Scaling Digital Health Innovation in Asia
Introduction

Singapore is increasingly becoming a gateway to Asia’s digital healthcare market

Definition of digital health for the scope of this study

- **Includes** all ICT-enabled healthcare-focused innovation
- **Excludes** application of ICT technologies for the optimisation of robotics, surgical technologies, biomedical innovations and financing technologies

“Investment in digital health totaled $6.3 billion in Asia in 2018”¹

- 3rd largest digital health ecosystem in Asia Pacific²
- 269 HealthTech startups in Singapore, >20 prominent digital health startups.³
- SGD19B 5-year government budget (RIE2020) with priority domains in both digital economy and health sciences²
- 26 digital health funding deals in Singapore in 2018, totaling USD134M⁴

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¹ Oliver Wyman Healthcare In Asia: Predictions For 2019 And A Look Back At 2018
² Research, Innovation and Enterprise 2020 Plan
³ Tracxn Explore
⁴ Galen Growth Asia’s 2018 Full Year Analysis
STUDY

Introduction

Study

Findings

Case Studies

Authors
This study identifies the pathway for digital health innovations to scale from Singapore, and identifies critical success factors and bottlenecks.

**Objective 1**
Understand the pathway for digital health innovations to scale from Singapore to the region (ASEAN or Asia)

**Objective 2**
Identify and describe the critical success factors and bottlenecks of scaling innovation out of Singapore

**Objective 3**
Highlight strategies and initiatives from the payor, provider and startup perspectives in scaling innovation in the region successfully
Our methodology combined desktop research and company interviews.

**Desktop Research**
- Identify key digital health players including:
  - Digital health startups that have regionalised or are on the cusp of regionalisation.
  - Startups selected were those that have (1) market access beyond Singapore; and/or (2) raised at least Series A funding.
  - Industry players that have scaled innovation from Singapore.

**Expert Interviews**
- Semi-structured qualitative interviews with identified participants:
  - Digital health startups
  - Major pharmaceuticals
  - Private Insurers
  - Private hospital groups
  - Distributors
  - Technology companies
  - Investors
  - Relevant NGOs
There are various players in the digital health ecosystem:

**Innovation Suppliers**
- **Startups & non-profits/academia**: Digital health innovation supplier with a niche focus to tackle a multitude of healthcare system pain points, enabled by academia and the non-profit sector.
- **Technology companies & medical equipment companies**: Supply of digital health innovation by established players interested in the healthcare sector.
- **Investors**: Play a catalytic role in driving digital health innovation by offering capital, expertise and networks to innovation suppliers.
- **Government**: Regulations and reimbursement policies to help patients and providers access digital health solutions to improve healthcare.
- **Patients/ healthcare consumers**: Consumers of digital health innovation. Adoption of technology has transformed care pathways and journeys. Can also be the buyer of digital health innovation in some markets in Asia.
- **Healthcare providers**: A key demand driver for digital health innovation. Adoption of technology to support clinical decisions, provide a better patient experience and identify cost inefficiencies.
- **Pharma & healthcare service distributors**: A key distribution channel for digital health innovation. Position digital health as a key differentiator in a rapidly changing market.
- **Private insurance companies**: A key distribution channel for digital health innovation. Leverage big data analytics to lower healthcare costs and provide digital health solutions as a value added service to their policy holders.

**Ecosystem Enablers**

**Demand Drivers**
The Study

We interviewed twenty six leading digital health innovation suppliers, demand drivers and enablers

11 Demand Drivers

Three private healthcare groups, four private insurance companies, two pharma companies, one healthcare distributor, and one medical technology system provider

11 Innovation Suppliers

Nine leading digital health startups, one technology company and one medical equipment supplier focused on digital health innovations that lead to:

• Patient empowerment: innovations that empower patients to get involved in their own health E.g. wellness and lifestyle, telehealth, remote digital monitoring devices, wearables, health exchanges/marketplaces

• Improvements in clinical decision making: innovations that are focused on clinical decision making, care management, or EMR/Health IT and bridge different healthcare stakeholders or healthcare settings (e.g. between nurse-home, doctor-hospital)

4 Enablers

Three investors, and one non-profit
Overview: Pathway to scaling digital health innovation from Singapore

Needs identification
“What is the customer need that my solution aims to address?”

