

## ANNEX A: Design Industry Manpower Plan

### Opportunities in the Growing Design Sector

1. The DesignSingapore Council (Dsg) defines the **Design Sector** as constituting active firms that provide design consultancy in the following industries:
  - (a) **Place-making:** Architecture Services, Landscape Design and Landscape Architecture, and Interior Design;
  - (b) **Object-making:** Industrial and Product Design, and Fashion Design;
  - (c) **Image-making:** Advertising, and Art and Graphic Design; and
  - (d) **Experience-making:** Design Strategy, Service Design, User Experience/User Interface Design, and Design Research.
  
2. From studies commissioned by the Dsg<sup>1</sup>:
  - (a) **85 percent** of design services firms reported three-year plans to grow partnerships and offer more diversified and integrated services, targeting high growth areas in technology, such as “analytics” and “digital transformation”;
  - (b) Between 2014 to 2016, non-design companies with in-house design teams increased revenue spend on design activities from **1.3 percent to 1.7 percent**;
  - (c) The number of designers at senior management level in these non-design companies rose from **12 percent to 32 percent**;
  - (d) Between 2017 to 2022, the number of design professionals in Singapore is expected to **grow by more than 12,000**; and
  - (e) **By 2022, for every design job in design services firms, there will be 1.8 design jobs in non-design companies.** Technology companies, financial services and business consulting firms are key drivers of the demand for design talent.
  
3. This drive for demand of design is echoed globally. McKinsey’s *Business Value of Design* report published in 2018 identified **design as a key driver of business success**:
  - (a) There is a strong correlation between McKinsey’s Design Index (MDI) scores and superior business performance;

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<sup>1</sup> Sources: National Design Industry & Manpower Study 2017 and Value of Design Study 2016, both commissioned by the Dsg.

- (b) The most design-centric companies disproportionately outperform their peers;
- (c) Firms that embraced design holistically and scored in the top quartile of MDI generated **32 percent more revenue and 56 percent more shareholder returns** than competitors over a five-year period; and
- (d) Good design matters to all businesses, regardless of industry and offering.

### **New Skills Demand on Design Workforce**

- 4. In focus group discussions conducted by the Dsg with industry members to formulate the Skills Framework for Design, **five trends** reflecting changes in the functions of design were surfaced:
  - (a) **Design as Catalyst:** As more companies integrate designers into their teams, designers will need to possess deep knowledge not only in their specific craft but also in business and technology;
  - (b) **Cultural and Organisational Transformation:** Designers play an important role in facilitating the development of human-centred problem-solving approaches to shape organisational culture based on empathy, communication and collaboration;
  - (c) **Systems Approach to Complexities:** As businesses continue to recognise the value of design in navigating complex systems, designers must better understand cultural nuances, relationships and the human psyche to deliver thoughtful and meaningful experiences;
  - (d) **Design for New Technological Platforms:** Designers are expected to be agile and versatile enough to design for omni-channels and must exercise empathy to create seamless solutions in a fast-evolving technological landscape; and
  - (e) **Sustainability and Ethics:** Designers must be proficient in regulations governing data privacy, intellectual property, sustainability, diversity, inclusivity and accessibility.

5. To understand the different roles that designers play, the Dsg has developed a model outlining the four archetypes of designers and the skills that each possesses:

Diagram 1: Archetypes of Designers






6. Between 2017 and 2022, it is estimated **that the archetypes required by the economy will be in the ratio of 4:2:1** (Design Specialist: Design Integrator: Design Multiplier), with the fastest growth in demand in the “Design Integrator” role.<sup>2</sup> As businesses increasingly turn to design as a means of transforming their organisations, Singapore will need more “**Design Integrators**” and “**Design Multipliers**”.

