insurers in the absence of trust or (ii) help scientists access larger valuable datasets faster, thus driving faster drugs or therapy approvals. DLTs could also be used to safely house billions of genetic data points, or other health information and enable such architecture of data exchange.

For example, **EncrypGen**'s blockchain platform makes it easier to search for, share, store and buy genetic information. **DOC.AI** decentralizes medicine on the blockchain. Users can opt into the company's platform to share their medical and genomic data with a community of scientists that use the data for predictive modeling. **Such companies have potential to create an unprecedented level of insight into individual health and open the door to hyper-personalized drug development**.

DLT can reduce transactional friction in physical and financial wellness ecosystems. Decentralized ledgers could simplify and speed up the currently complex health payment process for all parties. The decentralized nature of blockchain technology could enable doctors, hospitals and pharmacists to efficiently access longitudinal and comprehensive patient data from multiple parties in an ecosystem, thus driving **faster diagnoses and more compressive personalized care plans**. For instance, **SimplyVital** uses blockchain to create an open source database so healthcare providers can access patient information and coordinate care. Shared knowledge bases can be augmented by artificial intelligence tools like **DreamQuark**, which uses deep learning algorithms to automate data processing and generate recommendations accordingly.

Additionally, DLT can enable interoperability of digital assets. It is imperative to have a shared digital infrastructure that can interface with different organizations and industries. For example, the lack of correct or instant health record information exchange between clinics and hospitals may lead to medical errors and adverse events. With a shared digital infrastructure, ecosystem players can easily authenticate the delivery of healthcare services and share records securely. For example, **BurstIQ** uses blockchain to improve the way medical data is shared and used. It could help to root out abuse of some prescription drugs. Blockchain based fintech platforms like **GemOS**, for instance, give healthcare networks a shared digital infrastructure that makes data sharing more reliable.

Another benefit of DLT is programmability of money or transaction. Programmable money could mean a currency that has control logic built into it. Such logic could enforce some payment to be restricted to certain destinations. Government or payors would be able to control distribution of healthcare resources more easily. For example, a policyholder could only apply insurance pay-out towards wellbeing improvement activities. Smart contract can also set up rules to control and stream cashflow. Using such pre-set rules, individuals could manage their cash flow based on payment needs and optimize the timing of cash outflow and inflow, thereby improving finance situations. Companies such as **Solve.Care** have a purpose-built healthcare administration platform that not only improves access to care but improves outcomes and reduces overall costs.

C. Aging population and longevity finance

As populations live longer with help from longevity science, we expect to see higher demand for not only quality healthcare services but also creative wealth and investment products to finance them.

Aging population will increase demand for chronic health service. To cope with this, insurers can work with chronic disease management service firms like **Dnurse** and offer life and health insurance which help policyholders proactively manage their chronic conditions (e.g. diabetes) through real-time diagnostics. Insurers can also improve their retention by assisting policyholders achieve better outcomes, rather than providing a commodity protection product.

Longevity will catalyze demand for wellness and agetech services that prolong and improve quality of life. Quality and health adjusted life expectancy will increasingly become more important measures. Anti-aging treatments, rejuvenation applications, gene therapy, and regenerative medicine will become more interesting as the unit costs come down over time. Insurers and financial service providers can contribute to population health by offering alternative financial products that can help the public access such services as a total wellness solution.

Financial services have the opportunity to cater to the needs of longer living population looking for good quality wellness solutions. Longevity will materially alter consumption patterns, savings behaviour, work and leisure, and investment horizons. Longer investment horizons to accumulate wealth and longer post-retirement period will change consumers' risk profile and resource allocation, which in turn will change investment product needs. New investment and health products should bring income stream to clients who will likely have longer health adjusted life expectancy.

The financial service industry has the opportunity to create new savings products, investment vehicles and risk management products that address longevity health and retirement challenges. For example, investment-linked products have been the biggest driver of growth for life and health insurers across Asia. Insurers can focus on protection-orientated features in products like annuities, critical illness, and health insurance. Insurers and the asset management industry are also looking at opportunities in robo-retirement, annuities for longer term of payment (Blueprint Income), long-term securities, longevity index fund and group health benefits (Fringe) etc.

To create these products, financial institutions need to build up both product management and technical capabilities. DLT based tokeization is also creating new digital assets that could become a new asset class which could provide clients more variety in investment options at a lower transaction cost. To cope with longevity risks at both the individual and portfolio level, insurers need to develop better risk transfer mechanism such as buy-out, buy-in and longevity swap/securities that deal with higher mortality uncertainty and an aging population.

Trusted single point solutions provider that garner the full service capability of an ecosystem will become more valuable to an aging population. An aging population would need more health screening assessment, diagnostics tests, and counseling services. Whilst governments provide some of these health services, they would not provide all of them nor to the level required by different segments of the population. In this context, the demand for a trusted assistant or provider to deal with all these issues and find a way to pay those services will likely increase. An example would be a trusted financial and physical wellness platform that integrates banking, wealth planning, investing, insurance, and tax services around a user's lifecycle. A one-stop ecosystem will not only provide appropriate holistic solutions around wellness but also free up clients' time and effort. Insurers could leverage new insurance products to engage daily aging policyholders by providing healthcare service and building trust while payment providers could utilize their customer interface as an engagement point for a total wellness ecosystem.

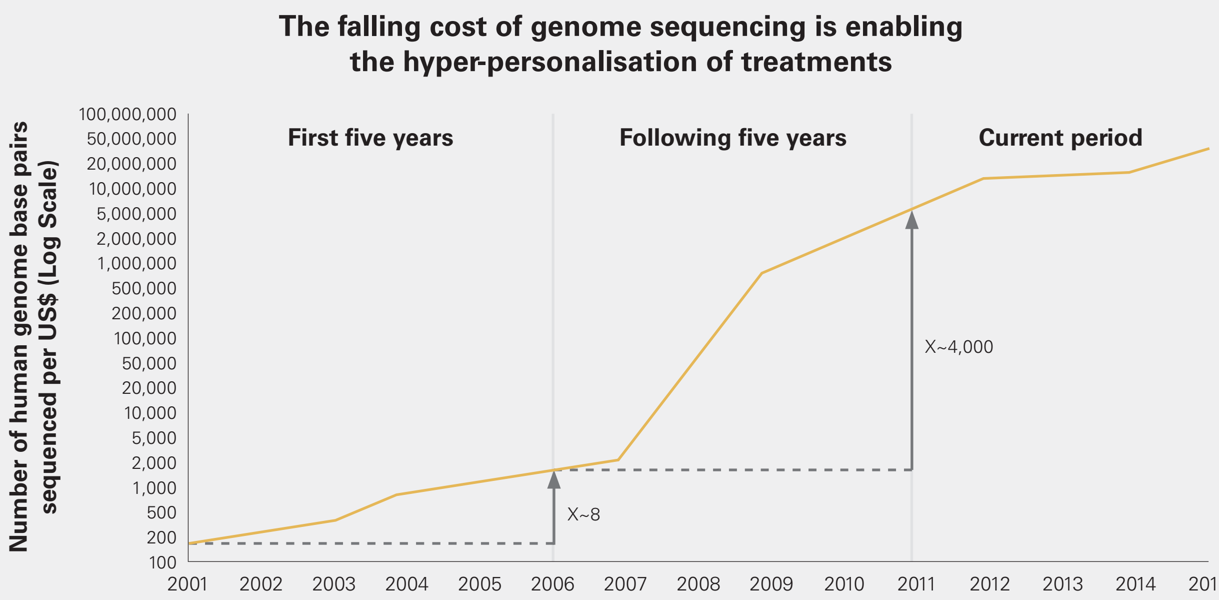
Smartphones gather a variety of new data sources (location, performance tracking, omni-channel interactions) that could be used for lead generation, product pricing, and customer service. Shared data from ecosystem apps, along with wearables, would arm financial services providers with more useful information to help clients lead a purposeful and active life. For example, wealth managers would benefit from cooperating with companies such as **GreatCall**, a mobile wellness service for older customers (sold for $800m).

Insurers are in a good position to build an ecosystem with other service providers mentioned above because their value to the user is underpinned by trust and security. We are seeing insurers even offer health incentive programs and personalized payment plans, thus reinforcing their trust with users. Other services that aging populations need include home care. **Longevity Card** is making banking easier and safer for seniors in an attept to capture the underserved market comprising 1 billion retired people. They offer integrated solutions such as a comprehensive view of investments, taxes, insurance and retirement. **Dai-ichi Life** has prioritised partnerships with senior care start-ups such as US based Neurotrack. Neurotrack provides memory exercises and assessments identifying the early onset of Alzheimer's, a disease which afflicts 1 in 5 Japanese seniors.

D. Fundamental shift from protection to prevention and personalized wellness

Consumers' growing interest addressing health and lifestyle holistically is shifting insurers to focus beyond passive protection to active preventative care. Across the globe, non-communicable diseases (NCD) such as Parkinson's disease, cardiovascular diseases, cancers, diabetes, continue to grow, putting strains on health systems. Insurers are well positioned to address such challenges by steering individuals through personalized intervention and preventative care by leveraging wellness ecosystems.

Figure 24: Falling cost of genome sequencing



Source: OWID, McKinsey, Statista

4. New business models and investment themes reflecting the wellness convergence

Genomics can drive hyper-personalized preventative and care services to individuals. Next generation (Whole Exome) sequencing is now available to a larger population at an affordable cost driven by exponential decrease in sequencing cost (see figure 24). With broadening adoption enabled by DLT democratizing healthcare and data access, companies would be able to leverage genetic data to offer hyper-personalized preventative and care services to consumers. Individuals would be able to find out what foods, supplements, and exercise regimens suit them most.

More progressive insurers are using gene testing as a tool to acquire customers with the potential to on-sell health and financial services to their installed base in the future. Such tests can show clients their vulnerability to certain diseases, thus encouraging them to proactively adopt lifestyle changes before it is too late. Healthier habits will not only help reduce claims costs for the insurer but also lower monthly premiums for policyholders. Genetic profiles, combined with other data from the ecosystem, can help identify other risks and choose the best personalized treatments. Both providers and consumers share aligned financial incentives and physical benefits from this personalized wellness trend.

