A VISION FOR
ASIA PACIFIC IN 2050

by Tony Estrella

Future
Proofing
Healthcare

ABOUT **FUTUREPROOFING** HEALTHCARE

FutureProofing Healthcare started in 2018 as a way to benchmark how health systems are performing today to prepare for the future. The programme is establishing a community for sharing insights and data so decisions can be driven by evidence, not emotion. COVID-19 is clearly putting a spotlight on this approach all over the world.

The frameworks and data aggregated by FutureProofing Health will support discussions on the policies, healthcare system designs, and interventions necessary for a sustainable future. Ultimately, FutureProofing Healthcare aims to help countries to learn from each other and avoid the mistakes of the past. By doing so, people can have well-prepared, forward-looking health systems that deliver better care for all.

In advance of the FutureProofing Health APAC launch in November 2020, we asked **Tony Estrella**, one of our APAC-based experts, futurist, and author, to write this whitepaper as a **thought experiment to stimulate conversation** on the future of health in this region. Building on other **whitepapers** including one written by **EU expert Bogi Eliasen** from the Copenhagen Institute of Future Studies, Tony looks thirty years ahead to describe what healthcare will look like in the year 2050.

HOW THE MISSION FOR HEALTH DIFFERS IN 2050:
HEALTHY LONGEVITY AS THE MOTIVATION FOR CHANGE

The inflection point for the end of healthcare as we knew it came in 2037. Thirty years after the smartphone launched and 12 years after the world fully recovered from the COVID-19 pandemic, a new innovation arrived - scientists figured out **how to slow ageing**. This singular change transformed the world's focus to healthy longevity, a movement that spread like wildfire across Asia Pacific and the rest of the world.
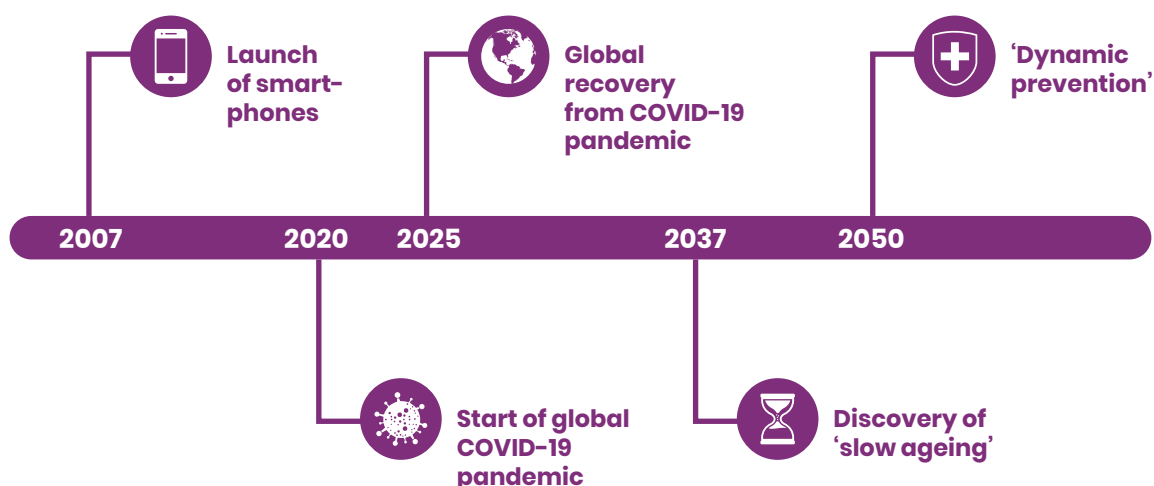
By increasing human lifespans to at least 150 years, any sickness became an enemy. The spectre of death could stop people from spending time with loved ones, hence everyone **adjusted their mindsets**. A hopeful outlook linked to better health drove individuals and society to no longer accept a predetermined fate that becoming older also meant suffering from chronic disease or debilitating illnesses. **Personalised medicine** became the norm, leading to individualised programmes to apply new technologies to heal broken bodies, imbalanced minds, and defeated spirits. This first wave of change affected all aspects of life: government and regulations, the workplace, the home, insurance, physical medical infrastructure, virtual interactions and connectivity, and personal data. By 2050, **dynamic prevention** became a second nascent wave of change, aiding billions of people to avoid illness altogether.

As we celebrate the new year in 2050, let's look at how personalised medicine and dynamic prevention affected the countries of Asia Pacific.