Proof of Concept
“Does my Proof of Concept satisfactorily address key sources of risk for my solution?”

Commercial Roll-Out
“What is the pathway to commercialize the Proof of Concept?”

Scale up/Scale out
“What is the best strategy to navigate Asia’s diverse markets?”
It starts with having a precise understanding of the customer’s needs. Of participants indicated that identifying and characterising the right set of customer needs is a key challenge to scaling.

However, this is complicated by...

**Consumers**
- Diverse Consumer Sub-Groups
- Across national markets, significant disparities exist in:
  - Disease profiles
  - Socio-economic levels
  - Technological literacy

**Healthcare Systems**
- Diverse Healthcare Systems & Standards
- Across national markets, significant disparities exist in:
  - Clinical infrastructure
  - Care standards across Asian
  - Patient and clinical needs
Successful Innovators have a nuanced understanding of the well-defined and validated need they are solving for.

Define Needs

Focus relentlessly on defining the customer and the pain points to solve. Valuable pain points are those present across different markets.

Understand Context

Needs are unique to the context. Understand the environment in which healthcare decisions are made.

Validate and Iterate

Real needs are reflected through user behavior. Seek out data on real decision-making patterns, and use it to iterate the needs identification process. Be clear about what needs to be validated first vs later.

“Start-ups who scale successfully are clear about the problem and pain point that they are solving and the market needs to be sizeable.”

- Corporate investor in digital health
Potential tactics and strategies for strong needs identification

**Investing resources to get it right**
Companies built market specific in house teams and hired external research firms to build the best possible understanding of their target customer and the local decision making environment.

**Working with local partners**
Seek out partners who see value in your solution, and who can navigate the entrenched interests and dynamics of the market.

**Validating with experiments**
Innovators experiment using Freemium models and A/B testing to pin down real needs exhibited when customers use their products.

**Case Study: Partnerships for successful needs identification**

Digital health start-up Savonix leveraged incubator Lumenlabs’ in-country networks to conduct research on specific needs and behaviour of its pan-Asian consumers.

The companies were able to build specific customer profiles that helped the need identification process.

- **Phase of Life**
- **Behaviour**
- **Family Background**
Customers and payers are often different & have disparate needs, which POC needs to account for.

Asian consumers exhibit frugal healthcare spending habits, POC should test for their willingness-to-pay.

POCs need to demonstrate sufficient value to each target customer group, taking into consideration that perception of value can vary considerably.

Regulations can be unclear or inconsistent, especially around emerging technology areas.

Companies should strive to engage regulators early, to ensure that POCs take into account regulatory requirements.
Potential tactics and strategies for Proof of Concept

**Pick the right market**
Companies will need to make the right trade-offs to pick the test market, recognising that solutions piloted in one market do not easily scale to another.

**Demonstrate evidence-based outcomes**
There is an increasing focus towards using real world evidence to demonstrate value and build track record.

**Find the Right Test Environment**
Seek out dedicated test environments such as regulatory sandboxes or hire regulatory consultants that can provide access to capabilities and experts.

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**Case Study: Key Opinion Leaders’ crucial role in a successful PoC**

**Biorithm**
Biorithm is a Singapore-based start-up that combines wearable sensors and data analytics to monitor pregnancy data.

Biorithm engaged multiple KOLs across three countries who were instrumental in:
- Uncovering new use cases
- Providing data to build evidence for adoption
Companies need to be deliberate about bridging the gap between PoC and commercial adoption.

55% of participants highlighted that the inability to translate PoC to commercial adoption is a key challenge to scaling regionally.

**Top challenges faced:**
- Resource-consuming PoCs without leading to commercial contracts
- Lack of clarity on decision makers for PoC and commercial adoption, with no clear process between both stages

**Bridging gap between both parties is key to translating PoC to commercial contracts**

**Top challenges faced:**
- Procurement guidelines with metrics that discriminate against small companies with short track records
- Lack of strategic alignment between innovation teams conducting PoC and commercial teams
Potential tactics and strategies for Innovators to more effectively bridge PoC to commercial adoption

**Innovators**

**Know The Key Stakeholders**
Identify ‘internal champions’ and obtain buy-in from decision makers through active engagement

