

**DESIGN
2025**

Patterns of Design

The cover of this publication features pentagonal tessellations layered upon each other. This richly textured pattern of design signifies our ambition for design consciousness to be adopted pervasively throughout Singapore by 2025.

As the report makes 15 recommendations, we have aligned each one with a pentagonal tessellation. Interestingly, there are only 15 known pentagonal shapes that are able to tessellate (i.e. cover the plane leaving no gaps and with no overlaps). The first was found in 1918 and the 14th was discovered in 1985. The 15th was found only in 2015 and no one knows if this is the exhaustive list. What we do know is that our quest to develop an innovative culture in Singapore will be unrelenting – just like this century-long quest to discover breakthroughs in the field of mathematical art. And like pentagonal tessellations, we will keep connecting the dots to build a strong and holistic structure for Singapore – by design.

Discover all 15 pentagonal tessellations, listed by type, in the text margin of these pages:

Page 29-32 – found by K. Reinhardt in 1918

Page 33, 35 – found by R. B. Kershner in 1968

Page 38 top – found by R. James in 1975

Page 36, 38, 40 top – found by M. Rice in 1976-1977

Page 40 bottom – found by R. Stein in 1985

Page 41 – found by Mann, McLoud and Von Derau in 2015

DESIGN 2025

Singapore by Design

Naturally designed

When Bishan-Ang Mo Kio Park was due for upgrading, PUB, the national water agency, and the National Parks Board had bigger plans in mind. They imagined how the park and the canal adjacent to it could be redesigned to better serve all generations of people living around it. By gathering the inputs of the community, conducting a series of workshops and discussions with designers, engineers, bioengineering specialists and horticulturists, Bishan-Ang Mo Kio Park was literally co-designed.

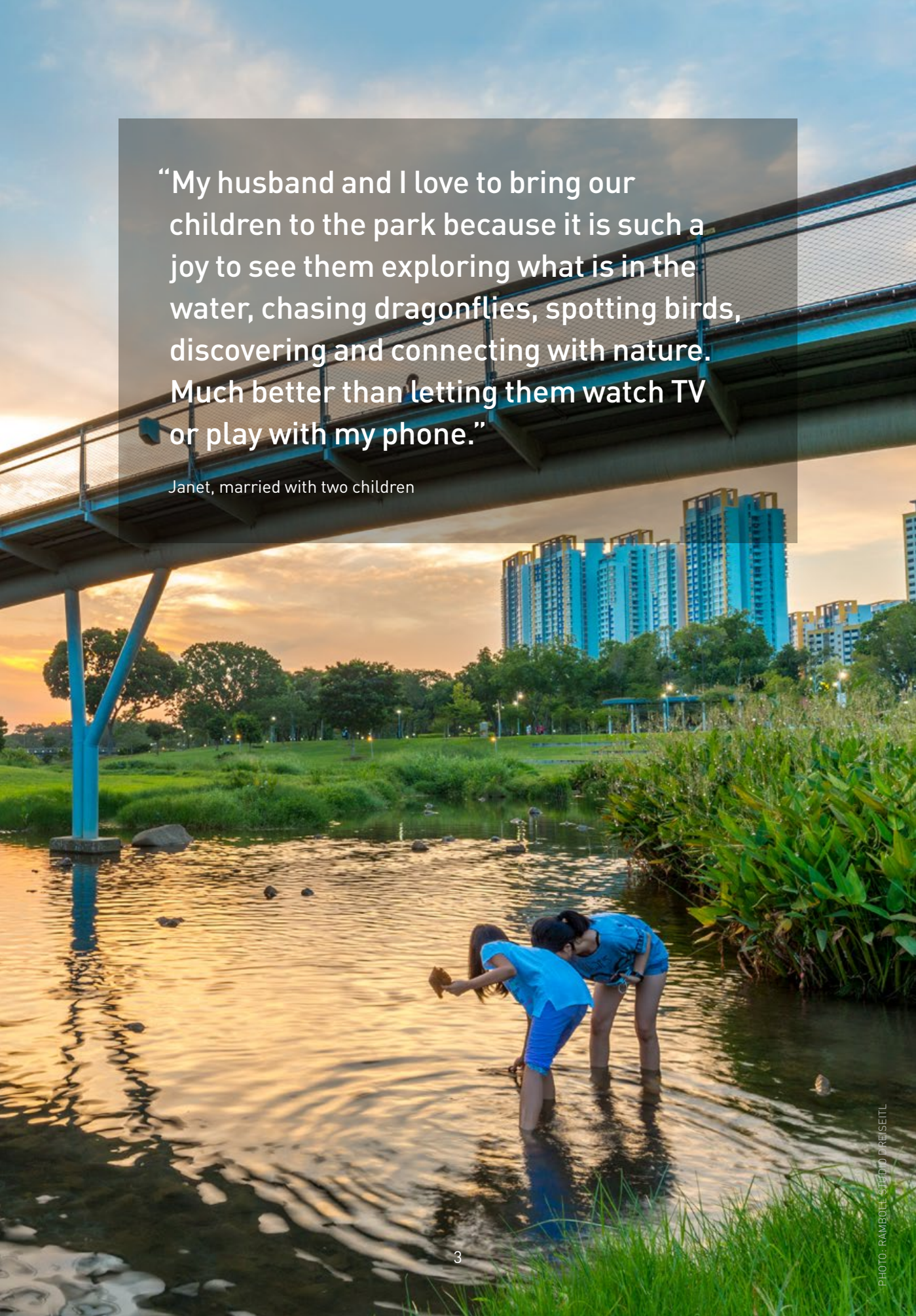
Today, the Kallang River has been restored to its natural state and meanders through the 62-hectare park. Using innovative soil bioengineering techniques, the river banks are stabilised using plant and soil media, making them safe for visitors. Plants with natural cleansing properties to treat water were carefully chosen and used in the park to maintain water quality without any chemicals.

Because the river has been re-naturalised, new habitats for flora and fauna have sprouted and the park's biodiversity has increased by 30 per cent. In addition to lush wildflowers by the river banks and many types of dragonflies, a visitor might be surprised by migratory birds from Indonesia and as far as Africa and the Andaman Islands.

There are open lawns for picnics, tracks for cycling or jogging, green open spaces for dog runs, community gardens and many other spots for recreational and fitness activities.

Perhaps the most unique feature of this urban park is the opportunity to interact directly with water and nature. Towards this end, there are stepping stones in the river, a water playground for kids and even a riverside gallery to take it all in with your eyes.

Beyond its façade as a beautiful park, Bishan-Ang Mo Kio Park has become a living ecosystem that unites residents through a deeper sense of place and belonging.



“My husband and I love to bring our children to the park because it is such a joy to see them exploring what is in the water, chasing dragonflies, spotting birds, discovering and connecting with nature. Much better than letting them watch TV or play with my phone.”

Janet, married with two children



ALEXANDRA HEALTH SYSTEM, UNITED NATIONS PUBLIC SERVICE AWARD 2014

Better healing from better design

Within 10 months of its opening in 2010, Khoo Teck Puat Hospital, which is managed by Alexandra Health System, experienced over demand for its subsidised beds. Instead of adding more beds along the corridors, the hospital approached the complex situation by redesigning the delivery of healthcare. Aptly named the Ageing-in-Place (AIP) programme, this initiative extended care into the patients' homes, catering mainly to the elderly and chronically sick.

The AIP team first identified a pool of 400 patients who have had three or more admissions to the hospital within six months. Through home visits, the team learnt that aside from patients' medical needs, their physical environment and social behaviour contributed to the repeated hospital visits.