REPLACING THE INDUSTRY OF HEALTHCARE:
THE FOUNDATIONS FOR A PROACTIVE HEALTH SYSTEM

In 2050, the mission of the healthcare industry evolved far from its 2020 cousin. Now called *Longevity Health* instead of *Health Care*, the overall system no longer passively reacts to waves of sick people seeking physical care from providers. "Let my parents enjoy their longer lives" served as a unifying mantra. The complex network of stakeholders worked together to recreate a proactive, data driven, individualised, and collaborative system. Five axioms guided the transition to address the increased demand for improvement of health and quality of life:

1 Governments developed **policies, aligned budgets, and robust governance** to widely deploy individualised programmes for precision medicine for any illness as well as clinically validated prevention programmes which could be dynamically tailored for any cultural variations

2 Society operated with a new **social conscience** where the benefits of healthy longevity were available regardless of differences in social standing, demographics, and political affiliations

3 Health organisations realigned into **interconnected ecosystems** of physical infrastructure, virtual interactions, financial exchanges, and technology interventions

4 Individuals accumulated their personal data into a **Humanome** – a protected repository containing their biology, genome, behaviour, real world activity, and quality of life preferences

5 Clinicians **personalised prevention and care interventions** through the use of continuous technology innovations

Establishing *Longevity Health* as a sustainable industry didn't come easily. Global healthcare has a lengthy history for how legacy policies, people, providers, and financing are rigid. These groups are more often in conflict than operating in effective collaboration. Governments in particular were wary of how to financially support ageing populations without bankrupting economies.

Despite these challenges, **two trends** in Asia Pacific from the 2020s enabled a coordinated adoption for re-defining traditional healthcare.

1 **FIRST**, as a region, near universal mobile phone penetration enabled most nations to skip over legacy approaches to health that hampered the speed of change in Western countries. As a result, with sufficient clinical data and alternative funding structures to support public health, precision medicine scaled quickly. New health models could be tested, refined, and deployed to reach the sick and help them achieve better health, both inside and outside of traditional provider settings.

2 **SECOND**, Asian social structures placed society and family above the individual self. Driven by Confucian values – or its equivalent in others Asian cultures – people in APAC nations treasured the newfound healthy longevity of their elders and adapted to its consequences within existing arrangements instead of having to create new structures. Within APAC families, the high frequency of intergenerational households, especially as compared to the West, provided active emotional and financial support to people over the age of 60. Financially, innovative funding models from private industries – from traditional insurers and technology organisations – allowed policymakers to introduce schemes for personalised medicine and eventually dynamic prevention without putting the full economic burden on the state.

By 2050, these trends in Asia Pacific enabled the 5 axioms to exist across geographic boundaries throughout the region.

A BRIEF JOURNEY AROUND ASIA PACIFIC IN 2050

Asia Pacific remains the largest global territory with 60% of the world's population across 44 countries and with over 2,000 languages spoken.

There are 6 geographic clusters within the region, ranked in order of largest population size:

- China, Taiwan, and Hong Kong
- The Indian subcontinent
- Southeast Asia
- Japan
- The Korean Peninsula
- Australia and New Zealand

Each cluster is grouped together based on: a) an intertwined history including language, culture, religious beliefs, and lifestyle, b) common climate or geographic position, and c) economic and political treaties. These clusters allow APAC as a whole to be analysed in smaller segments, but ultimately country-by-country comparisons are necessary, especially in designing health systems.
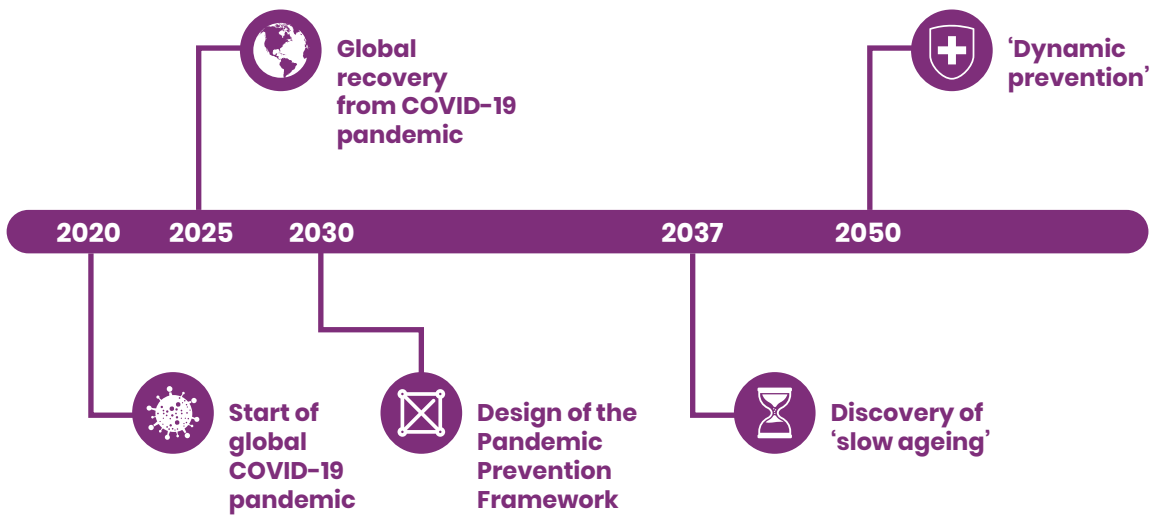
Within each APAC country, **3 factors** determine their current status in 2050. First is **historical and current economic size and growth rates**, e.g., 2020 "mature" economies such as Japan and South Korea vs. "developing" countries such as Vietnam, Philippines, and Bangladesh. Second is the country's **healthcare system maturity and belief in traditional medicine**. And third is the **rate of technology adoption** within each country, defining the efficiency gains in payer structures, measurable personalised medicine health outcomes, and early adoption rates of dynamic prevention programmes across an Asia Pacific spectrum of innovation.