**Agree on clear metrics of success**
Set tangible metrics that will lead to commercialization once achieved

**Seek Out Tangible Pathways**
Seek partners with a clear and specific use cases to commercialize successful PoCs

**Case Study: Seeking tangible pathways to translate PoC to commercial adoption**

AI-tech enabler, UCARE.AI broadened their search for use cases from only government hospitals to private groups

Decision-making processes in public health systems is more diffuse and challenging to navigate

Long sales cycles mean higher costs and more valuable time spent on each project – to succeed, UCARE.AI needs to be agile

UCARE.AI partnered with Parkway Pantai, which adopted its AI-powered bill-size prediction tool within 4 months of a successful PoC
Commercial Adoption

Potential tactics and strategies for Demand Drivers to more effectively bridge PoC to commercial adoption

Demand Drivers

Implement “Innovation-Friendly” Procurement Policies

- “Spiral Contracting” – a model explored by Singapore’s public healthcare sector to give credit to innovators who participated in PoCs
- Increase risk thresholds (e.g. minimum contract size & track record) to give innovators the best chance of success

Build Alignment between Innovation & Commercial Teams

- Successful innovation teams invest heavily in building relationships and obtaining buy-in from commercial teams
- Commercial teams can aid innovation by sponsoring problem statements and providing business insights to guide development

Case Study: Demand Driver maximizing the odds of adoption

Raffles Medical Group works with partners such as telehealth startup Doctor World in its digital transformation journey

It helps maximize the PoC’s chances of commercial adoption by:

- Devoting resources to co-develop solution with Doctor World, to ensure relevance across multiple domains
- Encouraging other business groups in RMG to adopt the commercial solution
The need to navigate multi-stakeholder healthcare systems are key challenges to scaling.

Innovators need to refine solutions to holistically meet the interests of multiple stakeholders in every target market.

“The presence of many stakeholders makes it difficult to coordinate between them, and obtain the necessary buy-in”
- Prudential

Diversity of Asia is reflected across multiple facets:
- Purchasing Power
- Language
- Culture & Norms
- Healthcare Systems

Capital and time to market required to customize solutions for local markets are prohibitive to scale.
Scale Up
Scale Out

Potential tactics and strategies for Innovators to more effectively scale up or scale out

Leverage technology to scale
Innovators should build solutions on technology platforms suitable for the infrastructure across several key markets.

Accelerate Local Understanding with Consultants
Successful Innovators have found that leveraging consulting expertise is more cost-effective than building knowledge from ground-up.

Invest in Awareness Building and Education
Efforts to educate end-consumers can be useful to encourage adoption where the solution or technology is novel: e.g. Telehealth

Case Study: Investing in local knowledge and tailored solutions

Digital health startup Homage found that disparities between Singapore and regional markets mean that a keen understanding of local contexts is needed

Homage conducted high-level due diligence of key APAC markets with help from consultants when choosing its second market

Awareness building campaigns aimed at demonstrating the value of home care have helped adoption
Overcoming the challenges to scale often requires an ecosystem approach – successful Innovators rely on a network of partners.

MyDoc is a digital health start-up that offers a platform for value-based managed care.

**Startup Community**
Partnered other start-ups with complementary value propositions to improve offering.

**Established Local Incumbents**
Leveraged credibility and distribution channels of local incumbent to enter the Indian market.

**Insurers**
Tapped on insurers’ regional customer base by offering telemedicine & digital screening services.

**Scale Up**
**Scale Out**
Survey Findings - Quantifying the critical barriers and enablers to scale

**Innovation suppliers**

Key bottlenecks to scale faced by innovation suppliers, as measured by the percentage of suppliers that listed the bottleneck as among their top three challenges

- Diversity of Asia’s needs and hyperlocalisation: 73%
- Strong competition for technical talent: 64%
- Difference in payor models across different markets: 55%
- Access to capital (lack of lead investors): 45%
- Nascent internal innovation mindset and lack of innovation guidelines: 36%
- Absence or lack or clarity on regulations for digital health: 27%

**Demand drivers**

Key bottlenecks to scale faced by demand drivers, as measured by the percentage of demand drivers that listed the bottleneck as among their top three challenges

