

What is gerontech and why is it important?

According to the World Health Organization (WHO), creating an age-enabling city requires nine core ingredients, one of which includes “Technology and Innovation”, and by extension, gerontechnology (WHO, 2015). Gerontech is a fast-growing industry with significant potential to improve the lives of elderly and persons with disabilities (PWD). It is therefore an important tool to help the city to overcome challenges related to population ageing.

This is particularly significant for Hong Kong, as we not only have a rapidly growing ageing population, but also the longest average life expectancy in the world—**82.9 years for males** and **88.0 years for females** as of 2020 (C&SD, 2021, September 10). Some of the challenges that the city faces in relation to population ageing include the high institutionalisation rate of elderly and PwD, weak primary care in relation to chronic disease prevention and management, severe manpower shortages resulting in increased caregiver burden, and inadequate medical-social collaboration to meet the health and welfare needs of elders and PwD (OHKF, 2018).

All of these challenges represent areas where gerontech could positively contribute. Yet, whether a widespread adoption of gerontech can succeed depends on our commitment to build on the successes and momentum within the industry today, as well as to identify key areas where more can be done to further grow and mature the gerontech ecosystem. This is the focus of this report.

How has Hong Kong's gerontech ecosystem developed in the past few years?

In 2017, Our Hong Kong Foundation (OHKF) partnered with the Hong Kong Council of Social Service (HKCSS) to publish Hong Kong's **first ever gerontechnology report**, titled *Gerontechnology Landscape Report* (OHKF, 2017, June). The report identified 24 gaps representing areas of insufficiency and opportunities facing the ecosystem.

When we first published that report, many stakeholders were still exploring gerontech. But in the past years, **since the report's publication, Hong Kong's gerontech ecosystem has organically blossomed through the launching of many gerontech-related initiatives by both public and private parties.** Given the notable difference in circumstances from then to now, **it is therefore high time to reconsider and re-formulate our holistic analysis of Hong Kong's gerontech ecosystem.**

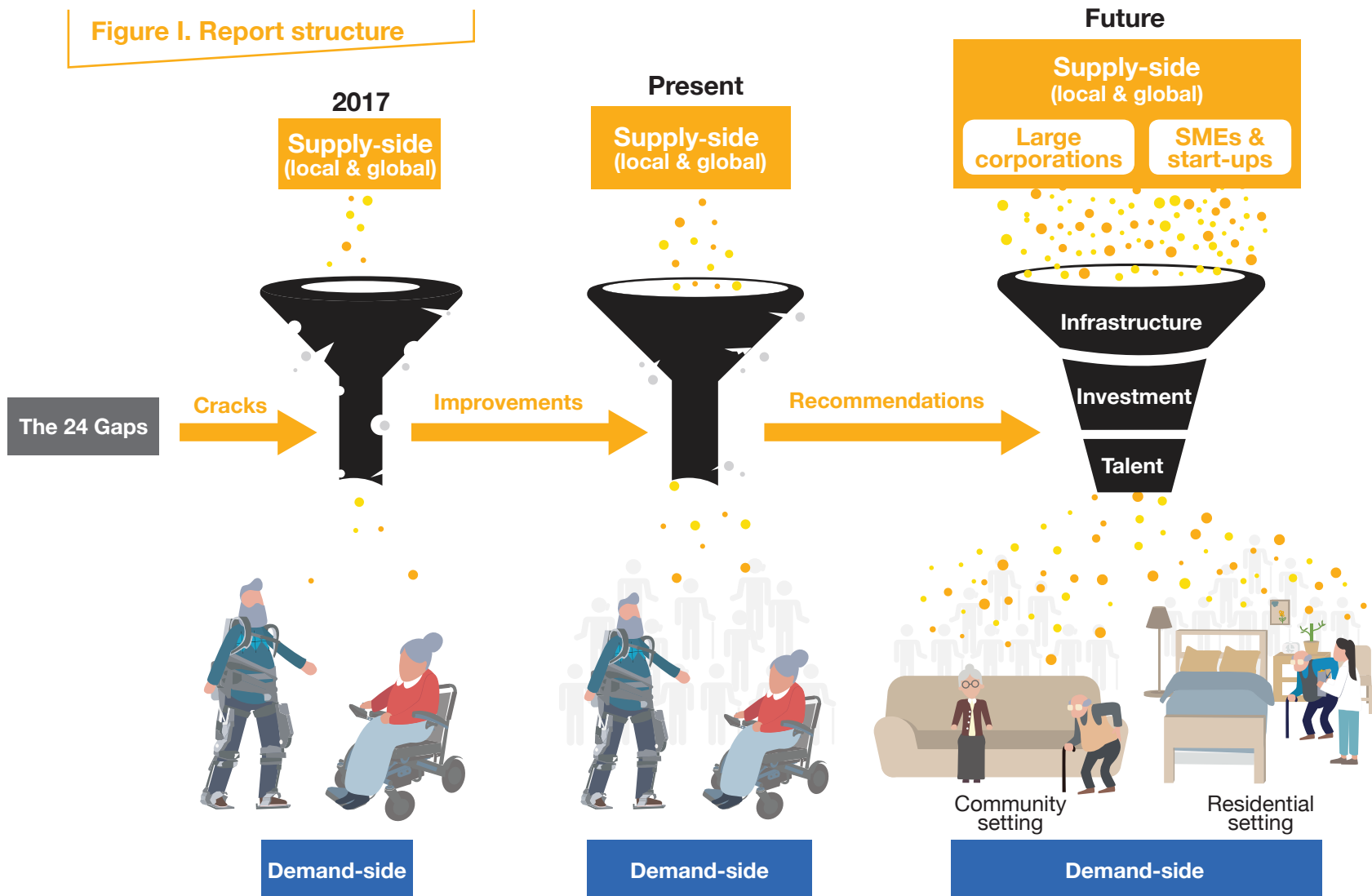
The first section of our report looks at the extent to which the 24 gaps have improved. To do this, we conducted a survey to gather data on the development of Hong Kong's gerontech ecosystem with relevant stakeholders. **The survey revealed that, on the whole, Hong Kong's gerontech ecosystem has improved** in the past years. Some of the most improved gaps include awareness, government risk aversion, and applied research funding, while many other gaps also saw some improvement.