AXIOM 1:

CREATING POLICIES, BUDGETS, AND ROBUST GOVERNANCE TO SHIFT FROM SICK CARE TO PRECISION MEDICINE WITH DYNAMIC PREVENTION

Gathering the political will to support any wide-scale change is not easy. The shift from reactive policies to proactive approaches to health interventions and ultimately systematic prevention was no exception. However, the COVID-19 global pandemic starting in 2020 highlighted both the resilience of the human race along with the disconnect stemming from the politicisation of healthcare. Although the initial range of political responses varied greatly, eventually governments around the world converged to a common approach: making difficult short-term choices to protect human lives whilst protecting long-term health and economic security.

Timeline:
- 2020 — Start of global COVID-19 pandemic
- 2025 — Global recovery from COVID-19 pandemic
- 2030 — Design of the Pandemic Prevention Framework
- 2037 — Discovery of 'slow ageing'
- 2050 — 'Dynamic prevention'

Although it took years for economies to fully recover from COVID-19, the lessons learned played a crucial role in the years that followed. In 2025, global healthcare went through a reinvention, driven by a common goal to eliminate future viral outbreaks. Modelled after the measures put in place from previous outbreaks including SARS, MERS, and Avian Flu in APAC, a global council designed a Pandemic Prevention Framework. The UN, WHO, and all governments ultimately adopted all the baseline recommendations by 2030. Through its frameworks and empirical data and with its network of health experts, FutureProofing Healthcare supported these challenging policy negotiations and firmly established its place as a global resource.

The discovery of the miracle approach to slow ageing in 2037 triggered a new set of policy and governance battles. During these difficult discussions, APAC benefited from having widespread technology-enabled platforms across a variety of sectors including financial services (e.g., cashless transactions, digital insurance), health (e.g., virtual provider networks), and mobility (e.g., augmented driving and drones). The data from these systems enabled national and regional discussions to use factual information instead of emotion in setting strategy and investment for the new approach to health, including reassessing good governance. The data also helped to identify gaps where patient awareness required boosting, along with any incentives necessary for not only individuals but to drive reform within the public and private sector to shift from sick care to proactive health interventions.

APAC's widely developed technology infrastructure also had two additional consequences. First, data available to governments enabled them to measure improvements in economic output from having people stay healthier and part of the workforce for a longer period of time. With ageing slowing down, a 70-year-old in 2050 could be as vibrant as a 30-year-old in 2020 – but only if the decrease in the disease burden matched the increase in lifespan. And second, the new longevity industry drove direct increases in GDP growth from sectors such as Biomedicine, Digital Biomarkers, and Digital Therapeutics.

Fortunately, building the 2030 accord established precedent for a regional collaborative process in APAC. Policymakers also recognised that a different approach was necessary, otherwise longevity would only lead to having to care for a greater number of sick people. The following 3 categories summarise the range of questions policymakers addressed to establish a new health system designed to support proactive interventions.