Prenetics (an Apis Insurtech Fund portfolio company) has moved beyond next gene testing to position itself as a data driven consumer health company in Asia. It provides consumers with a personalized report on disease risks, diet, fitness, and wellness condition. Genomic data is valuable for R&D, as evidenced by GSK's $300m equity investment into 23andme. Using genomic data from 23andme's database, GSK could develop innovative new medicines and potential personalized cures using human genetics as the basis for discovery. Ecosystem orchestrators like insurers (as payors) are well positioned to connect various vendors to provide such personalized medicine / treatment by overlaying holistic health profiles with data from connected technologies and omni channels.

Large platforms are well positioned to pull data points together to improve health outcomes. Big data, DNA testing and interactive health engagement could all bring us to personalized medicine that is both more effective and more cost-efficient than today's health care model. Platforms which have access to siloed health data for individuals would be able to connect patients to more affordable and personalized wellness solutions.

Google has an end-to-end strategy in healthcare. Through Alphabet's subsidiaries like Verily (healthcare analytics & research), Deepmind (AI research and health data infrastructure) and Calico (aging / age-related disease data), the group can generate data about specific diseases. They can identify any risk factors or abnormal trends at an earlier stage and potentially provide a personalized

Figure 25: Google is building an health ecosystem to tackle specific diseases

Google is tackling specific diseases

Disease progression

	Eye disease	Diabetes	Heart disease	Parkinson's	Multiple Sclerosis
Data generation	Optos	Dexcom Glucose Monitor	Monitoring patent + study watch	Study watch	Study watch
Disease detection	Diabetic Retinopathy Research	Cardiogram study	Retina heart health analysis	Personalized Parkinson's	MS observational study
Disease/ Lifestyle management	Ocular Mount	Onduo + smart syringe	One brave idea	Liftware	Galvani bioelectronics

Source: CB Insights

disease management program. For example, Verily has patented a smart syringe to help diabetics monitor their injections. Verily's JV Onduo can combine hardware, software, and coaching to help people with diabetes manage their condition. Google's AI expertise can help detect at-risk patients and personalize the coaching process.

Insurance carriers are also leveraging data for personalized recommendations to improve health outcomes. For instance, Dai-ichi Life Insurance of Japan has launched an AI-powered feature for its mobile app. It analyses a photo of a recent health check-up to determine a customer's "health age." Based on this, it can recommend a health improvement course.

E. Employer focus on overall wellbeing of employees

Employees could experience high level of stress – work or financial situation related. The cost of health care could often be higher for employees with high levels of stress and add further burden of financial stress to the employees. However, both health insurance and retirement plans have moved to more of a defined contribution approach while employers are capping their contributions to the plans. Employees may not fully understand the financial implications behind the medical services they receive from the insurance policies, thus requiring assistance on their wellness planning.

Employers have incentives to improve employees' physical and financial wellbeing, because physical health problems and financial distress of employees will end up costing employers for missed work time and lost productivity. To start with, employers could use financial and physical wellness ecosystems to engage with employees. Employers can provide benefit plan designs that facilitate health behaviour changes in employees and educate employees about how to manage healthcare finances alongside physical health.

Employee benefit platforms could provide other healthcare service benefits. Examples include access to health services such as teledoc, e-pharmacy, lab for early detection, obesity management, mental health, smoking cessation, and financial protection brought to employees. Some employee benefits may even provide white label access to banks, insurer and telco distribution. Because many of these employee benefit platforms act as a marketplace providing various types of services to employees, they are able to capture rich data such as work/life event (salary, marriage), health condition (e.g. diagnoses, prescription), wellness interest, lifestyle risk and health goals. The data captured could help employees access personalized wellbeing plans.

Several insurers and benefit plans providers are targeting employers. **Startupcare** co-develops tailored health benefit and insurance products with insurers for start-ups in China and Hong Kong. **Securenow** (an Apis Insurtech Fund portfolio company), a tech-enabled SME insurance broker like PolicyBazaar for SME in India, offers a wide range of insurance products such as employee benefits, professional liability, by leveraging its technology platform and optimized on/offline network. **CXA Group**, an employee health ecosystem, creates cost savings for employers from value chain consolidation and cross-selling opportunities for banks and insurers. It enables employers to provide a health and benefits portal to employees for self-selected benefits, claims, health and wellness items. Through CXA, insurers have cross-selling opportunities for group insurance and personal insurance. India-based **Healthi** has aggregated benefits and services that help employees personalize their health experience. Employees can choose doctor consultation, diagnostics, pharma, gyms, nutrition, insurance, through benefit program offered by employers. **Brightside** routes interest payments directly to lenders and helps employers to improve financial well-being of employees: increasing credit scores, refinancing debt, finding government and community benefits, eliminating fees.

For gig economy workers, alternative health benefit plans can bring protection. For example, Acko allows customers to allocate part of their tip to Ola drivers and Zomato (food) delivery towards premium payment for health insurance. Grab (Singapore) drivers can get top-up in their critical illness insurance for each trip completed.

The implications for insurers and financial institutions are that these new employee benefit platforms could (i) help distribute high-value investment products (annuity) and insurance policies through employers, (ii) improve employees' experience with self-selected options for benefits on the portal, (iii) lower transaction cost by cutting out TPA in the ecosystem, and (iv) improve ability to predict clients' needs and gain better understanding about preferred features and requirements of long term health and life insurance products.

5. Challenges, opportunities, and implications for financial services firms

Financial services companies risk becoming a regulated "utility" and being dis-intermediated in the value-added services by new competition from adjacent industries. The companies need to reassess their strengths and build a viable ecosystem strategy to compete effectively in a dynamic environment. As discussed in our whitepaper, financial and physical wellness convergence is a key area that financial services companies should formulate a strategy on. We will explore what questions financial institutions should ask themselves.

5.1. Questions financial institutions should be addressing

After identifying the sub-segment within which financial institutions can excel given their resources and strengths, financial institutions should think about the scope of new business to be built and the resources needed to reallocate from other projects. Building blocks of a successful wellness ecosystem include:

5.1.1. Technology infrastructure

The infrastructure should enable creation of structured/unstructured data and use them to intelligently personalize care and automate majority of administrative work. Open APIs, cloud services, service-oriented architecture, interoperability solutions are some of the key components required. For example, financial institutions can grow their technology ecosystem not just in size, but in innovation by investing into an open API architecture. Financial institutions could use API connections to build microservices that are managed by the partners they were originally built for, instead of building a monolith infrastructure. This will enable companies to **scale** more quickly and easily in the future. Future business models will be embedded in the API infrastructure. Financial institutions should make their **API more standard and open to public** so partners can integrate with the company easily. Financial institutions can ensure dynamic and automated flows with their core services. In addition, an ecosystem might experience traffic spike through partners. Financial institutions should have the right cloud environment that enables the infrastructure to increase or decrease workload as quickly as possible. Sometimes a few seconds of delay in the ecommerce world could cause critical losses to the business. For insurers, it is essential to provide agents with the sales, marketing and servicing tools. Insurers can automate part of the customer engagement through AI chatbot. For asset managers, they should develop and leverage APIs to exchange data seamlessly and develop new service propositions with other parties such as online banks, fintech or traditional providers (custodians). Here are some starting questions.

- What's the best mix of technology architecture?
- How should one improve the interoperability between systems?
- What kind of cloud environment should be adopted?
- How should financial institutions transform to an open API ecosystem and enable fintech firms to build apps that utilize their infrastructure?

5.1.2. Distribution and engagement channels

High customer acquisition cost (CAC) funded by venture capital liquidity may hinder development. For example, upfront CAC could be high due to intense competition for search keywords. Some high-growth start-ups would have spent most their VC capital on unsustainable marketing/customer acquisition. To mitigate such risk, financial institutions can acquire or invest in later-stage start-ups that have reached certain scale so that unit economics are better validated while they can leverage the traffic and cross-sell products more efficiently.

In a wellness ecosystem, to use data to upgrade products for existing customers, financial institutions will need to develop both on/offline channels which gives them opportunities to interact with customers regularly and directly. For example, insurers can deploy sensors to capture customer interactions and trigger customer assistance, thereby reducing the risk of claim events and streamlining the interaction process. Taikang Life's claims processing function today captures a longitudinal view of a customer's medical journey by leveraging WeChat and native apps to increase visibility into public hospitals. Here are some relevant questions.

- What is the mix of online and offline channels that can bring down blended CAC?

- Which channel is most effective for a specific product?
- How to identify new traffic opportunities? Buy/invest or build or partner?

5.1.3. Data network, governance, standard and framework

Data quality/relevance may vary depending on the use case. Data interpretation could be an issue. For example, some biometric data captured by smart devices (sleep tracker, fitness bands) may not be of medical-grade quality. Such data could be useful for consumer use but are not as useful to insurers for accurate pricing. Insurers may find it hard to demonstrate the value of new offerings to early adopters because they lack historical data and have limited experience in analyzing these new data streams.

Data security risk increases as the ecosystems is getting larger. In a partnership model, partners could misuse or leak personal data. The costs of such a privacy breach may outweigh the positive impact if a proper security framework is not in place. Financial institutions need to identify first-class KYC solutions vendors or develop secured tools to tackle the fraud related issues.

Issues in data governance and interoperability could slow down the ecosystem development. Financial institutions need to connect to a broad ecosystem to access the data for many procedures, e.g. share claim data with other partners. However, the financial/health industry may lack unified data standards. Financial institutions may often have issues of interoperability between different systems. Both financial institutions and healthcare providers are often slow in digitization and not well equipped to build the ecosystem at high speed.

Financial institutions could face internal conflicts due to different perspectives on data monetization: Financial institutions need to come up with various scenarios on the data usage. Internal teams would need guidelines on how to draw the boundaries in selecting desired customers and utilizing their data to generate value while ensuring fairness and privacy. For example, gene testing companies like 23andMe may possess a huge amount of personal genome data that could be useful for pharmaceutical or insurance industry. However, financial institutions could face backlash from consumers over such data usage, thus damaging the institutional brand and long-term value. Below are few starting questions.

- Physical wellness data from electronic health records, remote-monitoring devices, patient-reported records and lab results could generate important insight for providers. How should financial institutions improve data collection and generate new data source capability?
- Huge amount of data stored in the system could slow down core process or even bring security risks to the company. What are the ways to deal with increasing amount of data stored in the ecosystem as the ecosystem scales?
- What is the right set of data governance, standard, system management and mechanism that ensure security and efficiency of data exchange between entities within the ecosystem?
- What are the steps to become a truly data driven organization, which is preconditioned on realigning internal culture and process?

