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.
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, focussed 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.

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.

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

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.

Receive stipend, overseas living allowance and international travel support.

2017 Fellows’ visit to Cardiology Suite, Awal Bros Makassar, Indonesia, hosted by Dr. Bam Bang Budiono.

2014 Fellows taking a tour of Venta Medical’s manufacturing plant in US.

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

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For uninitiated aspiring inventors

Biodesign process through multi-disciplinary learning and networking

Featuring esteemed guest lecturers, networking and team building opportunity for mature teams

PAST WORKSHOP PARTICIPANTS

Cleveland Clinic  
Tan Tock Seng Hospital  
서울아산병원  
Asian Medical Center  
Johnson & Johnson  
Dongguk University  
Agencies for Science, Technology, and Research

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: S$500/pax/0.5d workshop

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<tr>
<th>TOPIC</th>
<th>LECTURE</th>
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<td>Healthtech Innovation Process Overview: 5-day Biodesign Bootcamp</td>
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<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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<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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<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>
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<td>Product Engineering: R&amp;D, Engineering risks, Quality</td>
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<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>Quality Management</td>
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<td>Clinical Strategy</td>
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<td>Business Model 3-Day Workshop</td>
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<td>Operating Plan and Financial Modelling</td>
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<td>Valuation, Deal Structuring, Deals Negotiation</td>
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<td>Understanding Term Sheet</td>
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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:

INNOVATIONS

INNOVATIONS
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:

1. **Identify**
   - Pre-workshop consultation (8 weeks)

2. **Invent**
   - Workshop (3 days)
     - Whole group
     - Individual Teams
     - Hands-on Expert Consultations

3. **Implement**
   - Post-workshop consultation (2 weeks)

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:

1. **HOSPITALS & MEDICAL CENTRES**
   - USA
   - China
   - South Korea
   - Singapore
   - Indonesia

2. **HOSPITAL CLUSTER**
   - China South
   - Korea
   - Singapore
   - Indonesia
   - United States of America

3. **UNIVERSITIES**
   - 9

4. **MENTORS/ SPEAKERS**
   - 59

5. **CORPORATE MEMBERS**
   - 7

6. **INDUSTRY NETWORK**

7. **ACADEMIC PARTNERS**

8. **CLINICAL PARTNERS**
   - 15

9. **ACROSS DIFFERENT CONTINENTS AND GROWING.**

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.

**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.

**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.

**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.

**MOU Signing Ceremony between Singapore Biodesign and National Health Innovation Centre in Dec 2018**

**TLS 2018 featuring esteemed international speakers discussing opportunities surrounding diabetes technology innovation in Asia**

**Homecoming 2017: Gathering of our fellows, class students and mentors**
Organisation Structure

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

DR MARY KAN
Deputy Programme Director

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

COMMUNITY

MARKETING & EVENTS
DR MARY KAN
Industry Partnerships Head
MS ADELINE LIM
Marketing & Events Executive
MR WILLIAM GREENE
Resident Writer

INNOVATION

PROJECTS
MR TAN HEE CHOON
Principal Product Engineer
MR HUANG MING-CHIEN
Innovations/Workshops Biz Dvp Manager

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 Bodesign, Stanford University

MR JOHNNY TEO
Director, Health & Biomedical Sciences, EnterpriseSG

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

MS FLORENCE LEONG
Industry Mentor
Founder, Director, Kosmode Health Singapore Pte Ltd

MR PEH RUEY FENG
Founding faculty and Singapore Biodesign Mentor
CEO and Co-Founder, Advent Access

PROF CHRISTOPHER SHEN
Stanford Biodesign and Global Partnerships Mentor
Managing Partner, Qiming Ventures

MS RITU KAMAL
Stanford Biodesign Mentor
VP, Product, Fabric Genomics
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