However, there are three gaps that have worsened, including insufficient retirement protection, academics' lack of incentives to pursue gerontech research, and complicated medical device registration processes.

Put together, our survey findings suggest that there remain many areas within Hong Kong's gerontech ecosystem that need more support or attention. As such, the remaining chapters of the report considers how key levers can address and overcome these gaps, which we hope can enhance Hong Kong's gerontech ecosystem in the coming years.

Figure I illustrates the key levers identified, as well as the overall storyline and structure of this report. In 2017, Hong Kong's gerontech ecosystem was very fragmented, represented by the funnel with several cracks. Due to all the improvements in initiatives as well as an increase in the number of supply-side and demand-side players, we now have a solidified funnel under "Present" in the figure. While these are positive signs, we believe that more can be done to further grow the gerontech ecosystem. As such, we have proposed strategic key levers under "Future" in the figure, which we believe can facilitate the expansion of the city's local gerontech ecosystem and enable a smoother flow of gerontech products and services from supply-side to demand-side.

Figure I. Report structure



Each of the key levers identified form a chapter of this report. **Chapter 1** discusses supply-side support, namely relating to receiving user feedback, specific issues faced by start-ups, and issues concerning import and export. **Chapter 2** discusses demand-side needs, differentiated based on elderly living in residential setting compared to those living in a community setting. **Chapter 3** discusses how to improve the availability of gerontechnology-friendly infrastructure, both within public spaces and inside private homes. **Chapter 4** discusses how to leverage public-private investment partnerships for gerontechnology. **Chapter 5** discusses how to nurture the relevant talent to sustain the gerontechnology ecosystem, including the creation of gerontechnology consultants, facilitating knowledge transfer, and enhancing general education.

1. Enabling supply-side to produce more and better gerontechnology products and services

Within Hong Kong's gerontechnology ecosystem, the "supply-side" refers to organisations and individuals that create and supply gerontechnology products and services to consumers. The past years have seen an increase in the quantity and quality of gerontechnology suppliers, which has brought more gerontechnology products and services to the market. Yet, there remains a gap in actually bringing these products and services into the hands of users.