- Strong competition for technical talent: 64%
- Absence or lack or clarity on regulations for digital health: 55%
- Multi-stakeholder environment of healthcare: 45%
- Difference in payor models across different markets: 27%
- Diversity of Asia’s needs and hyperlocalisation: 27%
- Nascent internal innovation mindset and lack of innovation guidelines: 27%
- Lack of an integrated database of healthcare data: 25%

**Enablers**

Key bottlenecks to scale viewed by enablers, as measured by the percentage of enablers that listed the bottleneck as among their top three challenges

- Diversity of Asia’s needs and hyperlocalisation: 100%
- Multi-stakeholder environment of healthcare: 75%
- Lack of an integrated database of healthcare data: 50%
- Strong competition for technical talent: 50%
Innovators consider diversity of needs and strong competition for talent as the two most critical challenges to scaling in the region.

### Innovation suppliers

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#### Diversity of health systems and customer profiles

Strong needs identification and localisation in each market is required, increasing time-to-market and influencing go-to-market strategies.

#### Strong competition for the right technical and managerial talent

Limited talent supply in Singapore has led to high wage costs and attrition, driving some innovators to hire remote technical talent in low cost markets, such as Vietnam.
On the other hand, demand drivers consider ambiguous regulations and different local payor dynamics as the two most critical challenges.

**Demand drivers**

Key bottlenecks to scale faced by demand drivers, as measured by the percentage of demand drivers that listed the bottleneck as among their top three challenges.

- Absence or lack or clarity on regulations for digital health (64%)
- Difference in payor models across different markets (55%)
- Nascent internal innovation mindset and lack of innovation guidelines (55%)
- Strong competition for technical talent (27%)
- Multi-stakeholder environment of healthcare (36%)
- Diversity of Asia’s needs and hyperlocalisation (55%)

**Absence or evolving regulations in the digital health space**

In general, demand drivers consider the risks of un-intentionally running afoul of evolving regulations as too high when scaling innovation in the region.

**Difference in Asian payor models**

Digital health solutions may not be affordable in markets where out of pocket payor model dominates. In reimbursed markets, government schemes and private insurance are not yet set up to cover digital health innovations.
Enablers like innovators, view hyperlocalisation as a critical barrier to scale, and also navigating a multi-stakeholder healthcare system.

**Diversity of healthcare systems and end consumer pain points**

Enablers view innovations that address a common pain point across diverse healthcare systems in the region as ones that can scale the fastest.

**Need to navigate multi-stakeholder environment of healthcare**

The inherent multi-stakeholder nature of healthcare systems slows down scaling as buy-in from various stakeholders in each target market is required.
Advantages that operating in Singapore offers in scaling digital health innovations regionally

Innovation suppliers

Contrarian view:
Although, SG healthcare system lends clinical credibility for innovators looking to scale, it doesn’t provide commercial validation given the uniqueness of the Singapore health system compared to the rest of Asia.

<table>
<thead>
<tr>
<th>Access to capital</th>
<th>Quality of talent</th>
<th>Credibility of the Singapore healthcare system</th>
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Demand drivers

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<th>Access to corporate HQs / start-ups</th>
<th>Degree of Innovation</th>
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<tbody>
<tr>
<td>64%</td>
<td>55%</td>
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Enablers

Contrarian view:
Although SG offers easy access to corporate RHQ, buying decisions lie with country corporate BUs or global HQ.

<table>
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<th>Access to corporate HQs / start-ups</th>
<th>Quality of talent</th>
<th>Strong IP and Tax regime</th>
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<tbody>
<tr>
<td>75%</td>
<td>50%</td>
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CASE STUDIES
Digital health startup approach to successfully scaling regionally - Savonix

**About Savonix**

A Series A digital health startup, Savonix delivers the world’s first mobile, evidence-based clinically valid cognitive and emotional assessment, providing ranked personalized health recommendations, for early screening and detection of dementia. While Savonix’s test does not replace clinical diagnosis, healthcare providers can leverage its test results to improve treatment outcomes.

Based in Silicon Valley, Savonix has presence in China, Japan and Singapore.