<sup>2</sup> Based on findings from National Design Industry and Manpower Study 2017

## **Preparing and Nurturing the Design-Empowered Workforce of the Future**

7. The Design 2025 Masterplan envisions that by 2025, Singapore will be a thriving innovation-driven economy and a loveable city by design. Driving this transformation will be a workforce equipped with design as a national skillset.
8. Spearheaded by the Dsg, in strong partnership with stakeholders such as government agencies, education institutions, training providers, industry associations, companies and employers, the **Design Industry Manpower Plan** is a concerted effort to prepare and nurture the design-empowered workforce of the future.
9. The talent strategies under the Design Industry Manpower Plan aim to embed design skillsets across Singapore society by enhancing the national design education system across General Education (GE), Pre-Employment Training (PET) and Continuing Education and Training (CET). Its twinned goals are to nurture:
  - (a) **Design talents with transdisciplinary skillsets:** These designers have specialist design domains as well as skillsets in non-design disciplines such as business and technology. They can integrate these skills to create new products and services that meet industry needs; and
  - (b) **A workforce with design sensibilities:** This design-empowered workforce can apply design-led approaches to solve complex issues, drive business transformation and co-create better living environments.

10. The key features of the Design Industry Manpower Plan are:

	OUTCOMES	OUR STRATEGIES	OUR APPROACH
 CONTINUING EDUCATION & TRAINING (CET)	#3 Increase opportunities for continuing professional development	Support continuing education and training in design for professionals and educators	<ul style="list-style-type: none"> <li>Deepen strategic, management, analytical and communication skills through enhanced CET programmes and incentives for design professionals to take on the role of a design integrator. These may include:               <ul style="list-style-type: none"> <li>Support growth of design integrators through scholarships, and</li> <li>SkillsFuture Study Awards (SFSA)</li> </ul> </li> <li>Support design educators to maintain industry relevance through skills competency matrix</li> <li>Enable real-world design learning platforms beyond formal curriculum such as "School of X"</li> </ul>
		Create real-world design learning platforms for professionals	
		Empower everyone to learn about design through modular courses and learning communities	
 PRE-EMPLOYMENT TRAINING (PET)	#2 Develop industry and future-ready talent	Strengthen industry links through a Design Education Advisory Committee	<ul style="list-style-type: none"> <li>Strengthen education and industry links</li> <li>Align programmes with industry needs through Skills framework for Design</li> </ul>
		Impart design-led creative thinking to students across more disciplines	
 GENERAL EDUCATION (GE)	#1 Increase exposure to design mindset	Build design sensibilities as a national capability	<ul style="list-style-type: none"> <li>Exposing the young early to design-led creative learning and doing</li> <li>Enhance capabilities of educators through exposure and co-creation</li> </ul>

**Conclusion**

11. The Design Industry Manpower Plan seeks to build a resilient design-empowered workforce by embedding design as a national skillset through strategies cutting across the learning continuum. To realise this goal, key stakeholders from the Institutes of Higher Learning (IHLs), public service agencies, and industry must come together as partners. Professionals – in both design and non-design sectors – can also take ownership of their personal development by embracing lifelong learning and skills mastery. Only then can Singaporeans develop empathy, resilience, adaptability and creativity – critical qualities needed to build an innovative yet loveable city in the future economy.

## ANNEX B: DESIGN EDUCATION REVIEW COMMITTEE

1. The Design Education Review Committee (DERC) released a report on 3 July 2019 with recommendations to strengthen design higher education in Singapore.
2. The Ministry of Communications and Information appointed the DERC in August 2017. The DERC, which is chaired by Mr. Tan Pheng Hock, comprises key industry players, Institutes of Higher Learning (IHLs) and public service agencies. Two sub-workgroups were established, comprising more than 30 members from the design industry, employers of designers, academics, as well as school leaders from the Autonomous Universities, polytechnics and the Arts Institutions.
3. The DERC envisions that by 2025, Singapore will have more innovative and flexible ways for people to learn about design, facilitated by design educators who are up-to-date in the latest industry needs and developments. Design talent will be equipped with transdisciplinary skillsets and the broader workforce, including non-designers, will possess design sensibilities.
4. The report identified **five trends** in the design sector that will impact manpower in the future economy:<sup>3</sup>
  - (a) **Design as Catalyst:** As more companies integrate designers into their teams, designers will need to possess deep knowledge not only in their specific craft but also in business and technology;
  - (b) **Cultural and Organisational Transformation:** Designers play an important role in facilitating the development of human-centred problem-solving approaches to shape organisational culture based on empathy, communication and collaboration;
  - (c) **Systems Approach to Complexities:** As businesses continue to recognise the value of design in navigating complex systems, designers must better understand cultural nuances, relationships and the human psyche to deliver thoughtful and meaningful experiences;
  - (d) **Design for New Technological Platforms:** Designers are expected to be agile and versatile enough to design for omni-channels and must exercise