Connecting supply-side with demand-side stakeholders is one of the main focuses of the Gerontechnology Platform (GT Platform), an initiative funded by the Hong Kong SAR Government (the Government)'s Social Innovation and Entrepreneurship Development Fund (SIE Fund) and coordinated by HKCSS to lead collaborative efforts within the gerontechnology ecosystem (HKCSS, 2021). The GT Platform is therefore ideally positioned to implement several recommendations about connecting supply-side with demand-side, such as those related to user feedback. As another mandate of the GT Platform is capacity building, it is also well-positioned to implement recommendations related to increasing start-up specific support and providing additional mechanisms to enhance the import and export of gerontechnology products and services.

1.1 Increasing opportunities for suppliers to obtain user feedback

Many suppliers face difficulties in obtaining user feedback, which is especially important to gerontechnology because many elders and PwD have specific health or social needs. We therefore recommend the Government to create more opportunities for suppliers to obtain user feedback at every stage of the product development cycle. At the early stages, companies and financiers struggle to conduct gerontechnology market analysis due to limited data, such as the health and social needs of end-users or their gerontechnology consumption patterns. As such, **we recommend that the Census and Statistics Department collaborate with relevant government departments to conduct a thematic survey on the size and needs of the gerontechnology market.**

During the middle stages, suppliers need access to testing grounds for end-users to give them feedback for product enhancement; testing grounds can also test how effective products are in helping end-users. **In the future, we recommend that the GT Platform’s testing grounds allow for relevant parties to conduct both gerontech product evaluation and enhancement.** Also, to enable suppliers to further obtain post-procurement feedback on their products following their market release, **we recommend that the GT Platform add a comment function to their existing Product List.**

1.2 Specific support structures for start-ups

Generally, start-ups need more support than large corporations because of their comparatively limited access to financial and human resources. Many gerontech start-ups face the additional hurdle as they struggle to access end-users. To this end, **we recommend that the GT Platform set up an Elderly, PwD & Caregiver Advisory Panel, consisting of end-users who can readily provide feedback to start-ups.** Many gerontech start-ups also struggle to understand user needs and the regulatory requirements of the elderly and rehabilitation services sector. As such, **we recommend the GT Platform to provide a specific training course for start-ups** that explain user needs in relation to ageing, disability, and rehabilitation, as well as the operational context and regulatory requirements of the elderly and rehabilitation services sector.

1.3 Mechanisms to facilitate the import and export of gerontech products and services

Due to Hong Kong’s limited gerontech market size, many local suppliers desire to expand into the emerging Greater Bay Area (GBA) market. Yet, many struggle with learning how to do this. To this extent, **we recommend that the GT Platform help local start-ups to conduct site visits and product trials at service units in the GBA. We also recommend the Central Government to explore the option of having approved products from the Social Welfare Department’s Innovation and Technology Fund for Application in Elderly and Rehabilitation Care (\$1 billion I&T Fund) Reference List allowed for direct use in GBA service units.**

Our small market size also means that many foreign companies are reluctant to import and localise their products. To overcome this, **we recommend the GT Platform to collaborate with InvestHK to create strategic partnerships with international gerontech organisations and platforms.** Furthermore, **we recommend that GT Platform and InvestHK collaborate to create a gerontech “Regulation & Localisation Consultancy”,** which would help overseas companies understand gerontech-related standards and cultural practices in Hong Kong, as well as provide local gerontech companies with information on overseas gerontech standards and cultural practices.

2. Increasing demand-side's financial accessibility to gerontech products and services

Within the gerontech ecosystem, the “demand-side” refers to ends-users, including the elderly, PwD, and caregivers in either institutional or home settings. In recent years, we have seen a growth in the demand-side, with more end-users accessing and using gerontech as an organic response to the increase in supply.

Due to increasing levels of tech penetration and higher educational attainment among the young old (aged 45–64), we anticipate significant market potential for gerontech. However, at present, many existing demand-side users and organisations do not have enough purchasing power to acquire gerontech on their own. The Government must therefore play a key role in generating momentum to sustain the gerontech market's growth in the coming years. In particular, they must consider how to support both end-users living in institutional and community settings.