To ensure that patients who were discharged from the hospital received help in recovering well at home, AIP redesigned the conventional role of nurses. Community nurses now make house calls to ensure that patients take the right medication at the right time, do their physiotherapy exercises regularly and take care of their wounds. As the single point of contact, AIP community nurses also work with caregivers, volunteers, dieticians, pharmacists and physiotherapists to assess the needs of the patients and co-develop individualised care plans to assist in their rehabilitation at home.

What started as an effort to solve the problem of hospital bed crunch has become a model of preventive healthcare – by design.



“I feel much better nowadays as I can just give a call to the nurse for advice on my health conditions. Through her help, I got a motorised scooter that enables me to move around to shop and socialise with my friends. She also brought in volunteers to keep me company. My nurse is so nice and I look forward to her visit each time.”

Mr Quek, 81

The business of design

It is no small feat to be credited with advancing the standard of furniture design and furniture retail in Singapore. What is even more impressive is Nathan Yong's pro-activeness in taking his designs and his business international.

Armed with a diploma in Industrial Design from Temasek Polytechnic, Nathan started his career as a buyer for furniture stores. However, he has never given up his dream of becoming as famous as Philippe Starck. In 1999, he felt ready and formed Air Division with a few colleagues, selling imported items while introducing his own designs along the way.

Six years later, he started exhibiting his designs internationally. And it took another three years of working the trade shows before his designs got noticed; French furniture brand Ligne Roset selected his stone-shaped Pebble table, the BREAK stool and Telefunken TV console for production, and his international career started. "Even then, the designs were sold to just one company, so it couldn't be called healthy. It took patience, luck and strategy," he says¹.

Nathan understood that design itself would not be enough. He had been to some of the biggest furniture shows in the world and saw sellers leave without getting an order. So in spite of his early success and growing reputation in the industry, he knew he still needed to go knocking on the doors of global companies and participate in trade shows. All that hard work has paid off. Today, his creations are sold in many parts of the world and he has helped put Singapore on the global map for furniture design.

Nathan pursued an MA from Australia before selling Air Division in 2009. Reflecting on that decision, he said, "The degree was more to understand the business part of design, for example, how to market your work and business, and what role design plays within the business of design."² After graduation, he continued to be a trailblazer in the Singapore design scene, running Nathan Yong Design, a multi-disciplinary design consultancy practice, an international label called Folks Furniture and Grafunkt, a local retail store.

¹ Proud to 'sell-out' <https://singaporepropertyhighlights.wordpress.com/2012/08/20/proud-to-sell-out/>

² Nathan Yong - Interview <http://www.designcurial.com/news/nathan-yong-4197474>



“Designers need to be more business minded and understand brand management better – either their own design brand, or a brand that has engaged them or bought one of their products.”

Nathan Yong, design entrepreneur

25 FEBRUARY 2016

DR YAACOB IBRAHIM
MINISTER FOR COMMUNICATIONS AND INFORMATION

Dear Minister,

You established the Design Masterplan Committee in May 2015 to develop strategies that will move Singapore closer towards becoming a global city for design, where design drives innovation and growth, and enhances the quality of life. Your Ministry assembled leaders representing different communities in the design sector, to form the committee. To formulate its recommendations, the committee actively engaged industry and public sector stakeholders through interviews and focus group discussions. Their perspectives ensured that the masterplan addresses business needs and is also in alignment with national initiatives such as Smart Nation, SkillsFuture and the Future Economy.

The committee has completed its work and now submits the Design 2025 report for the Government's consideration. The report builds on the foundation established by earlier design blueprints and recommends five broad strategic thrusts. The first is to nurture design as a national competency to enrich our young with design sensibilities, and build multi-disciplinary design talent. The second focuses on promoting the adoption of design in businesses and in the public sector. The third is to grow the design sector through enhancing our designers' and design firms' capabilities, and to support them in their creation of innovative products and brands. The fourth thrust looks at bringing design closer to our people and communities, while the fifth looks at strengthening the Singapore Design brand, here and globally.

The vision of Design 2025 is for Singapore to be an innovation-driven economy, and a loveable city. We believe that Singapore can be a leader in design, and by design. Singapore's designation as a UNESCO Creative City of Design in December 2015 is a powerful endorsement of this potential.

We are deeply honoured to have had the opportunity to contribute to the development of Singapore's design sector. Thank you.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Beh Swan Gin', with a stylized flourish at the end.

DR BEH SWAN GIN
Chairman, Design Masterplan Committee

10 MARCH 2016



MINISTER FOR COMMUNICATIONS
AND INFORMATION
SINGAPORE

DR BEH SWAN GIN
CHAIRMAN, DESIGN MASTERPLAN COMMITTEE

Dear *Swan Gin,*

I would like to thank you and the members of the Design Masterplan Committee for your time and hard work in developing the Design 2025 report.

The committee has examined the development of design in a holistic and integrated manner, whilst considering the views of stakeholders in both the private and public sectors. The broad directions recommended will point the way for a strategic development of design in Singapore. The Ministry accepts the report and its recommendations.

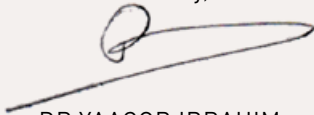
Design and the design sector have contributed significantly to Singapore's success. More businesses and government agencies are adopting design to innovate their products and services. We must continue to invest in design, by embedding design in the national mindset, so as to create new value, stay competitive and improve the quality of life for our people.

As we prepare Singapore for the future, we will need to remain agile and be ready to seize new opportunities and respond to challenges. The Ministry will study the details of the recommendations and work closely with the design industry, sector champions and stakeholders to refine and implement the recommendations of the Design Masterplan Committee.

I am confident that the committee's recommendations will help increase design adoption and grow the design industry further. More importantly, they will enable businesses to seize business opportunities and society to improve the quality of life for our people through design.

The Design Masterplan Committee has demonstrated that private and public collaboration is crucial and beneficial. We look forward to the committee's and industry's continued support and participation.

Yours sincerely,



DR YAACOB IBRAHIM



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**“Thinking about design is hard,
but not thinking about it can be
disastrous.”**

Ralph Caplan, veteran design journalist
and author of 'By Design'

Executive Summary

By 2025, we envision Singapore to be a thriving innovation-driven economy and a loveable city.

Our companies will be highly adept at reinventing themselves to meet the challenges of a rapidly changing world. They will create new businesses, new opportunities and new jobs. And design will be their strategic tool for winning in the marketplace, bringing Singapore to the forefront of the global economy.

Our people will have an appreciation for the value of design beyond aesthetics. Our community will embrace the use of design and co-create a better living environment; and in so doing, develop a stronger sense of belonging and ownership. Services will be people-centred, delivering better experiences for all.

Design will take the Singapore brand to the next level and contribute to our national identity. Singapore will not only be a liveable city but a loveable city that we are proud to call home.

Design 2025 was developed to realise this vision.

In May 2015, the Design Masterplan Committee was formed with 16 members that represent the design industry, business, academia and government. As leaders in their respective fields, the committee members were tasked to develop a masterplan that will act as the rallying call for industry and government to work hand-in-hand towards an even more vibrant and competitive Singapore – by design. Ideas were sought from and proposals tested with industry stakeholders.

There are 15 recommendations under five strategic thrusts: from the inclusive approaches of infusing design into our national skillset and bringing design into our community, to the targeted activities of expanding the role of design in businesses and government, strengthening the competitiveness of design firms, and developing a Singapore Design brand that is synonymous with being a leading city of design.