CATEGORY	CRITICAL QUESTIONS
Public and Private sector funding	■ What % allocation should be shifted to putting prevention on par with treatment? ■ What financial contributions should people make in their early years, middle years, and later years given the new average age of life? ■ What ecosystems were required to enable everyone – including the bottom 20% - to access care? ■ How to eliminate disparities in supporting everyone without creating biases from factors including income disparities, family size, and across country boundaries? ■ What economic structures are required to support a population living longer including work, career management, professional development and upskilling?
Helping people enjoy their longer lives	■ How to tackle the most common diseases afflicting people including diabetes, heart disease, cancer, mental health, and dementia? ■ What existing and new targeted interventions could enable better outcomes for people managing an existing disease? ■ What existing and new technology-enabled tools could enable better outcomes for people managing their lifestyle risk factors including sleep, diet, and exercise? ■ How to overcome the traditional healthcare barrier of lack of motivation on the part of individuals to change their behaviours?
Measuring and quantifying impact	■ What body measurements led to the greatest impact in stopping disease? ■ What data was required to evaluate the impact and identify the appropriate interventions to stop disease? ■ What existing and new sensors were required ■ How to protect, share, and use and individual's data? ■ How to define the ownership and privacy protections for an individual's data?

Eventually, a convergent approach came out from the policy debates. The resulting Common Resolutions included:

CATEGORY	COMMON RESOLUTIONS
Public and Private sector funding	- Governments in APAC built on basic universal health to agree on a new minimum subsidy for longevity as a % of each country's GDP costs spent on health - Private insurers established new actuarial models, allowing individual pricing based on income and actual measures taken by the individual and families to stop disease - Public and private systems enabling larger workforces including enabling transitions at different life stages - Innovative alternative funding models from sectors outside of traditional payers including technology companies
Helping people enjoy their longer lives	- Standard individualised interventions were established for the top chronic diseases - R&D funding for rare diseases became more efficient through the use of AI, Quantum Computing, and data sharing arrangements across all stakeholders - All types of genomic testing became widely available and actionable for both prevention and treatment - The drive to enjoy life, more education, and better design of user interfaces rapidly increased adoption and adherence for behaviour modification tools - Clinically validated programmes for preventing disease which could be customised by culture and for historical health risks
Measuring and quantifying impact	- New standards were set for tracking patient health outcomes improvement regardless of the mode of interaction with providers (e.g., physical vs. virtual) - New standards were set for setting benchmarks and personalising: nutrition (microbiome), exercise (robotics), and sleep (brain scanning) - Benchmarking the efficiency of various provider models including aligning costs with outcomes - A Digital Social Contract was set whereby every person owned their own health data

Adopting these resolutions within APAC required less friction than in other parts of the world. Examples included:

- Countries such as China, Japan, and South Korea with existing basic universal healthcare systems could add new areas of coverage for longevity more quickly as compared to countries without a single payer system
- Widespread rates of chronic disease such as diabetes in India, dementia in China, cardiovascular disease in Southeast Asia led countries and individuals to readily accept new treatments and preventative measures to decrease or fully eliminate their impact on longevity
- The near-universal reliance across APAC for mobile-first health interactions made the consumer adoption for technology-driven prevention programmes spread quickly

AXIOM 2:
HAVING A SOCIAL CONSCIENCE

When the longevity solution became widely available starting in 2037, an immediate concern from policymakers and individuals alike arose. **Would the solution only be accessible and affordable to the wealthy citizens and countries?**

Initially, income/income per captia in APAC such as China, Japan, South Korea, Singapore, and Australia did have faster mass adoption, either because of the ability for individuals to pay themselves or through the size of government subsidies. But as data clearly showed the positive economic impact from a larger labour pool and new industry growth in Longevity Health, smaller GDP countries in APAC became creative. They sought out partnerships in the private sector and with other nearby countries to find a solution, fuelled by the promise of faster economic growth and the social desire to help their parents enjoy longer and fruitful lives. A desire to keep the family unit together for a longer period of time broke down traditional boundaries for collaboration across Asian countries.