5.1.4. Payment model (for healthcare related product)

Traditional healthcare relies on payment methods such as direct primary care and bundled payments. While some of these payment methods will stay, customers will increasingly expect a more consumer-friendly, transparent, efficient payment experience. Healthcare payors (insurers) will leverage emerging technologies such as blockchain and AI/ML to (i) eliminate the inefficiencies and information gaps in most healthcare payment plans and (ii) streamline the flow of information and money between patients and providers. One important payment model is mobile payment. Mobile payments have enabled consumers to easily purchase and renew low ticket insurance such as travel insurance. Mobile payment can further extend to health services / insurance products so the insurers can increase exposure to traditionally underserved segments. Additionally, mobile payment offers health services providers a new distribution channel to drive more sales and increased persistency. For example, WeChat wallet does not only enable consumer to pay most vendors in China via QR code, but also offers a wide range of financial services such as insurance policies on its mobile wallet interface. Below are key questions to ask.

- Which service or product can benefit from a new payment plan?

- How to select the best payment and partnership model?
- What are the financing options available for customers?

5.1.5. Partnership

Selecting the right scope of strategic partnership is not easy. Wellness ecosystems require tight and continuous collaboration with partners. Partners share data and combine services with each other to provide customer-centric services. Creating broader value will require financial institutions to build long-term partnerships with very different businesses. Financial institutions have to understand the importance of each party in an ecosystem. They should own the part which financial institutions are strong at, and partner on the components which other partners can maximize impact faster. By doing so, financial institutions can maintain their strategic advantage and extract most value from an ecosystem. Some of relevant questions are listed below.

- Which are the parts that financial institutions are strong at?
- Which are parts that other partners can maximize impact faster?
- What are the pros and cons of pros and cons of different partnership options (service contracts, investments, acquisitions, strategic alliance or cooperation)?

5.1.6. Talent and Culture

Talent and culture may be one of the most under-appreciated areas to success with an ecosystem strategy. To build an effective ecosystem, financial institutions need multi-disciplinary talents who can understand the financial services and other adjacent industries well. Financial institutions need talents such as product managers, UX designers, behavioural physiologists, and machine learning and blockchain experts. Financial institutions' current teams may not be capable of running high growth companies or understanding what customers need in other sectors like healthtech. Notwithstanding, financial institutions would find it hard to compete with technology giants to attract top digital talent to join their organizations.

Building a wellness ecosystem requires teams to frequently interact with different internal functions or external (e.g. healthcare) partners. Financial institutions' team members need to have (i) social skills to exchange insights, (ii) knowledge about other functions / sectors to build integrated services, (iii) experience in applying agile and other modern methodology to collect feedback and conduct iterative process and (iv) data analytics skill and mindset of running the organization using data.

To attract talents, the mindsets of financial institutions have to change. Many financial institutions have been managed from large headquarters in a rigid way. Staff are too often constrained by a culture that only rewards immediate profit and loss or rewarded for preserving the status quo. On the contrary, some Big Tech are building cultures that adapt better to change. Initiatives include (i) offering flexible working policies, (ii) rewarding creativity and even failures, (iii) fostering a transparent feedback culture whilst instilling a growth mindset, (iv) encouraging collaboration/ knowledge sharing between different functions and equipping staff with multi-disciplinary skills, (iv) building a sense of community (e.g. break out zone provides space for discussion), and (v) embracing diversity inside and out (e.g. hiring, training). It is imperative for financial institutions to learn from Big Tech/start-ups and set the right culture. Below are few starting questions.

- How to approach these talents? How to design the right hiring process?
- How to train the existing talents to acquire new skills?
- What is the best environment to attract talent with the right skill?
- How to build the right culture that could nurture existing talents?

5.1.6. Regulatory environment

Regulation could become a bottleneck. Financial institutions may encounter hurdles to expand to other regulated sectors like healthcare. For example, practice management systems of doctors and hospitals fall under strict privacy and data protection laws. As such, gaining access to medical data would be difficult. Financial institutions would need to get consumer consent and explain with good reason the benefit of using such data. To fulfill the data compliance requirements and growing customer privacy regulations, financial institutions may not be able to develop such ecosystem at high speed. See below for the relevant questions.

- How to influence the regulators to provide an open and flexible regulatory environment that allows changing conditions of ecosystems?
- How to influence the regulators to initiate higher level of collaboration among regulators across borders?
- What's the right self-regulation framework in order to provide examples for the authorities to follow?

5.2. Implications for financial institutions

Many platform businesses have been effective in solving consumer needs and providing unique values. For example, Google provides not only information contextually, but more importantly, offers **reliability** as users can find filtered content that is likely to be trustworthy and relevant based on the general trends and users' search histories. Whilst not without issues, Google offers the vast majority of users reliable search results and saves time associated with verifying the content. In a similar context, ecommerce platforms Amazon and Alibaba offer **convenience** on top of physical goods. Through one destination (Amazon/Alibaba), users can find the most relevant products (in terms of price, quality and features) and have the goods delivered to their desired locations in the most effortless way.

What consumers value in a healthcare / physical wellness platform is **security and trust**. Security and trust that is earned over a long period is the most sacred components users require from the providers. Users demand health services provided by trusted healthcare professionals (HCP) who have spent significant time in professional training. Users want to be assured that i) HCP provides the best advice and services to manage users' health conditions, and ii) the health information of users will be handled by providers in a secured way. In this context, we believe a precondition to the next gen health service ecosystem provider platform will already have earned strong trust by users.

Figure 26: Health platform business that brings trust to customers, Decadoo

Platform businesses solve consumer needs		
Social	=>	Facebook, Instagram
Ecommerce	=>	Amazon, eBay, Alibaba
Apps	=>	Apple, Google Play
Streaming	=>	Netflix, Disney
Information	=>	Google
Health	=>	.... **why is that?**

Platform aggregate like services for consumers		
Social	=>	Connection
Ecommerce	=>	Convenience
Apps	=>	Access
Streaming	=>	Entertainment
Information	=>	Reliability
Health	=>	**Trust (most sacred)**

Source: Decadoo

5. Challenges, opportunities, and implications for financial services firms

Research[31] indicates people trust the financial sector in general, and their banks in particular, more than any other industry vertical or organizations that touch their data. A third of those surveyed said they trust financial services organizations most to protect their personal data. Financial institutions such as wealth managers and insurers have been building trust with customers to manage customers' financial situations. We believe financial institutions are in a good position to leverage this trust with customers and provide additional healthcare services through their total wellness ecosystems. Health and wellness could be the point of entry to customer engagement for financial institutions. **Through constant daily engagement (e.g. payment, investment, health monitoring) with users in the total wellness ecosystem, financial institutions can expand the scope of services and help improve customers' health.**

5.2.1. Wealth management industry is undergoing cost structure and business model changes

Despite the strong assets under management (AUM) growth during 2019, fee compression in the wealth management industry is accelerating. The global asset management industry experienced a negligible decrease in profitability, averaging operating profit of 34% versus 35% in 2018.[32]

In addition to the declining profitability, wealth management firms are transitioning their business models from transaction-based to advisory mandates. In the longer term, clients expect personalized, differentiated and holistic financial advice. Clients would not just expect traditional retirement products such as annuities and defined contribution plans. They would expect advisors to help them achieve personal financial goals through personalized saving and investment solutions. Examples of personal financial goals include sustaining a certain lifestyle, buying a second house, paying for children's education, retiring with confidence, and servicing student debt or mortgages. To reach such financial goals, holistic financial advisors will help their clients make decisions around numerous assumptions including portfolio returns, spending patterns, future tax rates, longevity, housing costs, and healthcare expenses. This means the wealth management industry will need to build out new capabilities such as banking functions. New banking functions can help wealth managers offer integrated financial advice across clients' investment and cash management needs (i.e., savings, checking). This is evidenced by major banks also going the other way as they build out new wealth management offerings.

Apart from the financial wellness needs, financial advisors will also increasingly take on the role of being integrated life / wellness coaches advising clients on non-investment areas such as physical and mental wellness. As lifespan extends longer, healthcare costs continue rising, and public healthcare privatizes more, customers will need better investment strategies and holistic wellness advice. Contrary to such needs, today's wealth managers are not well equipped to offer such holistic wellness advice. Wealth managers would need to extend their offering and fully embrace a more ecosystem-oriented strategy.

The key for an ecosystem is to engage users frequently and generate relevant data that help all ecosystem providers to (i) iterate the product better for most relevant customers and (ii) leverage data to optimize value creation for company.

Applying the approaches mentioned in previous section to the wealth management industry, financial institutions could better leverage data that show investment intent and savings product needs. For example, in China, parents who want to send their kids to study abroad will likely adopt a different investment strategy that would give a special pay-out time frame. Financial institutions would need to launch a hook product to first engage with these upper-middle class parents. One of the relatively lower cost ways to acquire these parents is to provide free and useful parenting content online as parents use online search for such purpose. They may then want to exchange opinions with other parents in this online community. Financial institutions could start gathering relevant information to unlock the next steps and obtain practical school information to create a contextual selling point within the ecosystem for them to purchase.

Investment education is an important factor in influencing the investment decision, especially in China where an emerging middle-class population has increasing needs to invest but lack understanding of risk-return trade off and have only basic financial/investment product knowledge. To fill the knowledge gap, wealth management firms need to provide thought leadership in the sector through financial education while building great trust with customers. For example, wealth managers can introduce easy to understand content in short digestible format to attract relevant segments and start building trust. Once the trust is built, managers can work with customers and build a customized financial investment portfolio through an investor education channel. As prospective customers build trust, they are also willing to provide detailed financial data like income, investment goals, mortgage payments, and health information in order to construct a personalized wealth planning solution for their families. This could be an example of **value-added information products that carry a premium and deliver profitable returns** for customers in a contextual way. Evenplans is one example. It helps customers organize and securely share legal, financial and health planning in one place.

5. Challenges, opportunities, and implications for financial services firms

The next step for a wealth manager could involve (i) extending the ecosystem (such as physical wellness services) and (ii) launching products that engage customers in social communities and loyalty programs that deepen customer relationships. For example, Xueqiu (with 12m+ active users and 200k discussion threads per day) is a social network that distributes daily content on equities funds, insurance and real estate to customers.[33]

Depending on the core activities, wealth management firms should first focus building a hook product that can leverage their existing partnership or data. There are a few more important aspects that wealth managers should consider.