Design 2025

WHAT WE ENVISION for Singapore

INNOVATION-DRIVEN ECONOMY



Good Jobs
Sustainable Firms
New Markets

LOVEABLE CITY



Endearing Home
Engaged Communities
People-centred Services

ROLE OF DESIGN in realising this vision

Key driver of
innovation and
value creation for
businesses and
the economy

An effective
approach for
solving complex
societal problems

Contributes to
national identity
and nation
branding

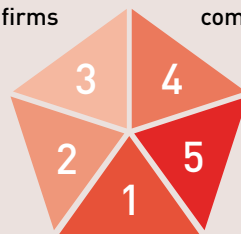
5 STRATEGIC THRUSTS to achieve this vision

Strengthen the competitiveness
of design firms

Bring design into the
community

Expand role of design in
businesses and government

Develop the
Singapore Design brand



Infuse design into
our national skillset

Part I - Design Matters

Role of design



Design and design innovation are not only about the attractiveness of products. It is also about gaining insights into the human experience so that products, services or processes can be designed to improve that experience.

Design is a key driver of innovation and value creation for businesses and the economy.

To gain a competitive advantage, businesses must use design and innovation to create new value and new markets. Today, industries like computing, financial services, consumer goods and more have integrated design in their business strategy. Many have established design studios and appointed Chief Design Officers (CDOs) to encourage new ways of developing products and solutions, and drive growth. 10 per cent of the 2014 Fortune 125 companies have executive or C-level support for design. Even Mark Parker, the current CEO of Nike, started as a designer.

"I believe art and design are poised to transform our economy in the 21st century like science and technology did in the last century."

John Maeda, Design Partner at Kleiner Perkins Caufield & Byers

Between 2010 and 2015, 27 Silicon Valley firms founded by designers were acquired by bigger companies like Google, Facebook, Yahoo!, Adobe, Dropbox and LinkedIn. More VC-backed ventures such as Pinterest and Airbnb have co-founders who are designers, and VC firms themselves are increasingly hiring designers to join their teams³.

³ Design in Tech Report 2015: John Maeda at SXSW <https://www.youtube.com/watch?v=TvgVvHd0RJJs>



Banking on design

To create a banking experience that could better engage Gen Y customers, the OCBC Innovation team worked with the ONG&ONG Experience Design team.

After 15 months of extensive user research, the team gathered these insights:

- > Millennials desire more transparency and honesty from banks.
- > Social influence and peer opinion matter to young customers.
- > Most Gen Y'ers do not track their personal finances.
- > A need for personal expression means a preference for products that offer individual customisation.

The challenge was to design a bank that would be right on the money:

- > The new name, FRANK by OCBC, capitalised on its double meaning as a characteristic and a person's name.
- > The retail banking spaces were also made more familiar and inviting to the target customers as they look and feel like hip music stores.
- > Customers can choose and personalise their bank cards from more than 100 card designs at the FRANK gallery.
- > FRANK's rewards point system established tie-ins with blog shops to cater to its target audience's shopping habits.
- > A 'savings enabler' helps customers reach their financial goals by creating 'savings jars' or sub-accounts which cannot be accessed through ATMs.

Through solutions designed from the inside out, the OCBC Innovation team was able to transform the traditional banking experience and connect more deeply with their target audience.



Philips Telehealth

Bridging the gap between hospital and home

PHOTO: PHILIPS

Heart failure patients are frequently readmitted to hospital due to a lack of adherence to prescribed treatment plans, irregularity in taking medication, and lapses in the control of water intake and diet. Other reasons include the progress of the disease or infection. To reduce the frequency of readmissions, Philips partnered with Eastern Health Alliance and Changi General Hospital to pilot Singapore's first telehealth programme for heart failure patients which started in November 2014 and is ongoing.

Education and monitoring are key to helping the patients manage their conditions at home, follow their treatment plan and make the needed lifestyle changes. Patients are provided with a personal health tablet, a weighing machine, and a blood pressure monitor. After being taught how to use these devices, the patients are able to take their own readings. These vital health indicators are in turn, automatically uploaded to a central system for monitoring by nurse telecarers. These telecarers also provide support to the patients and can intervene early if signs of deterioration are detected.

Preliminary results from this pilot of 120 participants are promising. By helping patients understand and feel better supported and more confident about how to manage their conditions, the programme allows patients to enjoy a better quality of life. Through co-innovation with partners in healthcare, Philips has also been able to develop a holistic programme to improve the quality of care for patients with chronic illnesses, outside of the hospital, which will ultimately benefit Singapore's health system.

Design can also be an effective approach to solve complex societal problems.

A report published by the UK Design Council estimated that for every £1 invested by the UK Government in the design of innovative services, more than £26 of return was generated in terms of cost savings and improvements to the delivery of public services, including in healthcare, active ageing and youth employment.

There are other examples of countries placing citizens at the heart of a design process to generate better solutions and to create new possibilities for addressing social concerns. For instance, Denmark's public sector innovation lab, MindLab, collaborates with government agencies to harness the benefits of design for policy formulation and implementation. In the Netherlands, ProRail & NS Dutch Railways collaborated with design research firm STBY and design agency Edenspiekermann. They collected customer insights on train journeys and designed a 180-metre long LED display above the train platform where travellers can find all the information they need to prepare for the next incoming train, including seat availability in different parts of the train, and directions to ramps for the disabled.

When deployed effectively, design also contributes to national identity and nation building.

Some countries, notably South Korea and Japan, have successfully tapped the potential of cultural exports to project 'soft power' internationally and in so doing, strengthened their national identity. South Korea's Hallyu wave was estimated to have contributed US\$5.26 billion to the Korean economy in 2011⁴. The concept of 'Cool Japan' was established in 2002 as a multi-disciplinary campaign and initiative to promote Japanese creative exports. The sales of creative industries in Japan were estimated at 44 trillion yen in 2011⁵.

Similarly, Scandinavian countries have grown competitive design industries with an aesthetic that is recognisable all over the world. Inspired by communal values of modesty, appreciation of nature and an egalitarian society, Danish design has become associated with simplicity, functionality and beauty; which has in turn, strengthened its country brand and national identity. In the case of post-war Finland, especially during its politically insecure Cold War period, the international fame that Finnish design attained helped to bolster the self-confidence and solidify the national identity of the country⁶.

The Danes and the Finns also used design as an instrument of cultural diplomacy. For instance, the Danish Foreign Service worked through Danish designers and design manufacturers who sponsored furniture and accessories for actual use (rather than exhibition) in all public areas of the New York Museum of Modern Art.

4 K-pop in Korea: How the Pop Music Industry is Changing a Post-Developmental Society. Ingyu Oh, Hyo-Jung Lee. Cross-Currents: East Asian History and Culture Review, Volume 3, Number 1, May 2014.

5 Emiko Kakiuchi and Kiyoshi Takeuchi, Creative industries: Reality and potential in Japan, GRIPS Discussion Paper 14-04 (2014), Pg 6.

6 Design in Building an Industrial Identity: The Breakthrough of Finnish Design in the 1950s and 1960s. http://www.academia.edu/2077943/Design_in_Building_an_Industrial_Identity_The_Breakthrough_of_Finnish_Design_in_the_1950s_and_1960s



Danish Design Advantage

Country branding by design

PHOTO: MINIMALIST-HOUSE

In the mid-20th century, Danish designers created a design movement by combining the country's craft tradition with new industrial technologies. The style that emerged was defined by functional minimalist design and became known as Danish Modern. So influential was this movement that it has defined the identity of the country.