2.1 Elderly living in care homes

One of the most important financial drivers to Hong Kong's gerontech ecosystem is the Government's \$1 billion I&T Fund, which subsidises Government-subsented elderly and rehabilitation service units to purchase and rent gerontech products. The \$1 billion I&T Fund encompasses two schemes: i) procurement/rental of innovative technology products; and ii) trial use of newly developed products.

One significant issue is that 100% privately funded elderly and rehabilitation service units do not have access to the \$1 billion I&T Fund. As more than half of the residential care homes for the elderly are 100% privately funded, many elderly living in residential institutions do not benefit from the \$1 billion I&T Fund. **We therefore recommend the Government to renew the \$1 billion I&T Fund after its completion in the 2023/24 fiscal year and extend the renewed funding scheme to cover all care homes.** Specific measures should be in place to ensure that the service quality of 100% privately funded organisations is comparable to that of subsidised elderly care homes.

Another key issue is that the \$1 billion I&T Fund's trial use scheme has received little reception. For instance, applicant's lack of technical know-how has deterred them from making rightful applications. To improve this, **we recommend that the Social Welfare Department empower applicants by providing more information for the trial use scheme**, such as a detailed handbook to help applicants identify and select appropriate gerontech products for trial.

2.2 Elderly living in the community

One of the largest challenges currently facing Hong Kong's gerontech ecosystem is helping end-users in the community to access and use gerontech. Currently, the Government's primary gerontech-related spending—the aforementioned \$1 billion I&T Fund—mainly benefits institutions. However, less than 8.1% of Hong Kong's elderly live in residential settings, whereas most elderly (91.9%) live in domestic households within the community (C&SD, 2018). As such, the majority of end-users who live in the community lack the Government's support to procure gerontech.

But in the short to medium term, it is difficult to expect current end-users in the community to procure gerontech without some financial assistance, as Hong Kong's inadequate retirement protection system provides elderly with little incentive to spend money, especially on gerontech. However, elderly do have access to different voucher schemes that subsidise the cost of certain medical or welfare care services, and there is widespread support for vouchers to be expanded to cover the procurement of gerontech.

Therefore, **we recommend the Government to extend the scope and increase the amount of the Elderly Healthcare Voucher Scheme (EHCVS) and the Community Care Service Voucher (CCSV) to allow for the purchase or rental of gerontech products.** Such an extension is justifiable because the preventive and rehabilitative nature of gerontech products closely aligns with the EHCVS's objective to promote preventive care and the CCSV's objective to promote ageing-in-place.

We also recommend that the voucher extension be clear on what gerontech products are covered for whom. This should be done through a pre-approved list with two tiers, namely **Tier I** for basic, lower-valued products that encourage prevention and **Tier II** for more advanced, higher-valued products that can better support frail elderly. All end-users can purchase or rent Tier I products through the EHCVS voucher extension, while Tier II products are reserved for users with moderate or severe needs to purchase or rent via the CCSV voucher extension. Due to the Tier II products' more advanced nature, an additional referral from an occupational therapist or a physiotherapist should be required.

3. Enhancing city-wide gerontech infrastructural capacities

In Hong Kong, many end-users cannot easily view gerontech products and do not know where to procure these products within their local communities. In addition, many end-users who live in the community—particularly those living in private housing—have difficulty installing gerontech in their homes. These issues indicate the extent to which there are few “gerontech-friendly” public and private infrastructures in Hong Kong.

3.1 Increasing district-level accessibility to gerontech

There is currently no public space where end-users can easily access gerontech products in all 18 districts in Hong Kong. While there are a few privately-run gerontech showrooms, they are not present in all districts, and it is also often not possible to purchase or rent gerontech products on display in these showrooms. We therefore believe that the Government should take a leading role in increasing the physical accessibility of gerontech products to end-users living in the community.

As such, we recommend that the Government build a “Gerontech Corner” in District Health Centres. We envision this Gerontech Corner to perform three key functions. First, it can host gerontech-related public education and awareness-raising activities. Second, end-users should be able to directly purchase or rent products on display through the voucher scheme extensions. Third, the Gerontech Corner should also operate as a “product testing hub” enabling user feedback from visitors to be collected.