Leverage technology and use of data: Customers, especially millennials and the mass affluent, now have higher expectations on consultation processes, post-sales interactions and ease of purchase. Companies need to think about how to serve customers outside of branches and cater to customer lifestyle and cashflow cycles. By making use of the knowledge and data of the customer derived from an ecosystem, wealth management companies can improve the consultation process and customer interactions via digital tools with a more personal touch. Wealth management firms need to operate like Big Tech firms and leverage the use of data. Incumbents should invest in building the technology platforms and tools that will enable this hybrid advisory mode. By providing a single environment for all digital capabilities and APIs, wealth managers can enable ecosystem partners to integrate, transact and provide services even when the system is scaling fast.

Develop better tools to profile customers: Wealth managers can create comprehensive prospect profiles by leveraging internal & external data e.g. browsing info, product preference, service preference and habit when using the platform in real time. For example, Lufax (largest online wealth manager in China) has launched a customer profiling system with KYC (know your customer) and KYI (know your intention). Their labelling system and productive model can update tags and cover transaction history, customer characteristics and psychological traits. Such a system can reveal clients' true risk tolerance.

Build world-class risk management systems: Blackrock has a risk management system that can monitor 2,000 risk factors each day and execute 5,000 portfolio stress test each week. Such system can help investors to constantly adjust portfolio changes in correlation to transaction data and market events.

Enhance user experience via new techniques and features: Wealth managers should develop services that help their clients dynamically monitor, adjust, and achieve their goals. To make such goals-based advice intuitive and actionable, advisors can apply behavioural economics including gamification. Gamification can help reduce the emotional barriers of financial matters and make the activity of investing more engaging, especially for the increasing numbers of millennials who will need to invest their disposable income. In addition, robo-advisory could help improve user experience. It brings less stress to clients and delivers an easily adjustable portfolio management plan for clients. We expect there will be wealth planning / investment solutions adjusting to one's health conditions and changing goals.

For example, Grove is a financial planning provider (acquired by Wealthfront). It offers cash savings accounts and features like spending tracker at the start, which is what customers need most in the short term. They could then start collecting relevant data from users. In the longer-term, Grove aims to provide investment automation tool for customers and help customers rebalance debt (mortgage, student loans etc.) and investments for cash needs (healthcare urgency, travel, house purchase etc.).

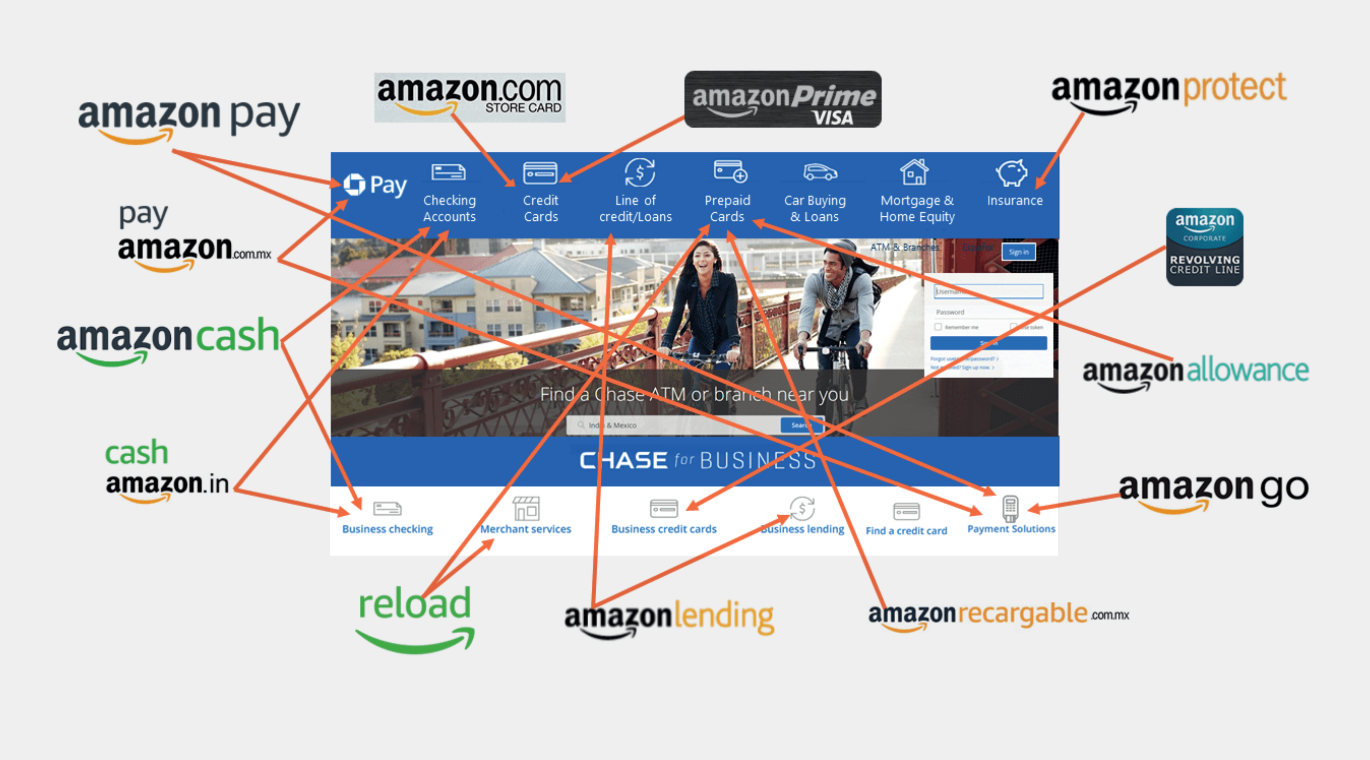
Partner with wellness / healthcare provider and insurers. By applying clients' health conditions and life goals, wealth managers can help clients engineer the best health plan and respective wealth management strategy. Wealth managers can start offering insurance related products that bring protection to clients. For example, VitalityInvest has brought wellness and savings together in their offering. They partner with Vanguard, SEI Investments and Ninety One - offering a Healthy Living Discount on product charge to the customers that if the customers are taking steps to be healthy. Such investment programs will not only bring perks (such as discounts on hotels, spa stays, running shoes) of Vitality's insurance products to clients but also help wealth managers increase engagement points with customers. To offer a holistic wellness experience to customers, wealth managers can think about how to turn pension and annuity type of products to living benefit type of product, which helps clients to get long-term care or receive payments (lump-sum or long stream) in some unexpected situations.

5. Challenges, opportunities, and implications for financial services firms

5.2.2. Incumbent banks may still have strong moats, but they are facing tough competition. They need to react before it is too late

Banks play a key role in life events in an individual's life cycle, such as mortgages, retirement. Until recently, incumbent banks maintained a large and sticky customer base from offline branches and active sales channels.

Figure 27: Financial service products offered by Amazon



Source: CB Insights

However, banks are now facing competition from FinTech, Big Tech (e.g. Ant Financial, Amazon unbundling SME banking) and neobanks as regulatory (e.g. open banking) and technology (e.g. APIs) backdrop help these players deliver more value to consumers. These players also gather consumption patterns through digital payment. Smaller neobanks are gaining traction and are busy signing up new customers, and some are on path to reaching critical mass before traditional banks innovate. For instance, Varo is close to landing a national bank charter and will then offer credit cards, loans, and other savings products in addition to savings and checking accounts. It has also got new backing from Progress Insurance and may soon add insurance products to its ecosystem. Banks need to start executing long-term ecosystem strategies before it is too late.

In addition to the competition, existing moats of banks may seem less strong than before. The importance of convenient bank locations is declining among millennials as digital-savvy millennials prefer better mobile/online banking experiences offered by digital banks. Banks have an outdated legacy IT system that will take time to upgrade and rebuild. To survive the competition, banks would need to explore their current advantages and consider how to leverage them, thereby determining the steps to build an ecosystem.

To execute on the right strategy, banks need to understand their strong points within an ecosystem. Their advantages include (i) brand (ii) online + offline distribution footprint, (iii) strong omnichannel marketing capability, and (iv) existing data sources within different services of the bank. Through their core offering, diversified banks have the potential to cross-sell complementary financial products such as wealth management and banking services to their client base. Incumbent banks can create value for the ecosystem by acquiring new customers with their core products such as credit, savings, payment. Banks can also cross-sell new non-core physical wellness product such as health insurance.

We believe banks will increasingly embed financial services into broader ecosystems where customer attention is natural. Health (physical wellness) and finance services (financial wellness) could come together well. Historically, banks have been successful in providing financial and physical wellness products through bancassurance models. Using health (rather than finances) as to base a conversation on insurance would allow insurers to be transparent about the underwriting rationale for recommending certain insurance policies. Such engagements involving health services will make customers feel that they are being taken care of by the banks, thus building more trust. According to a study[34], ecosystems can bring the following advantages to banks: (i) up to 20-30% lower customer acquisition costs, (ii) 30-40% higher deposit volumes driven by capturing more of the transaction flows and volumes in the ecosystem, (iii) 15-20% uplift in return on RWA driven by greater share of fee based business, (iv) better data for credit underwriting, and (v) lower servicing costs.[35]

Figure 28: Financial services and healthcare banking

Source: Saeed Khan

In addition to bancassurance, banks can offer other physical wellness related solutions. Many banks are already partnering or acquiring health service companies. For example, Siam Commercial Bank (Thailand) has partnered with Samitivej Hospitals on a few initiatives including a digital hospital, fast payment solution and one stop health and wealth management service. Another example is that high net worth clients of the Standard Charted Bank Wealth Service will be offered new benefits such as check-ups and access to digital healthcare services. JP Morgan acquired InstaMed, a medical payment solution specialist. JP Morgan can potentially benefit from the network effect through InstaMed's customer base comprising payors, patients, and providers.

5. Challenges, opportunities, and implications for financial services firms

Banks can work with all the stakeholders in the healthcare value chain and tackle a wider healthcare problem beyond banking. In Asia, healthcare providers have long cash cycles and higher working capital burdens due to complex, highly manual finance functions and payment flows.[36] There is also a lack of transparency and predictability of treatment costs because of poor information systems and controls especially between providers and payors. Banks can help hospitals in revenue-cycle management by pairing with cash management products and services to improve working capital efficiency.