Since the 1960s, Danish design has been exhibited throughout the world and grown the country's reputation for innovation. The government recognised the importance of design as an export and integrated design in nation-wide strategies for growth.

In 2002, the Ministry of Culture, together with the schools of architecture and design, established the Design Research Centre with a budget of DKK 20 million to coordinate and intensify Danish design research. The centre was also set up to boost knowledge and know-how in design to benefit the design industry and other industries that adopt design.

Modernising Danish Modern

To take Danish design to the next level, the country has continued to focus on strategies and policies to encourage breakthrough design innovations. The Danish Design Centre raises awareness of the value of design and encourages innovation through design by developing design-driven companies.

Within Danish society and business, there is also recognition of the link between design and the economy. For example, INDEX: Design to Improve Life® is a Danish non-profit organisation that works to promote good and sustainable designs, including the organisation of the biennial INDEX: Award, the world's biggest design award.

Through an emphasis on design, the Danes are systematically engendering the growth of their economy and securing their place in the global marketplace.

Design in Singapore

In 2003, the Economic Review Committee identified the design sector as a new growth area, and design as a new differentiating competency for businesses. The DesignSingapore Council (Dsg) was set up in 2003 to implement this initiative.

In recent years, Singapore has also gained global recognition as a highly liveable city, and an inspiration for best practices and new ideas in urbanisation. Our approach to nation building – having grown from a sleepy outpost to a bustling metropolis – is sometimes compared to the work of the world's great designers and innovators.

In December 2015, a significant milestone was reached when Singapore was designated a **UNESCO Creative City of Design**⁷. While this accolade is encouraging and affirms the good work that we have done in promoting and developing the design sector for the last 10 years, more work needs to be done.

Appreciation of design is growing, especially among the young. The Arts curriculum in primary schools and the Design & Technology syllabus in secondary schools teach basic visual composition techniques but have room to grow in depth. The current pool of trained teachers is also limited and impedes scalability of design across the education system.

86 per cent of design firms are micro-SMEs that lack resources and sufficient business experience to expand internationally. According to a survey conducted by Dsg⁸, only 45 per cent of design firms have booked revenue from overseas markets and this constitutes about 30 per cent of the total revenue for each firm. A more coordinated approach to support the firms that aspire to grow beyond our shores can help to accelerate their expansion.

More businesses and government agencies are starting to innovate through design. Companies, especially those in IT and Finance, are developing or expanding their in-house design teams. Public agencies

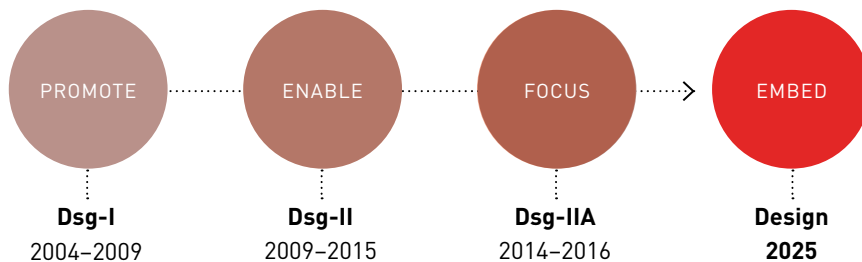
⁷ Singapore – together with Bandung (Indonesia), Budapest (Hungary), Detroit (USA), Kaunas (Lithuania) and Puebla (Mexico) – joins 16 existing member Cities of Design in the UNESCO Creative Cities Network (UCCN), which include Beijing (China), Berlin (Germany), Dundee (UK), Helsinki (Finland), Kobe (Japan), Seoul (South Korea), among others. The UCCN was created in 2004 to foster co-operation among cities that have identified creativity as a strategic factor for development.

⁸ National Design Industry Survey 2014.

have also used design innovation in many recent projects. However, with Singapore's maturing economy, and an increasingly competitive global market for products and services, the need to deepen the use of design to drive innovation has become greater. The emergence of disruptive technological trends, like the Internet of Things, will only accelerate the pace of change. On the societal front, the pressures of urbanisation, demographic shifts and climate change will also generate new challenges that offer opportunities for fresh perspectives and better solutions.

In summary, design has become more important now than ever before and it will have a significant contribution to Singapore's national initiatives of Smart Nation, SkillsFuture and the Future Economy.

In May 2015, a 16-member committee comprising leaders from the design industry, business, academia and government was established to develop Design 2025, a new masterplan to grow the design sector and expand the role of design in Singapore. This effort was supported by the DesignSingapore Council, together with the Economic Development Board. Design 2025 follows the earlier blueprints.



What success could look like



An innovation-driven economy

In 2025, Singapore will be known as an economy with companies and a workforce that create value through innovation.

Design will be widely adopted by businesses as a key enabler for creating differentiated products, services and experiences that delight their customers and address their needs.

Enterprises and organisations will be powered at all levels and across business functions by design-minded talents who help to foster exploration and experimentation in the planning, decision making and implementation of projects and in operations.

A start-up scene will flourish. It will introduce new-to-market ventures that are globally competitive. Established companies will continually reinterpret and reinvent their core businesses, launch breakthrough innovations, and discover new opportunities and revenue streams. Industry leaders will emerge from Singapore that are recognised globally for their exceptional quality and well-designed offerings. New industries will also be formed. And as a result, our economy will be more resilient to changing market conditions.

The design sector itself will be vibrant and vigorous with creative talents, growing in its influence and reach internationally. It will be a key partner to businesses in Singapore and around the world, enabling our designers to have a broader portfolio and secure more meaningful work.

A loveable city by design

In 2025, Singapore will become a city which delights residents and visitors alike. By focusing on the needs and aspirations of its people, Singapore will extend beyond a liveable city and become a loveable city. Daily life will be full of designed details that are thoughtful and well-considered. The city and its places will offer unique experiences that foster shared memories and forge an emotional connection with people.

Residents will have more opportunities to participate in the development of the landscape in which they live, learn, work and play. They will take more ownership and pride in their neighbourhoods. The co-creation process will also help to strengthen community bonds and foster greater empathy in understanding the needs of others.

As design becomes a way of life in Singapore, there will be more spontaneous stories and highlights that can be amplified not just locally but globally. It will strengthen our pride for Singapore, enhance visitors' affinity with Singapore, and build fans and friends of a loveable Singapore.

Part II - Recommendations for Design 2025

Overview of the Masterplan

To achieve the desired outcomes described in Part I, Design 2025 offers 15 recommendations which are categorised into five strategic thrusts:



Infuse design into our national skillset

The first strategic thrust seeks to cultivate a nation-wide attitude and aptitude for design. Nurturing design sensibilities has to start from the young, so that our next generation workforce will have the mindset and skillset necessary for the future economy. In addition, we want our design workforce to receive multi-disciplinary training and be industry-ready.

Expand the role of design in businesses and government

The purpose of the second strategic thrust is to strengthen the design capabilities of our businesses and government, so that they can better respond to the rapidly changing operating environment, both locally and globally.

Strengthen the competitiveness of design firms

The third strategic thrust aims to help our design firms grow and expand internationally, by addressing the inadequate opportunities for scalability, as well as by encouraging experimentation to stay ahead of the curve.