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<sup>3</sup> These five trends emerged from focus group discussions conducted by the DesignSingapore Council (Dsg) and SkillsFuture Singapore (SSG), with industry members to formulate the Skills Framework for Design.

empathy to create seamless solutions in a fast-evolving technological landscape; and

(e) **Sustainability and Ethics:** Designers must be proficient in regulations governing data privacy, intellectual property, sustainability, diversity, inclusivity and accessibility.

5. These five trends in the design sector and the growth in demand for emerging design roles suggest a rapidly changing employment landscape. All individuals need transdisciplinary skillsets to remain versatile in such an environment. The key to embedding essential design skillsets across different areas in our society is to enhance Singapore’s education system across PET and CET.
6. With the aim of strengthening the design education system in Singapore, the DERC was tasked to propose strategies to:
  - (a) Strengthen Singapore’s design higher education by enhancing existing design programmes in IHLs; and
  - (b) Embed design in Singapore’s non-design higher education institutes, to increase the appreciation and use of design across different disciplines.
7. To drive innovation for Singapore in the future economy, the report provides the following five recommendations:

Recommendations	Details
<b>Strengthen industry links through a Design Education Advisory Committee (DEAC)</b>	The DERC recommends the formation of a DEAC, which will comprise key industry leaders from design and non-design sectors, IHL leaders, representatives from public service agencies, and international thought leaders. The DEAC will help ensure that the design curriculum remains agile and adaptable to capitalise on economic and industry shifts.
<b>Impart design-led creative thinking skills to students across more disciplines</b>	Design-led creative thinking is best learnt in a transdisciplinary environment where people from different backgrounds work together to solve real-world problems. To widen the scope of design learning, the DERC recommends that IHLs consider establishing more platforms for students from

	<p>different disciplines to come together to learn, practise and apply design-led creative thinking.</p> <p>To test this recommendation, Singapore Polytechnic will be the first polytechnic to prototype a transdisciplinary design-learning programme in their curriculum with “Let’s Design Together”.</p>
<p><b>Support CET for design educators and professionals</b></p>	<p>The DERC recommends that CET programmes and incentives be enhanced to support the deepening of strategic, management, analytical and communication skills for design professionals. Potential initiatives include:</p> <ul style="list-style-type: none"> <li>• Providing more DesignSingapore Scholarships and SkillsFuture Study Awards for individuals who have an interest in acquiring non-design skills; and</li> <li>• Encouraging CET training providers to take reference from the Skills Framework for Design to develop CET programmes that can meet the skills gap and needs of the design and non-design sectors.</li> </ul> <p>To ensure that design educators maintain industry relevance, the DERC also recommends:</p> <ul style="list-style-type: none"> <li>• Developing a common skills framework to guide the professional development of design educators; and</li> <li>• Including design educators in the SkillsFuture Study Award for the design sector.</li> </ul>
<p><b>Create real-world design learning platforms for professionals</b></p>	<p>The DERC recommends the creation of more learning platforms where professionals can learn and hone design-led creative thinking skills by devising solutions to real-world social and economic challenges. The proposed experiential learning</p>