On the other hand, healthcare service providers like hospitals could offer banks new non-traditional channels to serve customers, e.g. distributing consumer finance via a hospital's app and digital platforms to increase access to new clients at a lower cost of acquisition.

Each party in a healthcare and banking ecosystem should in theory benefit from the technology integration and partnerships with other stakeholders.

i. banks could offer real time payments and virtual accounts for each party

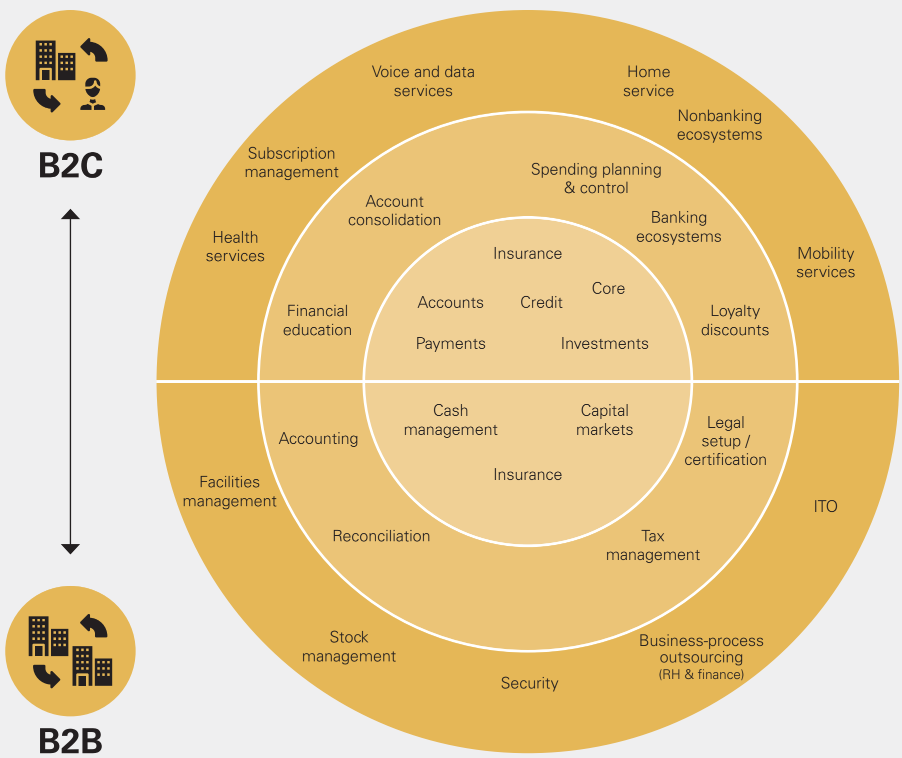
ii. insurtech partners could bring health claims processing and reconciliation engines to improve working capital cycles for hospitals

iii. shared databases can help reduce fraud levels for insurers

Future of banking ecosystem

In the future, we foresee customers expecting more personalized financial services from banks. In this vein, banks should proactively enhance customers' financial wellness. A retail banking customer could require lending, personal finance planning, investment, and

Figure 29: Bank ecosystem targeting B2B and B2C markets



Source: McKinsey

health services at the same time. These activities will all affect the customer's wellness. A bank ecosystem should actively manage micro-decisions about saving and investment and automatically provide the customer with the best personalized plan according to the customer's stated preference.

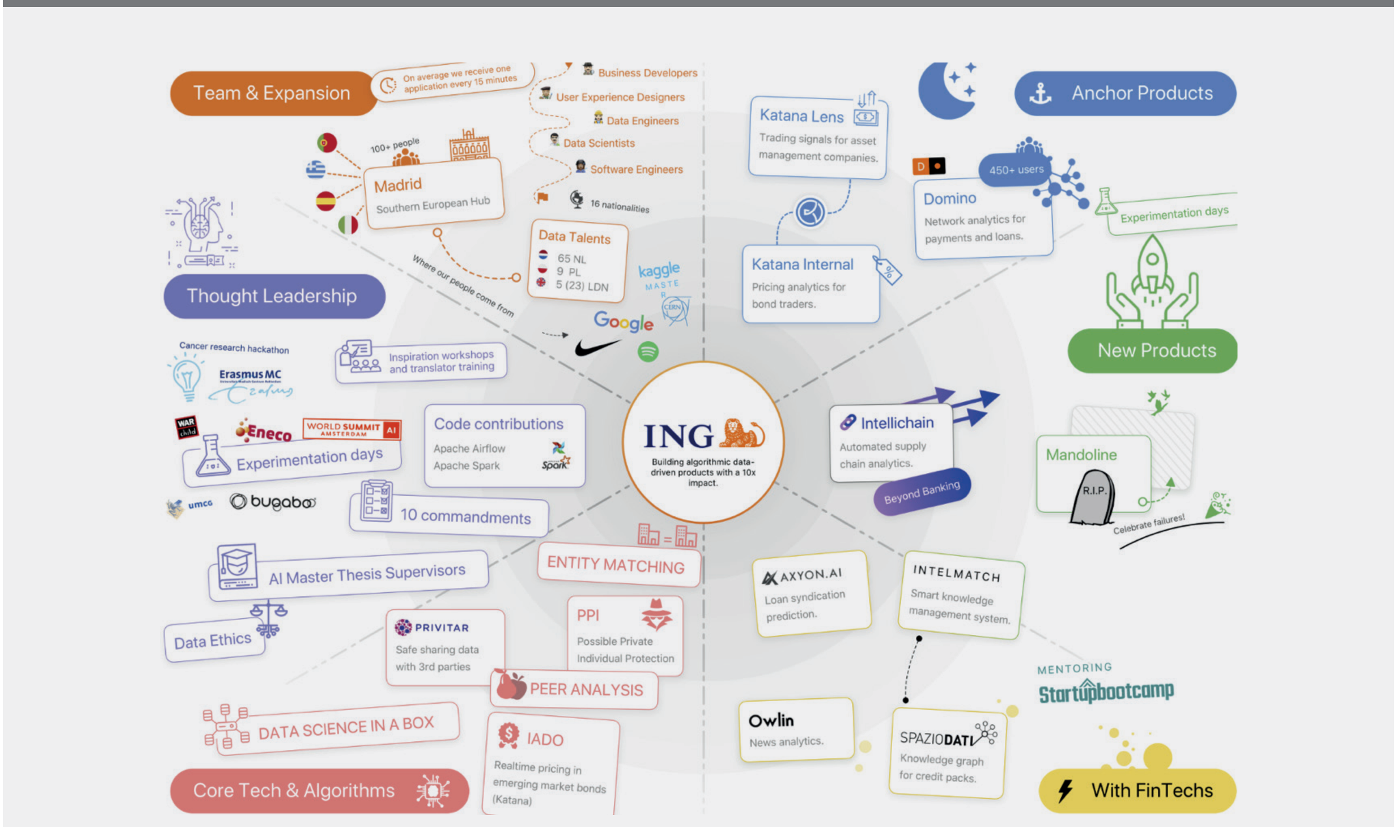
More banks are building digital experiences with open APIs and adopting digital tools and developing advanced data analytics. Their development teams should expose data and functionality through APIs with the goal of solving business problems and encouraging developer adoption. APIs enable a company to insert its business into other companies' digital experiences and to share business assets with third parties for co-innovation.

Banks should segment customers and offer personalized and client centric advisory to the target. It means banks could partner with vertical players to accumulate data of a specific use case, thereby establishing a holistic and broad-based customer dataset. They could use such dataset to identify and target financial objectives of specific customer segments. With the new digital capabilities, leveraging the customer segment data could enhance the customer journey across the wealth management and health value chain. Banks can then engage with customers at the right time at the right place. For example, banks want to offer healthcare savings products to a family user whose elderly father might have a specific chronic condition with higher-end needs. This type of users may seek health, life, and retirement products. Banks can deliver greater consumer value by bundling wealth management, financial family planning, and healthcare services.

Many banks have been transforming their business, based on their core product offering. Here are a few examples.

ING has almost 100 partnerships with FinTech firms. One of their products, Payconiq app, enables users to make direct mobile payments, in-store and peer-to-peer. In the UK, ING has re-entered the retail banking market with a free mobile app to help people