The result - people from the smallest island states such as Papua New Guinea, fast growth countries in Southeast Asia such as Vietnam and Cambodia, and behemoths such as India – all with less developed healthcare systems – enjoyed the same access and benefits as their APAC counterparts who had a head start for living active and healthy lives as centenarians. In 2050, the skyrocketing GDP growth across APAC justified the risk taken by these countries.
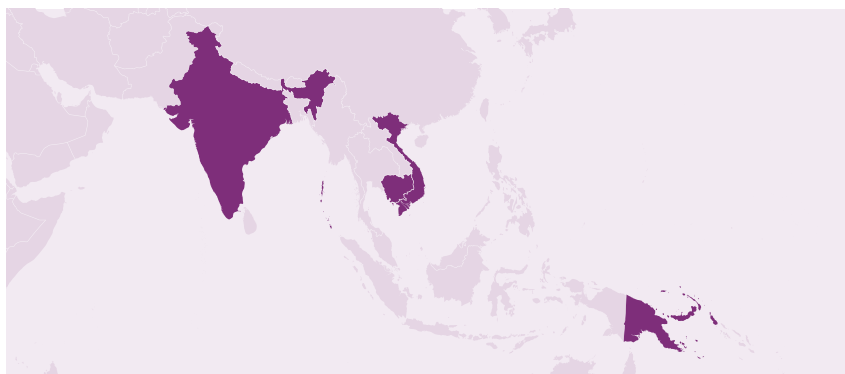
COVID-19 also affected the approach for people-friendly policies in a new health economy. For example, when the pandemic spread like wildfire across immigrant construction workers in Singapore in 2020, the Prime Minister announced across social media to these people and their families "we will take care of you the same way we take care of Singaporeans. They will come home to you." Policymakers and citizens alike come together to protect every human life and focused on social good, despite any short-term pains. An ethical tipping point arrived. These altruistic behaviours ultimately became measurable through an index of Social Conscience.

High Social Conscience countries drove the creation of a new promise for health – one which quickly became a global movement across social media. The government-backed guarantee adopted by all countries read:

"We pledge that the benefits of healthy longevity should be available regardless of differences in social standing, demographics, and political affiliations."

AXIOM 3:

DELIVERING INTERVENTIONS THROUGH INTERCONNECTED ECOSYSTEMS

In 2050, the interface, data collection, data management, and interventions for all consumer journeys in *Longevity Health* are driven by technology. **This didn't happen overnight.**

In 2010, the first wave of technology meeting healthcare became known as Digital Health. The resulting changes over the next 15 years enabled greater cooperation in the delivery of diagnosis, treatment, and tracking of a person's health across all stakeholders. **The COVID-19 pandemic became the fastest driver of transformation for policymakers, providers, regulators, and payers.** Within months, tools such as telemedicine, artificial intelligence, and mobile apps became essential for providing the connections necessary to maintain health. With private and public funding now reimbursing tech-enabled interventions, the potential of technology in healthcare including remote diagnosis and treatment, virtual care models, data exchange, and a blending of commerce and care became fully realised.

Post-COVID-19, a majority of people demanded to continue having technology included in their health journeys. And by 2050, technology interactions have proliferated. The emphasis of human-to-human interactions shifted to emotional support for either for personalised medicine or for preventative health.

The following table summarises some examples of solutions and core platform technologies in a proactive, tech-enabled health ecosystem.

CATEGORY	CORE TECHNOLOGIES	EXAMPLE SOLUTIONS
Virtual Interactions	■ Augmented and Virtual Reality ■ Artificial Intelligence ■ Wearable and implanted sensors ■ IoT sensors ■ 10G mobile network speeds	Initial consultations all held virtually regardless of type of request. Ongoing education pushed to individuals based on life-stage, demographics, and current health profile.
Physical Infrastructure	■ Robotics ■ Artificial Intelligence	Follow ups requiring a physical visit supported by a mix of robots, AI, and humans. Any proposed interventions tested on people's 'Digital Twin' – a virtual representation of a person.
Data Privacy and Exchanges	■ Blockchain ■ Artificial Intelligence	People individual own and provide access to their data to all *Longevity Health* stakeholders. The mechanism is used across both health interventions and also how to financially pay for them. AI is used for real-time decisions from any *Longevity Health* stakeholder.

In APAC, the approach for data standards, privacy, and integration for healthcare varied greatly across countries in 2020. After COVID-19, the need to prevent future pandemics drove the formation of the basic agreements for population health management within the Pandemic Prevention Framework. Critically, countries came to realise the benefits data sharing and collaboration to maintain public health especially for prevention.

In Longevity Health, further steps to digitise and share information across Infrastructure and Services grew in scope and scale. By 2050, a **few common themes arose**, evidenced by these examples:

■ Across Asia Pacific, despite a continuing requirement for many countries to keep all personally identifiable data within country borders, the use of technologies such as blockchain allowed non-personal information to be freely shared in the design and enhancement of prevention programmes.

■ In Southeast Asia, a new approach for health data led to a common registry for this region including Indonesia, the Philippines, Malaysia, and Singapore. The overall grouping of these countries created the largest cross-section of ethnicities which represented 95% of the diversity across APAC.

■ In India, new data monitoring guidelines allowed basic health data to be captured across the entire population to create an entire digital nation of virtual twins. Having this amount of data for over 1 billion people was considered impossible previously given the size, wealth disparities, and geographic diversity of the populous country, and yet the promise of healthy longevity made this possible.