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**Recognized challenges to scale rapidly in Asia**

- Long sales cycles (>1yr) with large scale industry and distribution channels, e.g. insurers, brokerage, and large employers with large captive audiences
- Diversity of languages, consumer behaviour and adoptability in Asia slow downs scale out to the markets
- Regulations could potentially slow down market entry due to lack of precedence, regulatory grey area for solution

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**Savonix’s approach to scale successfully regionally**

- Complement large-scale partnerships with short-term, small-scale local collaborations with both clinical and long term care companies involved in active ageing/cognitive health for the elderly
- Targeted approach to identifying the right partners and key decision-makers/influencers in the local market to speed up regionalization. Hired ACCESS Health to identify and position value proposition to right partners in China
- Partnered with Lumen Lab to understand consumer insights and payer perspectives, co-invest and speed up localisation and network building
- Regulatory opinion upfront in order to proactively remove hurdles along the way. Have convergent validity papers that show that the solution is at least as good as current market standard

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**Case Study**

Startup
Payor approach to scaling innovation in the region – Swiss Re

Swiss Re’s approach to scaling innovation: Co-develop solutions with innovative partners, including clients (direct insurers), tech, and other healthcare stakeholders

About Swiss Re

The Swiss Re Group is one of the world’s leading providers of reinsurance, insurance and other forms of insurance-based risk transfer, working to make the world more resilient. It anticipates and manages risk – from natural catastrophes to climate change, from ageing populations to cyber crime. The aim of the Swiss Re Group is to enable society to thrive and progress, creating new opportunities and solutions for its clients.

1 For startups, these tend to be Series B or later

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Case Study

Payor

Define use case

Identify the risk pool and associated client needs

Shortlist potential partners

Partners with proven solutions backed by a body of data and with potential to scale regionally.

Partners with a unique concept or technology that Swiss-Re could co-develop solutions with. Will bring insights from its global partners where necessary.

Co-innovation

Cross-functional team works with the partner to co-develop an insurance solution

Pilot test OR product launch

Partner Validation

3-stage process of partner assessment:
- Business
- Legal / Financial
- Impact

Partner approval

Assess solution effectiveness & replicability in other markets

Selective with financial investment; for strategic purposes

Instead, offer product validation and access to its large customer network of 3000 insurers

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Recognized challenges to scale innovations rapidly in Asia

Identifying common pain points across multiple markets that we are operating in

Different purchasing powers across Asian markets, so solutions that work in one market cannot easily scale to another

Internal innovation mindset – initial inertia due to obtaining the buy in from the business owners

Parkway Pantai’s approach to scaling innovations regionally

Prioritizing investment in IT infrastructure to integrate data across faculties and countries to gather data to identify areas for digital health innovation to facilitate better clinical decision making, end patient experience and operational models

Partner with startups instead of big tech company where big tech company’s solution cannot be adopted in emerging markets. Startups are more flexible and can offer solutions affordable in lower-income countries

Actively fostering an innovation mindset through hosting internal and external innovation challenges.

Getting business unit’s prior commitment to POC leading to faster adoption. For. E.g. partnership with AI technology vendor took half of year from initial engagement to adoption due to BU prior buy in

About Parkway Pantai

Part of IHH Healthcare, Parkway Pantai runs more than 80 private hospitals in Singapore, Malaysia, India, Hong Kong, China, etc. Headquartered in Singapore, its Innovation Office functions as its corporate venture arm to adopt innovative technologies, run Innovation Challenge programs, and invest strategically in healthcare startups with potential to grow and adopt innovation into the Integrated Healthcare System that Parkway Pantai runs.
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ACCESS Health International is a global non-profit think tank dedicated to improving healthcare access.

USA
India
Mainland China
Hong Kong
Philippines
Singapore
Netherlands
Our Vision

“All people, no matter where they live, have a right to access high quality, affordable healthcare and to lead healthy and productive lives”

Our work focuses on three areas:

**Knowledge**: Health systems research and analysis across Asia Pacific

**Engagement**: Facilitating knowledge sharing, collaboration and partnerships

**Implementation support**: working with partners to implement health systems innovations
EDB is a government agency dedicated to creating sustainable economic growth, with vibrant business and good job opportunities in Singapore.

Our Vision

The Singapore Economic Development Board (EDB), a government agency under the Ministry of Trade and Industry, is responsible for strategies that enhance Singapore’s position as a global centre for business, innovation, and talent. Our mission is to create sustainable economic growth, with vibrant business and good job opportunities for Singapore.
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