Modelled after the established Biodesign Programme at Stanford University, this capability development initiative aims to train and nurture the next generation of health technology innovators for Singapore and Asia.

Launched in 2010, the Singapore-Stanford Biodesign (SSB) Programme is a joint partnership between the Agency for Science, Technology and Research (A*STAR), the Economic Development Board (EDB) and Stanford University.

Since 5 December 2018, SSB has been re-named as Singapore Biodesign (SB), funded by the National Research Foundation, signifying a move to being more Asia-centric and implementation focussed whilst keeping up with industry trends to bring about economic benefits and healthcare value through HealthTech innovation training.

MISSION
High-touch development of HealthTech talent centered on needs-based approach and quality industry mentoring to accelerate health technology innovation and adoption for Asia’s (SG, China and ASEAN) unmet healthcare needs.

VISION
To be Asia’s leading HealthTech talent development and knowledge partner for accelerating health technologies innovation towards commercialization and adoption.
Overview

TALENT
Shift from learning to doing: Enhancing Biodesign needs-driven methodology through hands-on and experiential training.

INNOVATIONS
Contextualizing for implementation by understanding global market needs and supplementation with real-world industry mentors for successful startup creation and healthcare adoption.

COMMUNITY
Increased interactions with Singapore community & regional networks through talent placement and collaborations to advance innovations.

High-touch mentoring of multi-disciplinary teams in the healthtech innovation process.
The flagship Singapore Biodesign (SB) Fellowship is an intensive 10-12 month hands-on team-based training on the entire process of needs-based health technology innovation, focused on developing new health technologies for unmet clinical needs in Asia.

The fellowship will feature high-touch training and mentorship by esteemed mentors from Singapore Biodesign and our joint program partner, Stanford Byers Center for Biodesign. The fellowship mentors span a wide range of experience from various disciplines such as clinical, technical, venture and industry.

1. Multidisciplinary team of 4-6 Fellows comprising of engineers, doctors and business/industry professionals will have privileged access to mentors and experts from the wider SB network, both in Silicon Valley and in Asia.

2. Immerse in regional countries i.e China, Indonesia, to investigate unmet clinical needs and develop understanding of the local healthtech ecosystem.

3. Spend 4-6 weeks in Stanford to further refine and develop implementation plans for their top projects under the guidance of experts from Silicon Valley, so as to secure follow-on funding for continue their projects.

4. Receive stipend, overseas living allowance and international travel support.

Example of the 10-12 month SB fellowship calendar showing the iterative ‘Identify’, ‘Invent’ and ‘Implement’ phases of Biodesign.

1. Needs Finding
   - Needs validation in regional countries
   - Needs finding/validation
   - Engage stakeholders
   - Develop knowledge of the region

2. Needs Screening
   - Concept screening & selection
   - Preliminary implementation/planning
   - Preliminary pitch evaluation
   - Externship

3. Concept Generation
   - Strategy Development
   - Business Planning

4. Stanford Phase
   - Implement phase
   - Development of pitch
   - Networking

5. 3rd Singapore Phase
   - Secure funding
   - Graduation
   - Pitch

6. 2nd Singapore Phase
   - Concept screening & selection
   - Preliminary implementation/planning
   - Preliminary pitch evaluation
   - Externship

7. 1st Singapore Phase
   - Intensive Biodesign bootcamp
   - Clinical immersion
   - Needs observation/validation
   - Needs filtering
   - Concept generation
TALENT: FELLOWSHIP

Enhanced Features from FY19

JOINT PROGRAM PARTNER WITH STANFORD BIODESIGN
Sharing of best practices in the Biodesign methodology from Stanford Biodesign and access to Silicon Valley’s healthtech network

NEEDS VALIDATION IN APAC REGION
Fellows get first hand insights into Asian healthcare needs from both clinical and non-clinical settings

HIGH-TOUCH INDUSTRY MENTORING
Fellows get access to a dedicated stellar mix of clinical, Biodesign and industry mentors with >100+ years of combined experience

INCREASE ON-THE-JOB LEARNING
Fellows will derive greater experience and insights by applying the Biodesign process through longer-term hands-on attachments to innovation projects

INCREASE FELLOWS INTAKE
2 teams of 3 pax each will be selected from FY20 onwards, spurring greater sharing across teams and healthy competition

TALENT

Biodesign Workshops

SB offers a selection of Biodesign workshop and healthtech training initiatives for industry and medical professionals working in the area of health technology innovation who would benefit from having a framework to de-risk their innovation projects.

Through such workshops, SB aims to create awareness around the successful Biodesign methodology, to aid in the development of health technologies innovation.

The workshops will feature case-studies, opportunity for hands-on learning and interaction with esteemed speakers in the healthtech industry.

DEEPER ASIA FOCUS
With a deeper focus on Asia and implementation towards commercialization and adoption, SB’s workshops and training offerings will provide Asian case studies and targeted consultations with domain experts.