AXIOM 4:
CREATING THE HUMANOME – THE SCIENCE OF ME

With technology being part of everyone's healthcare journey in 2050, every human or robotic clinician began any conversation with one question - **"Can I have access to your data?"**
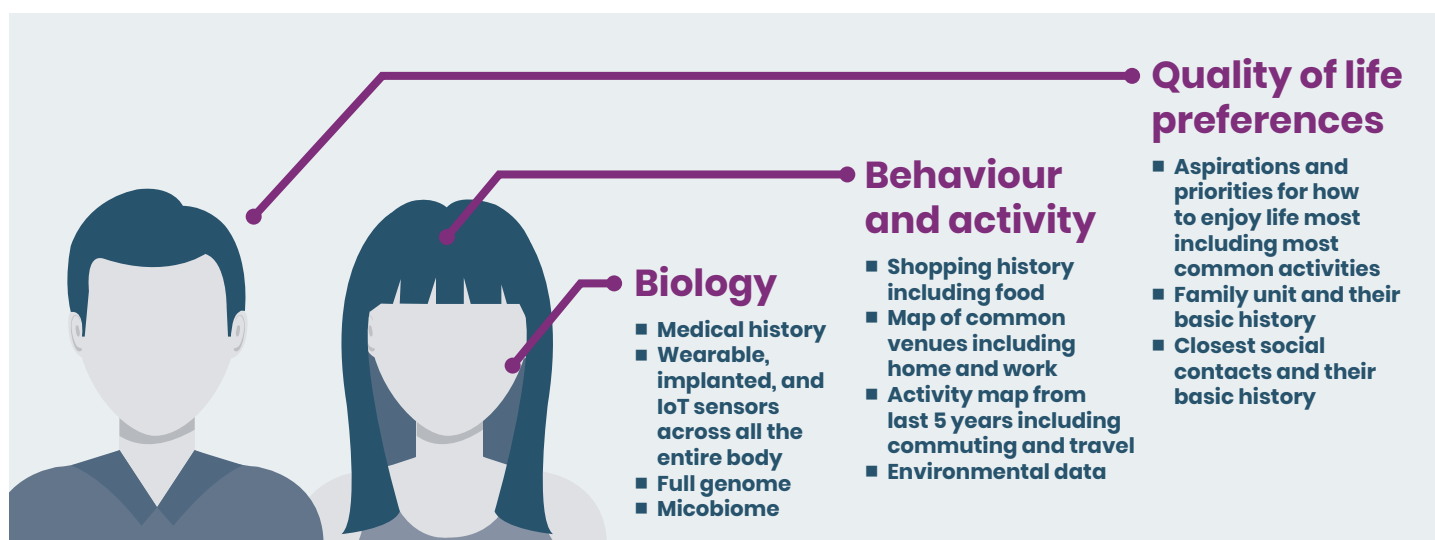
If this same question was asked in 2020, the responses would likely have been met with scepticism - **"it's my data, why should I share it"**, befuddlement – **"that's not possible, someone else owns my data"**, or disbelief – **"what would you even do with this information?"**.

Overcoming this dynamic required three steps.

1 **A Digital Social Contract enforcing personal ownership of health data was the first step in changing this dynamic.**

2 **The second came from increased data management, transparency, and collaboration across country borders.**

3 **And last, measurement allowed for numerous case studies for prevention and health outcomes.**

By 2050, this question only elicited one response – a resounding "YES!"

The data required for fully analysing an individual became known as the '**Humanome**'. This collection of sources enabled any clinician – human or AI, to fully understand the health risks for any individual. These included:

Quality of life preferences
- Aspirations and priorities for how to enjoy life most including most common activities
- Family unit and their basic history
- Closest social contacts and their basic history

Behaviour and activity
- Shopping history including food
- Map of common venues including home and work
- Activity map from last 5 years including commuting and travel
- Environmental data

Biology
- Medical history
- Wearable, implanted, and IoT sensors across all the entire body
- Full genome
- Micobiome

Southeast Asia and China became interesting case studies for the global Longevity Health revolution. In China, the widespread adoption and use of single platforms integrating messaging and commerce already existed in WeChat. Adding and tracking other health elements with users' consent became an easy task for this goliath. Policymakers in the country had already established a focus on prevention with Healthy China 2030. They also recognised the importance of genomic profiling through the creation of the China Precision Medicine initiative in 2020 with a goal of sequencing 100 million genomes by 2030. And therefore by 2050, China had the most number of genomes sequenced than anywhere else on the planet.