Bring design into the community

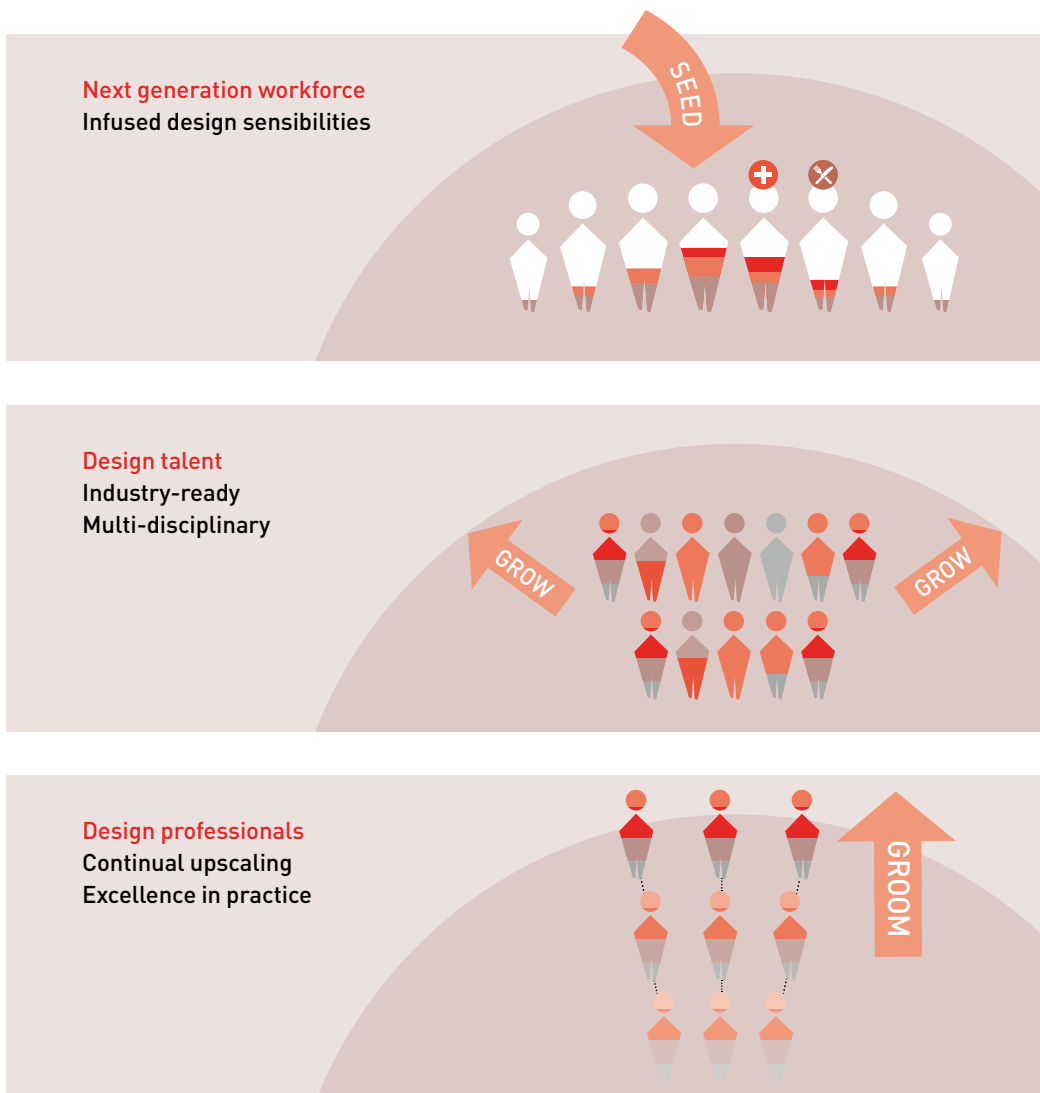
The fourth strategic thrust will help the community better appreciate good design, the process of people-centred design, and how design can be useful for improving our everyday experiences and in shaping our national identity.

Develop the Singapore Design brand

The objective of the fifth strategic thrust is to expand the global mindshare of Singapore as a design thought leader and to rally the local design community to achieve greater international influence and impact.

1 Infuse design into our national skillset

In the future economy, a unique user experience will be an important determinant of success for a product or a service. The workforce would need to develop the capabilities to design such experiences and create meaning for their customers. By infusing design into our national skillset, we will build such a workforce and help Singapore thrive in the face of changing consumer expectations.



#1 Cultivate creativity and design sensibilities from pre-school to secondary levels by developing and launching an integrated curriculum of enrichment programmes

Introducing design sensibilities and design skills from young would nurture a new generation of individuals who are more creative, adaptive and resilient. This will imbue our future workforce with the empathy to better identify the needs of others, and cultivate workers who actively make change happen, and are able to implement new ideas confidently. Experimentation and tinkering to improve and problem-solve will be de rigueur for them.

The recommendation is to establish a series of design courses for students from pre-school to secondary levels, that is developed as an integrated curriculum to support continuity in the students' learning as they progress from one level to the next. Designer-facilitators will be trained to conduct these courses as part of the enrichment programmes available to our schools.

At the pre-school level, the programme could start with sensorial appreciation of the environment, encouraging imagination, learning-by-doing, crafting and story-telling. At the primary and secondary school levels, the programme would extend to design thinking and problem-solving for more complex challenges. Student projects targeting real-world challenges, will offer opportunities to apply the learning from the design courses. Such projects could culminate in an annual National Design Challenge and an exhibition at the National Design Centre to promote greater awareness and encourage wider participation.

#2 Develop a pipeline of multi-disciplinary, industry-ready designers and recognise promising Singaporean talents in ITE, polytechnics and universities

Good design continues to inspire consumers as new products and services emerge to address known and unknown needs and wants of consumers. In particular, design is intersecting in new and exciting ways with technological advancements and business model innovation.

To ensure that our design graduates are more industry-ready, design schools should strengthen the multi-disciplinary elements as well as introduce business modules to their diploma and degree courses. In addition, they should arrange structured internships with various industries to provide immersive learning environments for the students. The design sector should also capitalise on the SkillsFuture Earn and Learn programme, to support on-the-job training for fresh graduates.

We also recommend that Dsg's existing scholarship programme for promising students to pursue design courses, be extended to candidates from ITE and polytechnics, in addition to universities.

#3 Strengthen professionalism by working with the industry and Design Associations to introduce continual professional development as well as accreditation programmes where appropriate

A consistently high standard of professional practice will encourage businesses and consumers to invest in local design, and make the sector more vibrant in Singapore.