NEEDS-DRIVEN APPROACH
SB aims to provide participants with ample opportunity for hands-on training to appreciate the Biodesign needs-driven process. Participants will be guided by experienced trainers and get to work in a multi-disciplinary group setting to tackle real world examples.
TALENT: BIODESIGN WORKSHOP

Offerings

1-DAY  INTRODUCTORY BIODESIGN SEMINAR
For uninitiated aspiring inventors

3-DAY  EXPERIENTIAL LEARNING WORKSHOP
For project teams to learn and apply Biodesign process through multi-disciplinary learning and networking

5-DAY  PROFESSIONAL BOOTCAMP
Featuring esteemed guest lecturers, networking and team building opportunity for mature teams

FEE
Available on enquiry, minimum attendance required.

WORKSHOP CUSTOMIZATION
On special request, customized versions of the Biodesign workshop may also be organized depending on audience and deliverables.

TALENT: HEALTHTECH TRAINING PLATFORM

Enhanced Offerings: One-stop Platform for HealthTech Innovation Training

Following on the introductory Biodesign workshops, SB aims to serve as a one-stop platform for the healthtech innovation training needs of the community throughout the year.

1. Provision of free open-access lectures to general audience
2. Thematic and dedicated hands-on workshop by esteemed domain experts in areas that require deeper dive; Fee: $500/pax/0.5d workshop

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<tr>
<th>TOPIC</th>
<th>LECTURE</th>
<th>WORKSHOP</th>
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<tbody>
<tr>
<td>Healthtech Innovation Overview: 5-day Biodesign Bootcamp</td>
<td>✓</td>
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<tr>
<td>Introduction to MedTech / HealthTech Industry</td>
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<tr>
<td>Asia Healthcare System and Medical Device landscape: Singapore</td>
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<td>US Healthcare System and Medical Device landscape</td>
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<tr>
<td>Asia Healthcare System and Medical Device landscape: China</td>
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<td>Asia Healthcare System and Medical Device landscape: Indonesia</td>
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<tr>
<td>Healthtech Assessment: Value and Reimbursement</td>
<td>1D workshop</td>
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<td>Design Thinking Lecture and Workshop: Ideation, Rapid Prototyping</td>
<td>0.5D workshop</td>
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<td>Product Engineering: R&amp;D, Engineering risks, Quality</td>
<td>1D workshop</td>
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<tr>
<td>Part I: Digital Health 101</td>
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<td>Part II: Mobile App Development - Lecture</td>
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<td>Part III: Health Data Query</td>
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<td>Regulatory Workshop</td>
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<td>IP &amp; Protection in China</td>
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<td>Clinical Strategy</td>
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<tr>
<td>Business Model 3-Day Workshop</td>
<td>3D workshop</td>
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<td>Operating Plan and Financial Modelling</td>
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<tr>
<td>Valuation, Deal Structuring, Deals Negotiation</td>
<td>✓</td>
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<tr>
<td>Understanding Term Sheet</td>
<td>✓</td>
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</table>
SB is committed to collaborate with like-minded entities in the local and regional ecosystem to increase the throughput of projects to achieve economic value and healthcare adoption.

INNOVATIONS

SB aims to generate a successful project pipeline featuring:

1. In-house greenfield projects from our fellows (current and alumni) and staff;
2. Through partnerships and project-based mentoring programmes; and
3. The provision of an engineering lab with in-house product engineer to support early engineering prototyping needs (Tinkerlab)

These initiatives will help empower would-be entrepreneurs with the right skills and to encourage and catalyze spin-offs on sufficiently de-risked projects.

SB-ORIGINATED INNOVATIONS

BIODESIGN TRAINING IN THE FELLOWSHIP PROGRAMME

- 3-4 fellows work on 1 fellowship project and 1 public-grant
- 2-3 WEEKS Needs validation in regional countries
- 6 WEEKS Stanford Phase

IN PARALLEL ON-THE-JOB TRAINING

- 2 Fellows attached to 1 public-grant funded project each to assist in their commercialisation plans (Pilot partnership in FY19)
- Example:

  - Access to Clinician PI
  - Access to Industry Mentors
  - Regional Needs Validation
  - Design for pilot manufacturing
  - Fundraising
  - Preparation for regulatory submission
  - Pre-clinical/clinical POC and POV trials

Example:

[Image of NHIC National Health Innovation Centre]
SB–ENABLED INNOVATIONS

On a competitive basis, SB will also be offering support for up to 1-2 project teams per year for a 9-12 week project-based mentoring programme.

SB support may include the following:
- Project Management
- Access to SB mentors
- Curation/Validation of need
- Early engineering evaluation

In the end, SB aims to guide the formulation and/or advancement of a de-risked project worthy of follow-on funding.