The private sector also supported the growth of personalised healthcare. For example, in South Korea, pharmaceutical companies such as Roche partnered with leading oncology medical societies to help establish a common platform for cancer patients to manage their entire care journey including remissions and recurrence. When these collaborations expanded to include hospital systems, insurers, and technology companies, robust individualised data could be fed into each patient's **Humanome**.

Japan, South Korea, and Southeast Asia followed the China's lead in both data aggregation to create the **Humanome** and in genomic sequencing. Each country had an integrated messaging and commerce platform - Line (Japan), Kaokao (South Korea), and Grab (Southeast Asia). But only Southeast Asia had the diversity of ethnicity to create an APAC-region registry representative for all of APAC within one region. Within Singapore, Malaysia, and Indonesia alone, almost every ethnicity in APAC is present from across the region, either from history or from sufficient levels of immigration.

AXIOM 5:

PERSONALISING *LONGEVITY HEALTH* FOR ANY INDIVIDUAL

The concept of personalised health has been around since the time of Hippocrates, and in the period around 2020, the most widely implemented example came in cancer treatments. But once the '**humanome**' became widely adopted and clinicians could get a full view of every patient under their care, a personalised approach to every individual became the standard approach.

Developing a personalised approach for both preventative and therapeutic care requires adaptable health products. There are also complexities that come from meeting efficacy and safety requirements from each country's regulatory bodies.

Within *Longevity Health*, products should address: **prevention, diagnosis, access to treatment, tailored interventions, and monitoring**. Data modelling is also essential to be able to identify the right interventions for any individual at the right time. In order to understand how Longevity Health addresses challenges in these spaces, here are four examples of personalised health in action.

WEE HONG:
FROM CHINA SEEKING TO EXPAND HIS SPORTING LIFE

> *Competition fires me up. I'm a footballer at heart. Now that I have more time, I want to add other sports, both with my mates and some individual sports like swimming.*

Wee Hong plays football every weekend. He and his mates still enjoy the thrill of victory. Their trash talking has now led them to explore other sporting activities. At age 63, Wee Hong wants to make sure he avoids any injuries to his body so he can stay in peak form for at least another 30-40 years.

Wee Hong wants the same attention that high-performance athletes exclusively received in 2020. As a result, he opened up his life to a personalised programme from a *Longevity Health* team of virtual health professionals and robotic trainers. The intrinsic motivation to be the best player on the pitch keeps him not only aware of what he eats, but also how he takes care of his overall physical health.

The main clinical goals for his health team are protecting his cardiovascular system and preventing osteoporosis. The virtual interactions focus on nutrition. Wee Hong only eats food matched perfectly to his microbiome. He avoids ingesting any substances that could create blockages in his arteries or degrade the overall performance of his heart. The nutritional supplements he receives keep his bone density and muscle strength at the same level as a 30-year-old. They physical visits from robots include stretching keep his muscles pliable. Lastly, Wee Hong accepts using a thin layer of intelligent protective equipment which can instantly activate to proactively protect him from any injuries including concussions.

RIZWAN:
FROM INDONESIA SEEKING TO EXPAND HIS LIFE EXPERIENCES THROUGH TRAVEL

> *I live to teach children. If I can only travel the world, I can enhance my lessons to teach not only from textbooks, but also from my own experiences.*

Rizwan comes from a family of teachers. Unfortunately, they also have a generational battle against diabetes. His father ended up teaching his last few years from a wheelchair after losing both of his feet to complications from diabetes. At age 46, Rizwan is now the same age as his father when he died. His dream trip is a visit to Japan to learn first-hand how to prune niwaki trees and create a garden of trees that look like clouds. Rizwan's ancestors ate poorly, and he has to learn entirely new habits. But he is motivated by the desire to not only travel once, but many times over the next 100 years.

Tools in 2050 to defend against metabolic disease are driven by Rizwan's **Humanome**. The biological information serves as an input to a regimen of food, beverages, and supplements to prevent Diabetes. The ecosystem evaluates matches his travel aspirations to a financial rewards programme. The data from his shopping habits and historical activity influences the exercise programme. All this data is fed into the companion robot which accompanies Rizwan throughout his daily life.

The robot companion serves as a guide and a source of consistent positive reinforcement. It shows Rizwan videos and images of niwaki trees and expert pruners. It accompanies Rizwan on pre-selected routes to reach his daily walking goals, thereby letting him earn the flight credits required to subsidise his trip. And it calculates the accepted deviance from the nutritional programme on a daily basis to allow Rizwan the occasional treat.