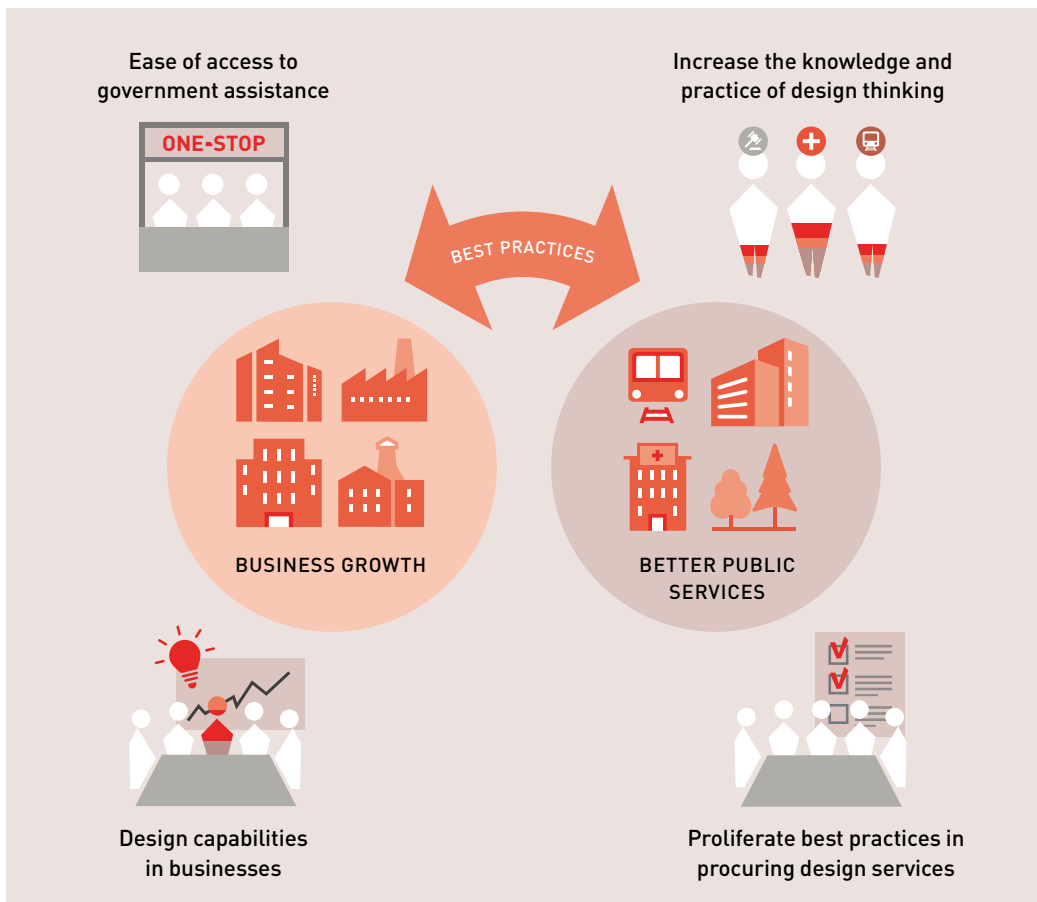
The associations for the various design practices should work with Dsg to create their respective WSQ-certified continual professional development programmes to help practising designers stay current and be at the leading edge of the discipline. Designers can access the SkillsFuture Study Award to upgrade their expertise or to specialise in specific applications like design in healthcare.

Where appropriate, the design associations should consider industry accreditation to set standards in their respective disciplines. Such an accreditation programme should be integrated with continual professional development. For instance, the Singapore Institute of Landscape Architects (SILA) has commenced accreditation of landscape designers. Urban planning is another practice that can consider such an accreditation programme.

2 Expand the role of design in businesses and government

Products and services like Nest Thermostat and Airbnb have disrupted traditional markets and radically changed the way people live and interact. Such creations not only demonstrate design innovation but highlight its potential as a powerful generator of growth in Singapore.

Additionally, design can be deployed to improve policy-making and the delivery of public services. Developing a people-centred design and innovation strategy will elevate organisations towards providing differentiated products and delightful user experiences.



#4 Support the adoption of design by Singapore-based companies with one-stop assistance through a Design Promotion Unit

Although businesses are starting to adopt design to drive innovation, it is challenging for any one single agency to optimally support these efforts due to the diverse needs and capacities of different companies.

We recommend the formation of a Design Promotion Unit to bring together the efforts and resources of our economic agencies. This will enable the government to provide a more comprehensive range of assistance to businesses, from SMEs to Singapore-based MNCs that intend to scale up their use of design for growth.

An additional form of support could be the facilitation of short-term secondment of designers to provide a transfer of know-how to companies that are keen to build in-house capabilities. Senior designers could also be appointed to advise businesses on managing the design process and facilitating collaborations between companies, design firms and research institutes.

#5 Increase the knowledge and practice of design thinking among public servants for better policy-making and delivery of public services

Training our public servants to use design and design thinking can help to create public policies and services that are more user-friendly and intuitive for our citizens. The Ministry of Manpower for instance, was recognised locally and internationally for its use of design to improve the service experience for work permit and employment pass applicants.

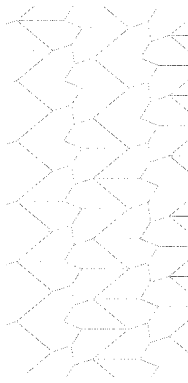
Hence, it is recommended that design thinking and related design courses continue to be offered to public servants to cultivate people-centred design in policy development and problem-solving. With greater awareness of the value of design, public servants can then bring design thinking and principles early into the development of key policies and programmes. For example, the Smart Nation and Active Ageing initiatives offer opportunities for using design to manage the socio-behavioural changes and mindset shifts required for acceptance and widespread implementation.

#6 **Proliferate best practices in procuring design services by public sector agencies, including a refinement of the procurement framework and pre-qualifying design service providers for Whole-of-Government use**

The process of procuring design services in the public sector should be refined and standardised. This will help the Government achieve its intended outcomes and at the same time, enable the design firms to use their resources more effectively, while promoting quality and innovation in their work.

To improve the tender process for design-intensive projects, public agencies should be guided to write outcome-based project briefs, adopt a more effective evaluation of the design aspect of the proposals, and provide fair compensation for the time and effort of shortlisted tenderers. Such best practices are already in use in countries that recognise the value of design.

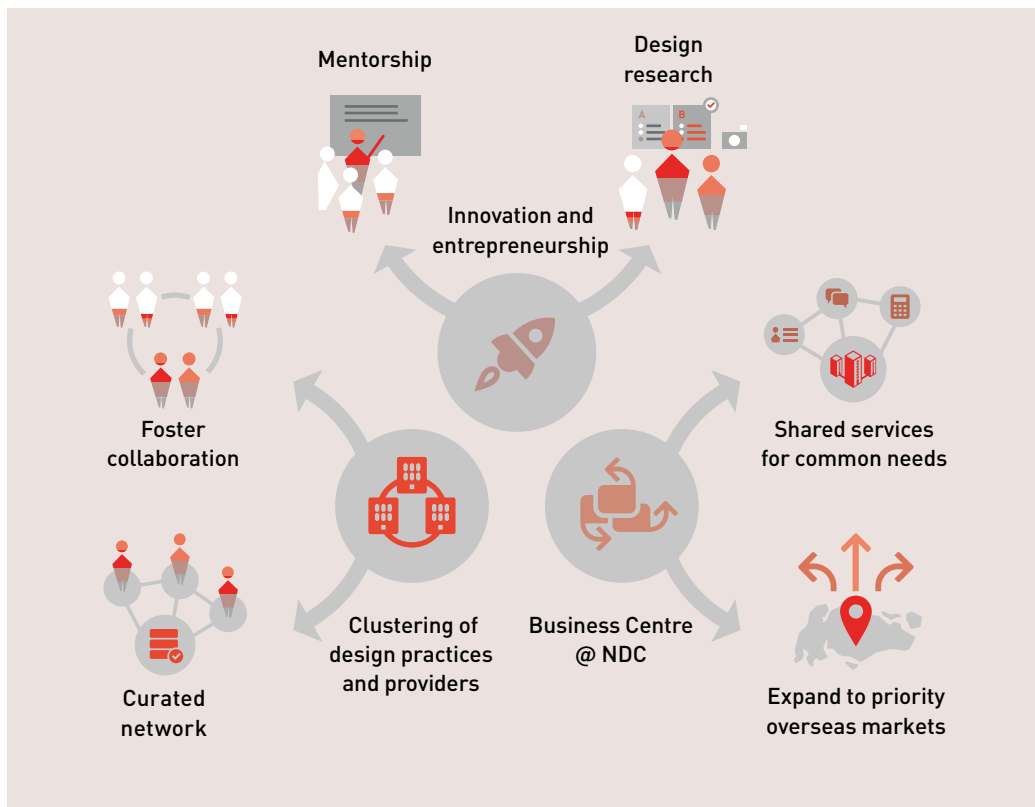
A category of pre-qualified design service providers could also be developed to help government agencies to procure specific types of small value design services quickly and easily. Concurrently, a scheme to assist promising small design firms to bid for government projects could be introduced.