Figure 30: ING ecosystem

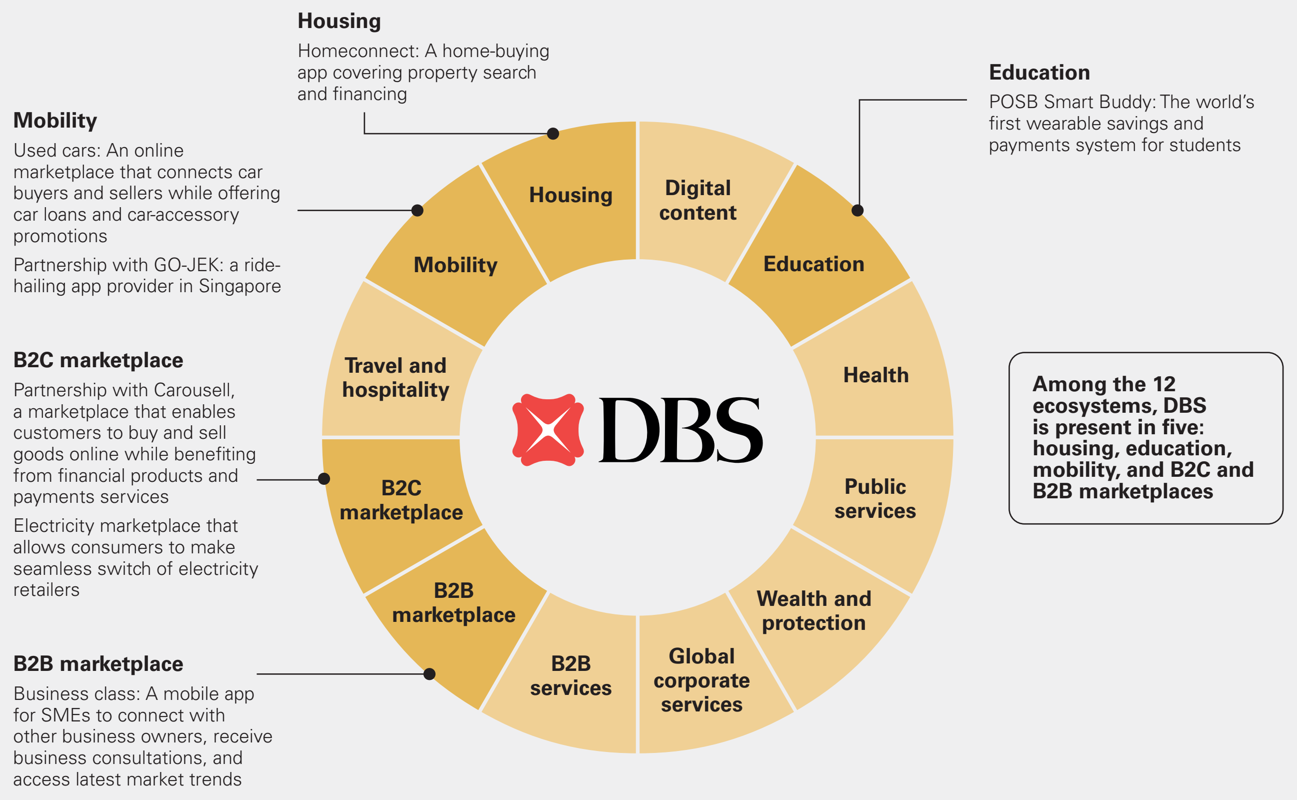


Source: ING

keep track of their finances. The app, called Yolt, enables users to (i) manage their money matters with different banks for different financial services in one place (ii) monitor spending on utility bills and (iii) connect with cheaper suppliers in order to save money on energy. It is trying to build a financial service aggregator by working with SME such as robo-advisory firm Wealthify, pension scheme platform Pension Bee, and life insurance platform Anorak.

DBS has transformed to a digital first bank. They have launched Pay Lah payments platform that provides additional distribution options, as well as digital only life insurance products such as Savvy endowment. In addition, DBS launched a payment program - "POSB Smart Buddy Program" which provides students with a free smart watch to pay for food, books, and other daily necessities. The watch gives students tips on financial management and monitors students' health by calculating steps. Parents can monitor their child's expenditure and health through the app.

Figure 31: DBS's connectivity in multiple ecosystems

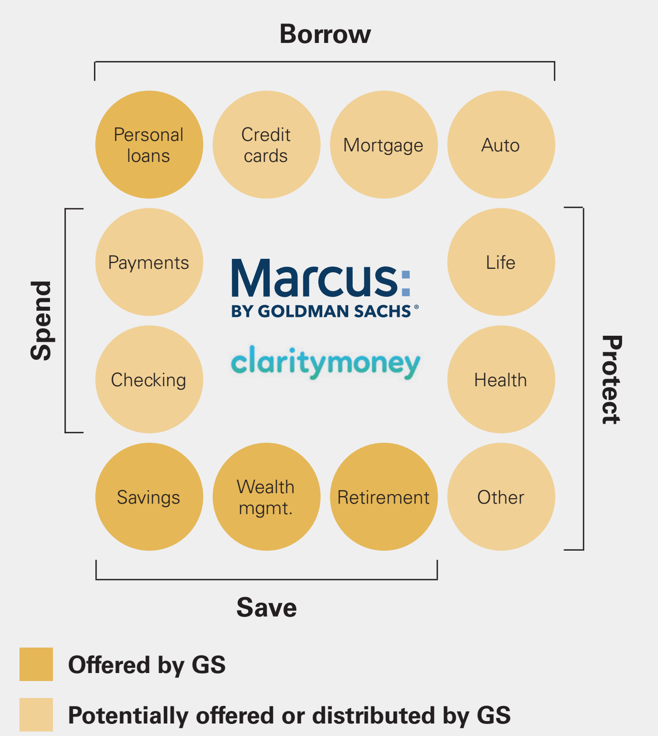


Source: DBS website; press search; McKinsey

5. Challenges, opportunities, and implications for financial services firms

Goldman Sachs, through Marcus (see Figure 32 - Goldman Sachs's retail banking line (Marcus)a robo-advisory retail platform), serves the US mass affluent sector with a simple digital offering of online savings account and fixed year saver. Marcus can help Goldman strengthen its retail banking to support channels for its higher margin products.

Figure 32: Goldman Sachs's retail banking line (Marcus)



Source: Marcus

5.2.3. Insurance industry moves slowly. But this is changing fast.

The insurance industry has been predicting the outcomes and distribution of events using actuarial models. However, data science is having more impact on risk assessment with the proliferation of new information sources and tools such as AI/ML. Constant flows of data and new data science analytics technique are enhancing predictions. Having mastered such techniques, Big Tech is leveraging its massive dataset of customer behaviours to generate real-time insights.

Incumbent insurers also may lose their distribution advantage. New digital channels (e.g. social media) and consumer behaviours could change the ways to sell insurance. For example, millennials and Gen Z may not trust agents and prefer making informed decisions based on independent research. Social media could become a major channel to engage potential customers.

Notwithstanding, new macro trends and innovation could open new opportunities for insurers to improve their business models.

Aging populations and unhealthy lifestyles could increase demand for healthcare services related to long-term care, critical illness and disability. Adopting an ecosystem strategy, reinsurers and insurers can innovate new financial products that enhance customers' wellbeing and longevity.

Clinical AI/ML could bring new innovations to medicine. Personalized medicine and gene/cell therapy are both gaining traction. Life (re)insurers could partner with leading genomics/wellness companies as well as global pharma and healthcare companies and provide advanced therapy options via new products.

Insurers are well positioned to spearhead value-based healthcare as they benefit from cost savings stemming from quality outcomes. Value-based healthcare model facilitates the concept of "holistic" service as it requires a team approach to care, and coordination/communication amongst physicians across specialties. Technology increases throughput by enabling professionals to treat more patients more efficiently at scale. Value-based case approach (a) drives convergence of health and life into total-wellness and (b) proliferates new channels that cater to hyper-personalized consumer experiences. Both insurers and agents will increasingly need to establish continuous engagement with their customers, build trust, and develop understanding of their lifestyle and family relationships. In this context, it becomes essential to be the go-to platform for critical health and life events (birth, actual or perceived terminal among family & friends, chronic illness benefit, retirement, etc) when the user is at the biggest need and key decision point.

To compete with Big Tech, incumbent insurers or insurtech need to embrace an ecosystem strategy that play to their strengths and position in the value chain. Insurers should innovate to access the most relevant data and channels to reduce their distribution cost and strengthen their underwriting.

A. Reinsurers

Reinsurers are currently leading the actuarial/pricing and underwriting functions. Since reinsurers (life and health in particular) assume morbidity and mortality risk in their business models, they tend to have broader underwriting risk experience and better capabilities to source a broad set of data. Reinsurers also have advantages in building digital distribution compared to insurers because they do not have legacy relationships with distribution intermediaries. Reinsurers potentially could cut out insurers and add new channels to engage with policyholders.

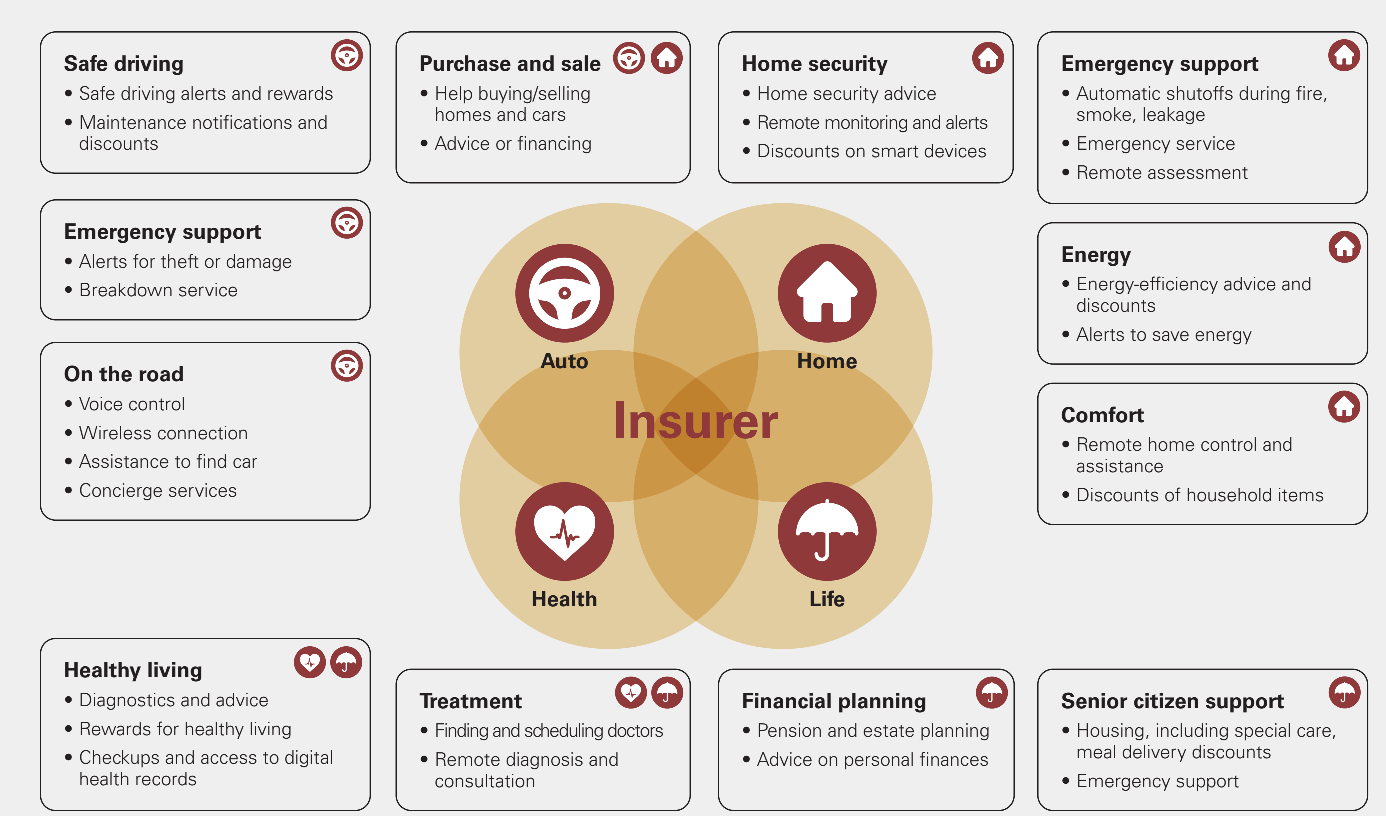
In choosing their ecosystem partner or acquisition targets, reinsurers should consider whether their partners can help improve speed to market, facilitate innovation, and generate superior risk insight. We expect reinsurers need to have greater influence in providing actual healthcare services through local healthcare partners in the future. For example, to capture the useful user's data from the value chain, reinsurers could integrate the data further with Third Party Administrators (TPA) and develop a virtual TPA model. By doing so, reinsurers can improve their visibility on policy admin/processing and cost control over claims.