FATIMAH:
FROM INDIA SEEKING TO READ 20,000 BOOKS IN HER LIFETIME

> *I love reading. Now that I have more time, I want to make sure that my ability to learn is the same 50 years from now as it is today.*

At age 20, Fatimah is already a voracious reader. She has done the maths, and she knows that she will need to complete 150 books per year for the next 130 years in order to reach her goal. She has aspirations to be a scientist, dancer, and a mechanic. Reading will help her master all of these goals in her future.

Keeping her brain healthy is her main priority, but she also knows that she needs to pay attention to her body health. The mandatory consultations for 20-year olds with their Digital Twin help her understand her long-term Longevity Health plan. The programmes tested on the Digital Twin incorporated the latest knowledge for how to prevent Dementia. During the virtual consultation, Fatimah watched in awe as she could see how health decisions she made each year affected her overall brain and physical health. Fatimah eventually selected a plan which she felt was realistic for her whilst allowing her to enjoy these early years of her life.

The core components of her programme included the brain enhancement patch which both improved her sleep at night and her focus during the day. She also took tailored brain health supplements once per year. Lastly, she didn't need a physical robot. Instead, the virtual companion on her reading device tapped into the selected plan to regularly remind her of specific actions with customised messages.

OLIVIA:
FROM SINGAPORE MONITORING REGIONAL POPULATION WELLNESS IN SOUTHEAST ASIA

> " *I'm a 2nd generation data geek, and I enjoy partnering with my mother to expand Longevity Health across ASEAN.* "

Olivia's entire life is intertwined with the evolution of health from sick care to precision medicine and dynamic prevention. Her mother led in the Southeast Asia coalition to establish the first regional programmes for individualised, technology-driven interventions for cardiovascular disease, cancer, and dementia. When Olivia finished her doctorate, her shared passion for improving health outcomes led her to join the Singapore-based team which actively monitors health outcomes and makes the data actionable by improving the targeting and design of proactive care interventions across the region. Her personal mission is eradicating cancer.

Along with her mother, they partner to bring policy design and data-based decisions together. Her mother was a life-long advocate for influencing others to accept the importance of biology and science to manage health risks. With the change for people living longer, the risk equation for health had to be adapted. Whether they eat together in the office cafeteria with co-workers or with the family at the dinner table at home, the topics of data, artificial intelligence, smart devices, and robotics usually leads to a lively debate.

Eventually, they agree on their separate courses of coordinated action. Fed by data from Olivia, her mother continues to spearhead the debates on what broad decisions should be made to expand precision medicine and also increase the prevention programmes which can eliminate disease altogether. Olivia and her team continue to evaluate the data captured shared from an individual's **humanome**.

Overall, Olivia and her mother are game changers in their collaborative approach and continuous innovation for *Longevity Health*.

The views and opinions expressed in this blog are those of the author and do not necessarily reflect the views and opinions of Roche or FutureProofing Healthcare.

SUMMARY

The transition to a new system of proactive health interventions in 2050 required colossal changes. Back in 2020, the global population accepted many things as inevitable: global warming, disease as a natural part of ageing, and that governments would always act in their own self-interests.

But COVID-19 and the resulting recovery from 2020-2025 taught the world that the terms "inevitable" and "prepared" could be rewritten. Assumptions could be altered, leading to a new reality, as long as leaders and the world's population were willing to fight for a new future path.

The scientific discovery for slowing ageing served as this trigger. The resulting systemic and technological changes along the five axioms outlined in this paper helped make the vision of personalised medicine and technology-infused health a reality around the world.

CLOSING THOUGHTS FROM THE FUTURE PROOFING HEALTH TEAM INCLUDING THE AUTHOR

We welcome feedback from readers of this white paper, as it is intended be a **thought experiment to stimulate conversation** and debate.

The ideas put forward for having healthy longevity serve as a motivation for expanding personalised medicine and dynamic prevention across Asia Pacific might have seem far-fetched at the start of 2020.

But as we are watching and experiencing how the world responds to the current COVID-19 pandemic, the scale of changes suggested in this paper no longer seem completely unlikely. Actions we once deemed unfathomable such as closing borders for international travel, rescheduling institutional events like the Olympics, and having half of the world's population willingly stay home to protect the pandemic from spreading are now real.

Ideas such as a coordinated approach to regional precision medicine across Asia Pacific, digital therapeutics, and having a true social conscious may no longer be fiction.

We will fight through these challenging times together, and we hope that the resulting changes enable a better healthcare system that benefits all of humanity, both today and in 2050.