3 Strengthen the competitiveness of design firms

Design firms play an important role in providing services and solutions to help their clients address opportunities and challenges in the marketplace or to improve operations. For example, ST Engineering enlisted the help of a young design team in the development of their successful SmartPlus air mask.

However, the majority of design firms are micro-SMEs and suffer from the lack of scale. The third strategic thrust seeks to address this and also aims to encourage design firms to create proprietary products and services and intellectual property. Dsg can be the focal point to play this role, and in so doing, help design firms grow and globalise.



#7 Promote innovation and entrepreneurship in design and support design research to foster experimentation and IP creation

Dsg can help design entrepreneurs tap into Singapore's increasingly vibrant start-up ecosystem. For instance, existing technology accelerators may be able to strengthen the business proposition of emerging design practices and their innovations. Tech start-ups themselves are seeking to collaborate with designers from the early stages to differentiate themselves from competitors. Dsg could also develop a network of business mentors and investors who are interested in design.

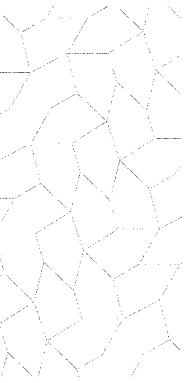
To inspire exploration into emergent areas such as additive manufacturing, design feeling and design in healthcare, Dsg could commission research projects to provide valuable insights and generate new concepts for the design community in Singapore. A network of partner institutions in Singapore as well as overseas could also be established to gather the expertise needed for such research.

#8 Help firms expand locally and overseas by setting up a Business Centre at the National Design Centre (NDC) to provide access to shared services for design firms, as well as interim workspaces and networks in priority markets

With mounting global competition, cooperatives and partnerships to generate economies of scale can provide an added edge for Singapore-based design firms.

We recommend that Dsg look into the viability of organising the provision of shared services for common needs such as Public Relations, Human Resources, Intellectual Property Management and Accounting, to micro and small design enterprises.

Dsg should also explore arrangements with partners in priority overseas markets that can offer interim workspaces and hot-desking facilities for our design firms that have the ability and aspiration to go international.



#9 **Form physical and digital clustering of related design practitioners, craftsmen, suppliers and support service providers to foster collaboration and generate synergies**

Physical proximity and active community building can foster collaboration and co-creation opportunities as well as enable our design firms to pool resources and embark on more complex projects. For some design disciplines such as fashion, the clustering of related activities can also enable the efficiency of physical checks over the production process which will increase the speed and quality of their design output.

Beyond physical clustering, Dsg should look into setting up a curated digital database of design practitioners, craftsmen, suppliers and related service providers so that organisations, businesses and designers themselves can quickly access local and regional players to complement their area of expertise.

4 Bring design into the community

A society that appreciates good design will nurture and support a design ecosystem. As more residents learn about their design heritage and participate in co-designing the environment where they live, learn, work and play, they will also develop a stronger sense of community, pride and belonging to their neighbourhoods. The neighbourhoods will, in turn, become more distinctive, resulting in a loveable city for all and a city that strives to constantly improve the quality of everyday life.



#10 Foster the appreciation of design through outreach activities in the community

Easy access to design activities like exhibitions and public talks is a start to nurturing design sensibilities. These activities may be held in community centres, regional libraries and shopping malls, as well as in the arts and design schools and institutions. Design practitioners should be engaged to curate and bring design experiences to the people through public installations, workshops and learning journeys to neighbourhoods and precincts known for good design.

#11 Enable citizens to co-create better daily living experiences through design and equip them with the know-how

Dsg could organise regular co-creation sessions with residents, grassroots and community leaders, facilitated by designers. Participants would be guided through a process of user critique, empathic sensing, prototyping and refinement of everyday experiences and existing community programmes and activities. Relevant agencies should co-lead in organising such sessions for more complex issues like active ageing, as well as safer and more inclusive community living.

#12 Celebrate design high points and role models in Singapore through promoting success stories, trails and precincts for residents and visitors

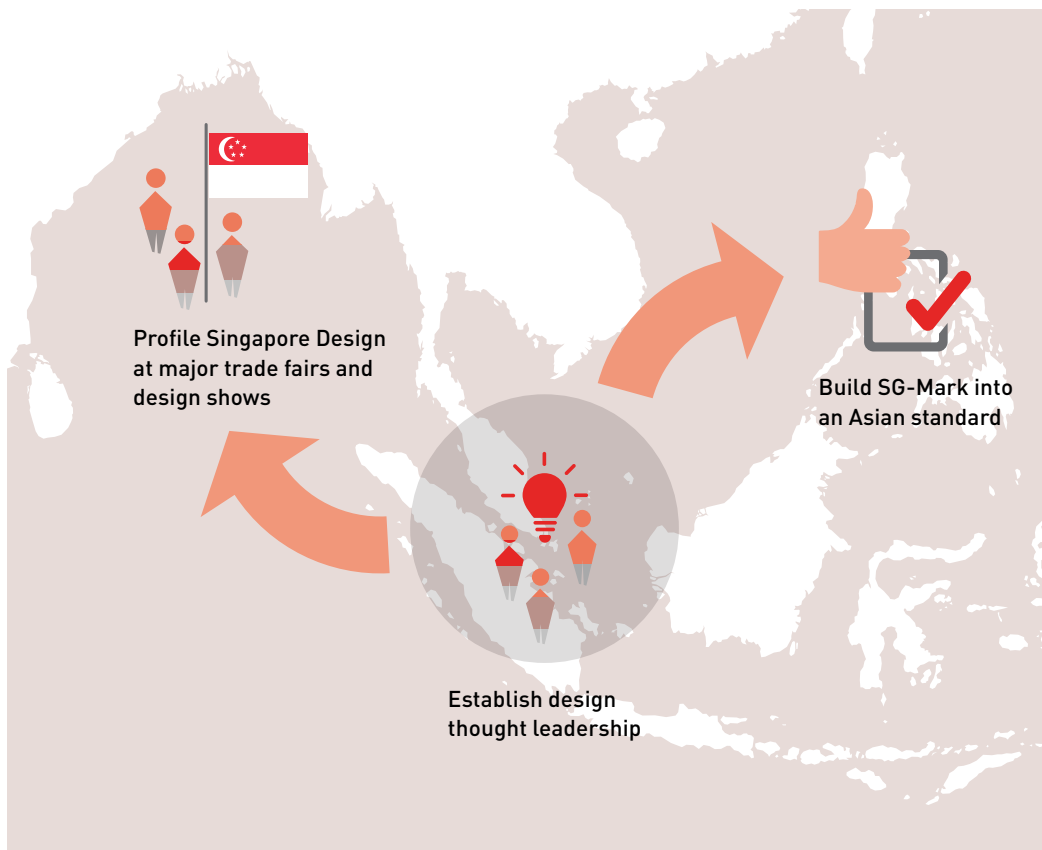
Through the activities envisioned in the two recommendations above, Singapore will evolve into a 'living design museum' with unique experiences and ground-up activities across the island.