Many reinsurers are active in investing in insurtechs. For example, life and health reinsurer RGA has been actively investing in the space. K4Connect targets senior care. MeetFabric targets parents on family financial planning. Yulife encourages healthy behaviour for employees. CXA builds distribution channels through employers. Qibao co-develops underwriting data engines with RGA and provides NLP chatbot tools. Asset Map reflects financial asset conditions. Everplans provides living will services and stores asset information. By getting closer to the customers, RGA not only collects more relevant data and monitor data model that improve the risk-pricing capability from new channels but also encourages behavioural changes across policyholders and reduces claims.

B. Insurers

Insurers have inherent advantages in providing both physical and financial wellness services. They have the resources and experience in delivering physical wellness through (i) direct relationship with policyholders (via a large agent salesforce) and (ii) networks and established infrastructure to provide exclusive healthcare services to policyholders. Some insurers have added capital light business in financial wellness (e.g. wealth management and retirement). They can deliver financial wellness with new products that provide both investment return and financial protection to users.

Figure 33: Insurer ecosystem delivering value-added services



Source: Bain

However, no single entity in the insurance industry can develop the full value chain alone. Some insurers tend to only have engagement with members at the end of an illness event. They would need assistance engaging policyholders before any claims or illnesses event. Partnership would be key for insurers to improve their position in the value chain. Insurers should craft partnerships that best leverage their core product offering. Based on their relative strengths, insurers should determine (i) what service they should own and (ii) which players can make the most impact on certain process. For example, insurers might want to own certain process and delivery so they can differentiate customer experience from competitors. In such cases, insurers could work with MGA for their technology and ability to target and serve specific segment of customers. This can help insurers significantly improve cost, agility, and speed to market for certain segments. By engaging users sooner, insurers can also steer them to help prevent chronic disease and enhance predictability of the claims.

Technology will bring simple access and use to customers, thereby improving engagement with customers. Some MGAs provide a set of tools like health content series, symptom checker as part of the white label product to engage with policyholders. Insurers can learn more about the users and service the users more appropriately. Insurers can assist the policyholders along the patient journey through digital partnership. Many insurers have been providing digital health service through partners.

Figure 34: Patient journey member motivations and digital partnership examples

	1. Staying Healthy	2. Getting Sick	3. Getting Treatment	4. Staying Healthy
Members' concerns to address	• Keeping fit • Eating well • Sleeping well • Accessing preventive screenings	• Diagnosing symptoms • Finding the best doctor within the network • Accessing physician advice quickly and conveniently	• Selecting treatment • Confirming diagnosis • Confirming out-of-pocket and reimbursement amounts	• Adhering to medication and post-discharge programs • Managing chronic diseases
Digital partnership examples	**Max Bupa Go Active** (India) • Personalized health coaching and wellness engine • Online booking for screenings and diagnostics	**PingAn Good Doctor** (China) • Telehealth platform helps patients avoid long queues and access doctors quickly	**AIA - Medix** (Honk Kong and Singapore) • Third-party independent diagnosis and treatment recommendations • Care coordination assistance for three months	**AXA and Jaga-Me** (Singapore) • Online app through which patients receive on-demand home nursing visits

Source: Oliver Wyman

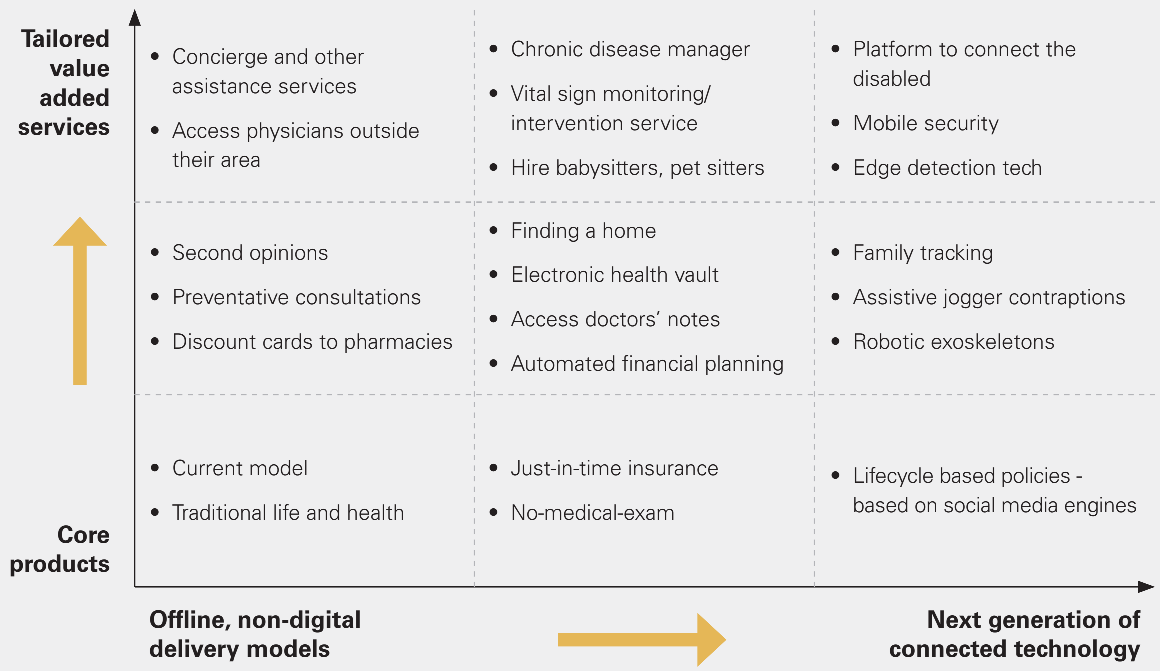
For example, Cigna partners with insurtechs to co-build healthcare services on the platform. The partnership gives Cigna (i) customer access that cannot be reached otherwise and (ii) a set of insurtech tools (e.g. chatbot) to enhance customers experience. Through such partnership, Cigna can not only improve speed to provide relevant service but also streamline their claim process.

Vitality partners with Headspace to bundle more wellness (meditation) into insurance as insurers move from protection to prevention underpinned by more customer engagement and intelligent data use.

Singlife has partnered with Visa and created the Singlife debit card. Users can access their savings. Such partnership can eliminate the need for application forms in order to withdraw cash from their insurance accounts.

Insurers can leverage next generation technology to provide value-added services and build barriers to entry. Some value-added services can be seen in the chart.

Figure 35: Value added healthcare service with connected technology



Source: Swiss Re

Pharmacies / prescription could become a direct to customer healthcare service distribution channel. Offline pharmacies have advantages in being a long life-time healthcare service channel for patients. Patients will still prefer to speak to a professional face to face. The offline channel is key to health ecosystem omnichannel strategy. The offline model could not only lower the blended CAC and bring in a lot of new users to the health ecosystem but also strengthen the omnichannel strategy for integrated healthcare ecosystem providers to cross-sell existing services. Chronic patients could have long life cycle with pharmacies through prescription renewal. Insurers could leverage this relationship and engage with policyholders through this trusted channel. Ecosystem providers are active in this space as evidenced by Amazon's acquisition of Pillpack, CVS Health's acquisition of Aetna and Cigna's merger with Express Scripts. Another example is Miaoshou Doctor. It provides medical consultation and prescription services through various channels such as online hospitals, mobile applications, online B2C shopping website, and an online community for hospitals to share prescriptions. These channels help create a new health management model of "healthcare + drug + insurance".

Offline hospital/clinics network could complement insurers' ecosystem. Insurers can ensure availability of healthcare services for their policyholders, as the limited supply of healthcare resources cannot cope with increasing demand for healthcare services. Remote healthcare (primary care in particular) could relieve part of the service shortage and bring convenience to customers. However, some healthcare services still have to occur offline such as surgery, health check. WeDoctor (backed by Tencent and Goldman Sachs) is linked to 3,200 hospitals and 360,000 doctors. Cooperating with public hospitals in China, WeDoctor has 210 million registered users for its online appointment booking, prescription, physical checks and diagnosis services. Insurers could partner with such online & offline healthcare network and widen the range of healthcare services bundle for policyholders. Leveraging such healthcare network, insurers can upsell insurance to the network customers. The online & offline healthcare ecosystem can help insurers to (i) collect all the useful longitudinal data in every step of healthcare procedures, (ii) decide the right healthcare service to optimize outcomes for each policyholder thus controlling the healthcare costs and improving the loss ratio, and (iii) engage users in healthy activities and improve users' satisfaction. We envision health ecosystem providers can engage users along a chronic disease journey in the future. Take diabetes as an example, an ecosystem provider can engage users from treatment to recovery and prevention.[37]

Figure 36: Patient journey for a diabetes management proposition

1. Staying Healthy	2. Getting Sick	3. Getting Treatment	4. Staying Healthy
New product sale Member purchases health insurance plan or add-on that covers programs to prevent diabetes and manage the disease if diagnosed **Wellness program** Member enrolls in general wellness program, and is rewarded with premium reductions for meeting certain activity targets	**Risk identification** During an annual preventive check-up, member discovers she's pre-diabetic. Her general practitioner immediately enrolls her in a partner's diabetes prevention program **Connected glucometer** Member follows an app-based, personal nutrition and fitness plan. An AI coach checks in and readjusts plan each time her wearable patch detects elevated blood sugar levels **Appointment booking** After a prolonged spike in blood glucose, the meber's AI coach directs her to see an in-network specialist. The coach books the appointment, and forwards relevant health records and data in advance	**Integrated health records** Specialist diagnosis Type 2 diabetes mellitus and prescribes a wearable insulin patch. The specialist enrols that member in a disease management program. The information is shared across a care team, including a remote coach and the member's general practitioner	**Continuous monitoring** To treat her diabetes at home, the member wears a Bluetooth-enabled patch that continuously monitors blood glucose and administers insulin as required. She can track the administration of her medication through a digital app **Diabetes reversal program** In addition to the insulin patch, the member begins a six-month low-carb nutrition program to reverse her diabetes, during which she checks in monthly with her specialist through telemedicine calls **Connected glucometer** After six months, the member has improved enough to stop needing insulin injections. She goes back to the connected glucometer and pre-diabetes program to prevent remission

Source: Oliver Wyman

5. Challenges, opportunities, and implications for financial services firms

Insurers have been active in pursuing the wellness ecosystem strategy. According to a study by CoveragR and SCOR, health and life insurers are interested in bringing the following to the policyholders as part of the wellness ecosystem strategy.