Example of collaboration to guide project scoping and curation:

TINKERLAB

Over the years, SB has acquired a range of engineering assets and has set up a rapid prototyping space at the engineering lab at A*START Central. The space has been upgraded to improve the access of its equipment and in-house services to support the early engineering needs of healthtech projects.

Our community is the most important and valuable asset. SB aims to build on its local and international community to advance our health technologies goals.
Community

SB has been playing the role of an enabler to bring together various players of the HealthTech ecosystem in Singapore and Asia. SB’s partner network to date, comprises of:

- **HOSPITALS & MEDICAL CENTRES**
  - United States of America
  - China
  - South Korea
  - Singapore
  - Indonesia

- **HOSPITAL CLUSTER**
- **MESSORS/ SPEAKERS**
- **CORPORATE MEMBERS**
- **UNIVERSITIES**
- **ACADEMIC PARTNERS**
- **CLINICAL PARTNERS**
- **ACROSS DIFFERENT CONTINENTS**

SB hopes to provide the community with thought leadership and perspectives on the challenges and future of the medical technology industry. Further partnerships, both locally and regionally, will continue to be forged and maintained as SB continues to focus on people as the core of our programme.

**Community**

**ALUMNI EVENTS**

Alumni engagement will be an important component and enabler of SB’s mission as we see the emergence of like-minded ‘Biodesigners’ spearheading local healthtech initiatives and forging new collaborations. Our alumni events includes social gatherings featuring alumni sharing, networking opportunities with invited guests and open Q&A sessions to garner feedback for SB’s activities. They will also include intimate fireside chats for focused conversations with invited experts to bolster learning.

**LOCAL & REGIONAL PARTNERS**

SB is actively involved in forging its local and regional partner network to provide thought leadership for its talent base and to encourage the development of a regional collaborative hub with a view for implementation.

**ANNUAL THOUGHT LEADER SERIES**

SB organises an annual Thought Leaders Series, where invited healthtech luminaries will share their experience on the importance of needs-driven innovation with an added focus on Asia.
Organisation Structure

DR DANNY SOON
Senior Director, HBM, BMRC
Programme Director, SB

DR MARY KAN
Deputy Programme Director

LEGEND

Headcount
Adjunct / Consultant

STEERING COMMITTEE

TALENT

FELLOWSHIP

MS CHERYL CHNG
Fellowship Head

MS SHASI KALA DEVENDRAN
Program Ops Executive

FELLOWSHIP MENTOR PANEL

TALENT

WORKSHOP

DR MARK CHONG
Curriculum Co-Head

MS FIONA LOKE
Curriculum Co-Head

TALENT

INNOVATION

PROJECTS

MR TAN HEE CHOON
Principal Product Engineer

MR HUANG MING-CHIEN
Innovations/Workshops Biz Dvpt Manager

COMMUNITY

MARKETING & EVENTS

DR MARY KAN
Industry Partnerships Head

MS ADELINE LIM
Marketing & Events Executive

MR WILLIAM GREENE
Resident Writer

¹ Matrix structure adopted; Program Ops team to be interfaced with specialty tracks; ¹ indicates dual roles in matrix structure
### Steering Committee

**PROF WONG TIEN YIN (CHAIRMAN)**  
Deputy Group CEO, Research and Education, Singhealth  
Medical Director, Singapore National Eye Centre  
Academic Chair, SingHealth Duke-NUS Ophthalmology and Visual Sciences Academic Clinical Programme

**PROF LONDON LUCIEN OOI**  
Professor & Associate Dean, Admissions, Recruitment and Financial Aid, Duke-NUS  
Clinical Faculty, SingHealth Duke-NUS Surgery Academic Clinical Programme  
Senior Consultant, HPB & Transplant Surgery, SGH

**PROF PAUL YOCK**  
Founder & Director, Stanford Byers Center for Biodesign, Stanford University

**MR JOHNNY TEO**  
Director, Health & Biomedical Sciences, Enterprise SG

**PROF TAN SZE WEE**  
Executive Director, SERC, A*STAR

**MR FREDRIK NYBERG**  
Managing Director, Asia Pacific, MedTech Innovator

**MR JEAN-LUC BUTEL**  
Global Health Advisor, K8 Global

**DR DANNY SOON**  
Senior Director, HBM, BMRC, A*STAR  
Programme Director, Singapore Biodesign, A*STAR

### Fellowship Mentor Panel

**MR ALOK MISHRA**  
Industry Mentor  
CEO, Value Addition

**PROF LONDON LUCIEN OOI**  
Clinical Mentor  
Senior Consultant, HPB & Transplant Surgery, SGH

**MR FREDRIK NYBERG**  
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**MR JEAN-LUC BUTEL**  
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**PROF CHRISTOPHER SHEN**  
Stanford Biodesign and Global Partnerships Mentor  
Managing Partner, Qiming Ventures

**MS RITU KAMAL**  
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