Dsg could curate a collection of successful Singapore design stories to amplify sharing and inspire wider interest locally as well as among visitors. It should also work with other relevant government agencies to develop design trails and precincts, and promote awareness of our design heritage. This effort will help to expand the influence of local design thought leaders, and contribute to the branding of Singapore Design.

5 Develop the Singapore Design brand

The Singapore brand is popularly characterised by its qualities of being reliable, efficient, safe and clean. Singapore is also known for its innovation in social and urban engineering, and the strength of its economy. However, there is room to feature our softer and creative side more prominently.

Design is a good medium for shaping this aspect of the Singapore brand. Countries like Denmark, Japan and South Korea are already articulating their national brand identity through good design, amassing 'soft-power' that builds emotional connections with people around the world.



#13 **Establish design thought leadership by building the Singapore Design Week into a premier international design festival, and extend the scope of President's Design Award to recognise design excellence in Asia**

We recommend that Dsg expands the programmes of Singapore Design Week (SDW) to increase the mindshare for Singapore in the world of design. There should be a particular focus on Asia to distinguish SDW from other events and festivals in this space. Additional programmes could include:

- > A Global Design Symposium for design leaders and luminaries that covers topics such as Design for Public Policy, Design for Social Innovation or Design for a Smart City.
- > A conference that gathers CEOs & CDOs from design-led companies as well as leading creatives to engage the design and business communities on emerging trends and developments across the various design disciplines.

To align with the above objective, we should also consider expanding the scope of the President's Design Award beyond Singapore to cover the best in Asian design.

#14 **Profile Singapore Design by curating Singapore Pavilions in major trade fairs and design shows**

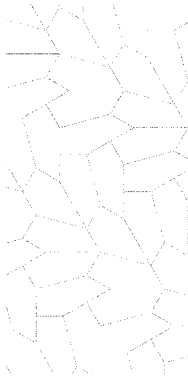
Designers from Singapore who have been able to exhibit their work at key international design platforms have benefited from the exposure. The recommendation is for Dsg to take this further by presenting the high points of Singapore Design through national pavilions at high-profile trade fairs and design festivals. In particular, this will help to focus attention on and highlight emergent designers that are ready to go international.

#15 **Build SG-Mark into a regional standard for well-designed products and services**

The Singapore Design Mark (SG-Mark) was established in 2014 to recognise well-designed products and solutions in Singapore and the region.

Submissions have also been received from Japan, arising from a mutual co-operation agreement between the Design Mark (G-Mark) in Japan and SG-Mark. To date, a total of 140 products and solutions have been awarded the SG-Mark.

More resources should be put into promoting the awareness and use of the SG-Mark. It has the potential to help companies differentiate their products, command better premiums and strengthen their brand identity. This will motivate more businesses to invest in quality design and in so doing, create a virtuous circle that benefits the Singapore Design brand.



Design for everyone

What is different about Design 2025

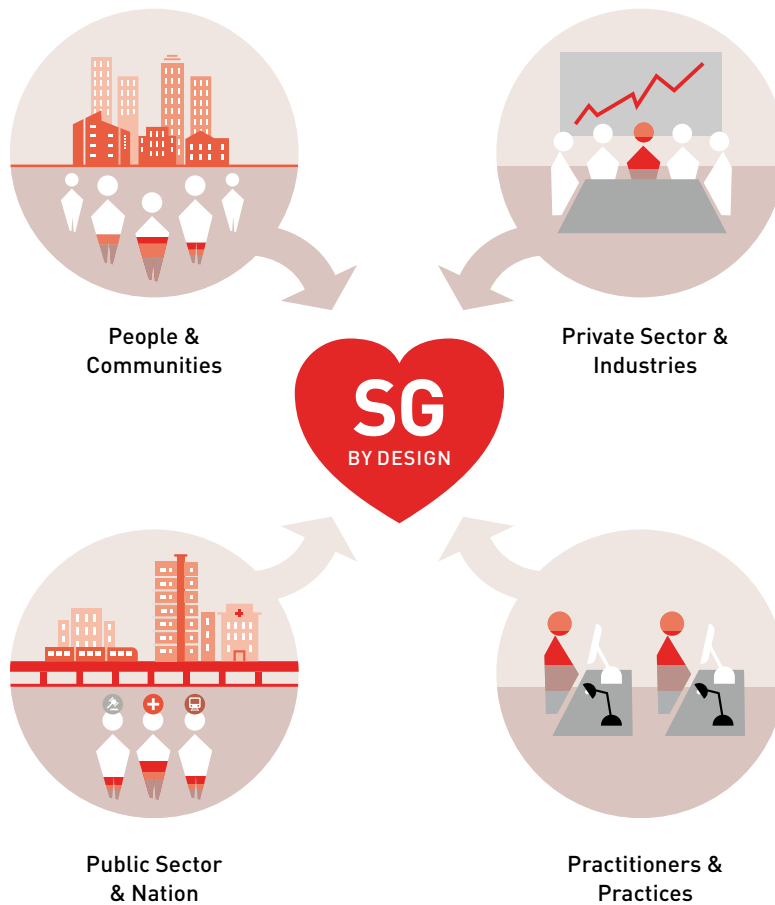
The earlier blueprints were government-led and identified art, design and media as new growth areas. This new masterplan, on the other hand, was developed by a committee comprising leaders from different communities in the design ecosystem. The committee actively engaged industry and public sector stakeholders through interviews and focus group discussions to ensure that the recommendations reflected industry needs and took into consideration the imperatives of national initiatives such as Smart Nation, SkillsFuture and the Future Economy.

Design has played an important role in making Singapore one of the most liveable cities in the world, and it can also make Singapore loveable. It has enormous potential to help Singapore become an innovation-driven economy. To fulfil this potential, the appreciation and use of design have to become more pervasive. Design 2025 thus seeks to promote a heightened level of appreciation and use of design among our workforce, businesses, government and the community to transform the way we live, learn, work and play.

How our stakeholders will benefit from the recommendations

If implemented successfully, our designers and design firms will enjoy better support to grow their business and to innovate. It will be simpler for businesses to use design to innovate better and to become more productive. Their products and services will bear the SG-Mark and be widely recognised for good quality and user-centred design. The government will be a leader in using design to deliver people-centred policies and services. Our people will learn about design from young, in schools and from outreach activities in their neighbourhoods. They will be inspired to become change agents to improve their own everyday experiences.

These initiatives will imbue the Singapore brand and national identity with an additional attribute – that of design – thereby inspiring citizens, visitors, investors and all who call Singapore home.



The illustration of the heart is adapted from the SG Heart Map logo with permission.

Acknowledgements

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About the DesignSingapore Council

The vision of the DesignSingapore Council is for design to differentiate Singapore from global competition. As the national agency for design, the Council's mission is to develop the design sector, and to help Singapore use design for innovation and growth, as well as to make life better. The DesignSingapore Council is part of the Ministry of Communications and Information.

The National Design Centre supports the DesignSingapore Council's efforts to enhance the vibrancy of the design ecosystem as well as catalyse industry collaborations and business opportunities for innovation and growth.

Singapore was designated a UNESCO Creative City of Design in December 2015. This designation will support the development of a creative culture and ecosystem in Singapore that fully integrates design and creativity into everyday life. It also enables Singapore to collaborate internationally with the cities of the UNESCO Creative Cities Network (UCCN). The City of Design Office will be sited within the DesignSingapore Council to coordinate and implement programmes that contribute towards the UCCN mission.

Further information about the DesignSingapore Council, the National Design Centre and Singapore's designation as a UNESCO Creative City of Design is available at www.designsingapore.org.



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