1. Healthy Eating, Nutrition and Weight Loss
2. Fitness and Mind-Body
3. Preventative and Personalized Medicine and Public Health
4. Workplace Wellness.

Many insures are active in this space.[38]

Figure 37: Insurers' initiatives in providing holistic wellness

Insurer	Initiative	TAGS
Aetna	Certain Medicare Advantage members who live in Florida and have one or more chronic conditions will be eligible to receive assistance from Papa (grandkids on-demand service) (2019)	Social wellness, seniors
Aetna International	Access to text-based support from Wysa to manage stress, anxiety and sleep (2020)	Mental health, sleep wellness
AIA	Vitality partner (2014)	Holistic wellness
AOK Northeast	Offered clients €50 towards fitness bracelets and smart watches with health apps (2015)	Activity wearables, gym and workout programs
Aon	Its Well One app offers employees digital coaching and the ability to connect virtually with colleagues to share progress (2019)	Corporate wellness
Aviva	Offers "Wellbeing" app to large corporate customers at no extra cost to help employees track and improve their overall health and wellbeing (2017)	Corporate wellness
AXA	Partnered with global fitness aggregator ClassPass to provide wellness solutions that promote both physical and mental wellbeing to its customers (2020)	Gym and workout programs
Generali	Showed interest in developing smart eyeglasses that can monitor a driver's behaviour to assess level of fatigue (2017)	B2B
Generali	Vitality partner (2014)	Holistic wellness
Generali Employee Benefits	Launched CIAO, a mobile health app to help clients promote healthy behaviours within their organizations (2018)	Corporate wellness
Generali Greece	Generali policyholders receive information and tips to maintain a healthier lifestyle (2018)	Holistic wellness
Great Eastern	Partnered with Samsung to develop various initiatives in the areas of health, wellness, home and IoT (2018)	Holistic wellness
Great-West Life	Launched Best Doctors Mental Health Navigator services (2019)	Mental health, sleep wellness
Haven Life	Policyholders can access Aaptiv and Timeshifter as part of Haven Life Plus, a rider to the Haven Term policy that offers benefits beyond coverage (2019)	Gym and workout programs, sleep wellness
HDFC ERGO	Launched my:health, an app that allows individuals to manage their health and wellbeing (2018)	Holistic wellness
Humana	Humana members will have the potential to access Fitbit health coaching or wellness solutions (2018)	Corporate wellness
IA Financial Group	Launched Well-Balanced group insurance health and wellness offer, designed to help organizations manage health-related issues (2018)	Corporate wellness

Figure 37: Insurers' initiatives in providing holistic wellness

Insurer	Initiative	TAGS
Income	Its Orange Health program encourages users to take charge of their health and earn rewards (2018)	Holistic wellness
Irish Life	Launched a digital health engagement app MyLife (2019)	Holistic wellness
John Hancock	Launched its HealthyFood program to reward customers for healthy eating by giving discounts or cash back on foods designated as 'health' (2016)	Weight management
John Hancock	Vitality partner (2015)	Holistic wellness
John Hancock	Offered policyholders the opportunity to earn a new Apple Watch Series 2 for $25 by being more active (2016)	Activity wearables, gym and workout programs
John Hancock	John Hancock Aspire offers customers living with diabetes life insurance paired with a technology-enabled program that provides coaching, clinical support, education and rewards to help manage and improve their health (2019)	Chronic care
John Hancock	Expanded its behavioural and wellness-linked life insurance to include HealthMind and customers also receive a free twelve-month subscription to Headspace (2018)	Mental health, sleep wellness
Lincoln Financial	Launched Lincoln WellnessPATH, a financial wellness tool that helps plan sponsors improve employee financial wellness (2018)	Financial wellness
Manulife	Vitality partner (2016)	Holistic wellness
MetLife	Launched PlanSmart Financial Wellness to give employees the tools, guidance and support they need to improve their financial wellbeing (2018)	Financial wellness

Source: Coverager, SCOR

6. Conclusion

Many financial institutions have realised how the use of data would impact their business model and corporate strategy. Building an ecosystem around the core services will be key to accessing and monetizing relevant data. As (i) the public is now paying more attention to maintaining a healthy life, (ii) physical wellness and financial wellness are closely related, we think financial institutions should look into the ways and examples of how both incumbents and emerging players are innovating in building a total wellness ecosystem. Health and wellness could be a point of entry to customer engagement. Financial institutions should take this opportunity to accelerate the digitisation initiatives, and more importantly, consider how they build a wellness ecosystem that can integrate their existing offering with new comprehensive wellness solutions for customers.

Financial services as an industry is central to the healthcare and personal fulfilment ecosystem. Playing in the health and wellness space can result in a customer who is more health-oriented and financially resilient. The future of wellness is about providing a combination of health and financial services that create value for individuals every moment of their lives. This connected approach would create an opportunity for every individual to identify and meet their life milestones and aspirations (education, work, leisure, family, retirement, and health).

Healthcare cost is increasing fast every year and the public health system alone simply is not equipped to fix the existing issues. People need affordable, personalised, and efficient private health services. Financial institutions have the opportunity to bridge this gap and capture the value by developing the right products/services to improve both financial and physical health of customers before Big Tech starts taking market share in this space. Financial institutions have experience in providing protection to customers during crisis through synthetic products and financial services that cater to customers' financial and health needs.

Big Tech will undoubtedly continue expanding into other sectors (notably in health and finance) by leveraging their product and network. Like the larger financial institutions, Big Tech would probably offer the affordable and efficient health solutions by leveraging their ecosystems. Tim Cook said, "improving health is Apple's biggest contribution to humanity…we want to empower the individual to manage his own health."[39] Similarly, Amazon is pushing into healthcare – they are working on pharmacy supply chain, claims management, health benefits, homecare, medical record, and healthcare cloud services.[40] Financial institutions like Ping An have understood the ecosystem strategy well and have devoted significant resources to develop new verticals (health and auto) as an extension to their core business (insurance and asset management). Thanks to its ecosystem strategy, Ping An has grown nearly three times over the last few years.

As we have explored in this white paper, financial institutions have advantages in building integrated financial wellness and health solutions for their customers. However, a few enablers such as technology, regulation, and personalisation will affect how ecosystems come to shape amidst financial and physical wellness convergence. These enablers could create new business models and infrastructure that smaller agile companies can take advantage of fast to build sustainable businesses before the larger financial institutions get there. We expect new tech start-ups in insurance, health, finance, payment or wealth management can provide new proposition and build new business models to serve the customers. Financial institutions will need to innovate, cooperate with other emerging companies and find their new positions in the value chain.

We firmly believe the newcomers working in the finance and health intersection could develop novel products/ecosystems that provide total wellness to customers. Through our Apis Insurtech Fund I investments in the early stage healthtech, insurtech, and fintech companies, we have seen how the ecosystem has evolved and enabled incumbents and early stage companies to work together. We are excited to closely monitor the development of the finance and physical wellness ecosystem.

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Matteo Stefanel - Managing Partner & Co-Founder, Apis Partners

Matteo has a successful track record in private equity and investment banking spanning nearly two decades and focusing specifically on Growth Markets and Financial Services. He is a Co-Founder and Managing Partner of Apis Partners LLP.

Formerly a senior partner at The Abraaj Group, a leading EM private equity group, where he held various roles including co-Head of Abraaj's PE Investment Team in Dubai ($7bn), Head of both the Special Situations and the Real Estate Group, as well as being a member of the Executive and the Investment Committees. He was responsible for a number of Abraaj's investee companies (10+), including Network International (payments), Saham Finance (insurance), and Jordan Ahli Bank (banking).

Matteo has been a board director of over 20 companies and completed over 100 transactions in Europe (including CEE), South Asia, the Middle East and Africa, throughout his career at Abraaj, at MIG ($7.4bn AUM) where he was briefly CIO, and at Deutsche Bank as MD and co-Head of Emerging Markets in the Financial Institutions Group.

Since 2012, Matteo has been a member of the World Economic Forum's Global Agenda Council on Financing and Capital (2012-14 and 2014-16).

Matteo graduated from Queens College, the University of Oxford, with an MA (Hons) in Philosophy, Politics and Economics.

Udayan Goyal - Managing Partner & Co-Founder, Apis Partners

Udayan is a keen proponent of technology driven reformation in banking and financial services and has exceptional domain expertise in the industry. He is a Co-Founder and Managing Partner of Apis Partners LLP.

Prior to Apis, Udayan was a Co-Founder of Anthemis Group, a leading venture capital investor in digitally native fintech companies and advisory firm to large private equity companies investing in the financial technology sector. Here Udayan made a number of seed investments in companies including (Bank)Simple, Azimo, Betterment, Moven and Fidor, whilst also leading a number of innovation projects and private equity-backed transactions.

Udayan was formerly the Managing Director and Global Head of Financial Technology Advisory at Deutsche Bank AG in the Global Financial Institutions Group based in London. Prior to Deutsche Bank, Udayan had specific responsibility for developing the pan-European specialty finance practice of Credit Suisse with a focus on financial technology.

Udayan is a much sought after commentator on digital finance and curates the very popular "Future of Money" annual session at Innotribe, SIBOS, where he serves as a member of the Enablers Board.

Udayan graduated from Trinity College, the University of Cambridge, with an MA (Hons) in Natural Sciences (Tripos).

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