3.2 Home Modification Scheme

It is necessary to provide elderly and PwD with a safe and accessible home environment to facilitate their independent living and avoid institutionalisation. Currently, there are some initiatives that help end-users living in public housing to receive basic home modification, such as widening doorways, laying non-slip floor tiles, and installing handrails. Unfortunately, similar schemes do not exist for end-users living in private housing. **We therefore recommend the Buildings Department to create a similar Home Modification Scheme for elderly and PwD living in private housing.** Eligible households should be entitled to a one-time grant of maximum HKD \$10,000 for costs incurred.

4. Leveraging public-private partnership financing models for innovative gerontech service delivery

Accompanying the expansion of Hong Kong’s gerontech ecosystem in recent years is a growth in the number of financiers interested in investing into gerontech. However, despite both public and private financiers’ interests in funding gerontech projects, there are few gerontech public-private partnerships.

Pay-for-Success (PFS) is an innovative financing model for social services. In short, private investors fund a social project under the agreement that—only if the service provider meets pre-determined outcome-based Key Performance Indicators (KPIs) measured through social impact assessments—will the Government then repay the private investor with interest. PFS is particularly suitable for testing innovative and preventive services, which greatly suits the nature of gerontech products and services. **We therefore recommend using PFS as an innovative way to bring together public and private financiers within the gerontech industry.**

5. Training up the next generation of innovative gerontech industry professionals

Many of Hong Kong's efforts in education and training of gerontech-specific skills are either scattered or not formally recognised. If Hong Kong hopes to develop the gerontech industry to its fullest potential, it needs to align and nurture talent who are passionate and have the necessary skill sets to drive and meet the various needs of the industry.

5.1 Vocational training for gerontech-specific skills

The procurement of gerontech is not only limited to an individual product—it also refers to a lengthy process, one that generally requires the involvement of different professionals at different stages. To streamline this, **we recommend training up gerontech consultants as the primary contact person to assist elderly and PwD to purchase or rent gerontech.** To provide formal training and recognition in the care sector, **we recommend the Social Welfare Department to introduce a new vocational qualifications pathway under the Qualifications Framework to certify and register gerontech consultants in Hong Kong.**

5.2 Entrepreneurial support and training

To promote research-driven gerontech innovation in universities, flexible policies for researchers to translate their output into real-life impact is needed. The terms and conditions offered by universities in Hong Kong for researchers seeking commercialisation remain very unattractive. First, **we recommend that Hong Kong universities provide flexible policies on patent ownership and buyout.** Second, **we recommend that universities identify suitable licensing terms and revenue-distribution ratios.** Third, **we recommend universities to consider accepting a small share of equity as compensation for paying for the licensing fees of spin-off companies.**

In 2014, the Technology Start-up Support Scheme for Universities (TSSSU) was launched to encourage students and faculty members to establish technology start-ups or commercialise their research and development outcomes by forming spin-offs (Innovation and Technology Fund, 2021). To encourage collaboration with welfare services, **we recommend TSSSU to enhance the existing funding mechanism, as well as establish a second phase of funding. We also suggest that the prerequisite for accessing Phase II TSSSU funding to include industry collaboration with welfare service providers, such as elderly or rehabilitation service units.** To improve commercial prospects, TSSSU can recommend start-ups to create industry partnerships with service units that register to become gerontech testbeds under the GT Platform.

5.3 General awareness and education on gerontech

Despite efforts to raise awareness, there is a need for educational initiatives tailored towards younger people across the various stages of learning. At the primary and secondary levels,

we recommend hosting gerontech youth competitions on an annual basis, which we recommend to include a follow-up opportunity to commercialise innovative designs.

At the tertiary level, **we recommend that courses covering gerontech-related content be expanded across all universities and applied education institutes in Hong Kong.**

Looking forward towards a comprehensive gerontech ecosystem

Moving forward, while there are undeniably many positive signs of synergy and commitment within Hong Kong's gerontech ecosystem, there remain many areas that still do not receive adequate support. As such, the strengthening of key levers, namely supply-side, demand-side, infrastructure, investment and talent, will help enhance our gerontech ecosystem in the coming years. Our commitment to build on the successes and momentum within the industry today, as well as enhancing the gerontech ecosystem further, is a continued investment for the celebration of ageing.