	<p>spaces will be sustained learning platforms beyond formal CET settings.</p> <p>To pilot this recommendation, the DERC proposes starting the “School of X” programme – a real-world learning platform that will offer opportunities for professionals to learn and practise design-led creative thinking, and to co-create solutions for the community.</p>
<p><b>Empower everyone to learn about design through modular courses and learning communities</b></p>	<p>In line with the Design 2025 vision of developing design as a national skillset, the general public can take ownership of their personal development, and embrace the spirit of lifelong learning by applying design-led creative thinking in their everyday lives. To this end, the DERC recommends:</p> <ul style="list-style-type: none"> <li>• Creating more modular courses in emerging design domains to impart critical skills in design concepts and design literacy to individuals at all stages of learning. Suitable design courses can be implemented under the existing eight emerging skills areas covered by the SkillsFuture Series, across three proficiency levels (basic, intermediate and advanced). This will allow individuals to identify relevant courses based on their skills level and career needs;</li> <li>• Ramping up efforts to promote lifelong learning in design skillsets through ground-up learning communities throughout Singapore; and</li> <li>• Leveraging existing national movements such as the SkillsFuture Festival to organise learning platforms that will ignite public interest in wielding design as a novel and effective tool for problem-solving and innovation.</li> </ul>

8. The Ministry of Trade and Industry (MTI) has accepted the report and the recommendations set within. MTI and the Dsg will work closely with the industry, sector champions and other stakeholders to implement them at the appropriate juncture.

## ANNEX C: SKILLS FRAMEWORK FOR DESIGN

### About the Skills Framework

1. The Skills Framework for Design supports the manpower strategies by identifying pivotal jobs in the Design sector, outlining possible career pathways for talent attraction and retention, as well as articulating existing and emerging skills to support the growth and transformation of the sector.
2. While designers are increasingly employed beyond design services, there is a lack of awareness among Singaporeans on the expanded roles that designers play in the economy. The Skills Framework for Design provides information to align stakeholders in human resources, design education and the general public and empower them to leverage opportunities within a shifting employment landscape.
3. Developed by the DesignSingapore Council (Dsg), SkillsFuture Singapore (SSG) and Workforce Singapore (WSG), together with employers, industry associations, union, and education and training providers, the Skills Framework for Design contains four tracks, 25 key job roles, as well as 48 technical and 18 generic skills and competencies. The Skills Framework will enable individuals to make informed decisions on education, training and career development in design. It will provide HR practitioners and employers a common skills language for developing new design talent capabilities, formalising job profiles of existing design employees and retaining top design talent. It will also help training providers update their programmes to suit the needs of the industry.
4. The Skills Framework for Design aims to accelerate the pipeline of design talent ready to meet the demand for new types of roles in the future economy. It is aligned to and supports Dsg's Design Industry Manpower Plan, which charts strategic directions, initiatives and programmes to support talent development from the young in schools to professionals in the workforce. The twinned goals of the Design Industry Manpower Plan are to nurture:
  - (a) **Design talents with transdisciplinary skillsets:** These designers have specialist design domains as well as skillsets in non-design disciplines such as business and technology. They can integrate these skills to create new products and services that meet industry needs; and

- (b) **A workforce with design sensibilities:** This design-empowered workforce can apply design-led approaches to solve complex issues, drive business transformation and co-create better living environments.
5. Some of the emerging skills covered in the Skills Framework for Design include:
- (a) **Business Model Innovation** – Identify and capitalise on untapped areas of business opportunities by proposing and instituting innovative changes to existing business models;
  - (b) **Content Development and Strategy** – Brainstorm, ideate and utilise writing strategies and plans to maximise user engagement;
  - (c) **Creative Entrepreneurship** – Develop and inspire the creation of creative or intellectual capital to generate activities for business success
  - (d) **Design Sustainability and Ethics Management** – Create designs that consider the limitations, regulations and guidelines on intellectual property, sustainability, diversity, inclusivity and accessibility, in line with behaviours and actions which are generally accepted in the profession;
  - (e) **Interaction Design Practice** – Develop digital and/or physical interactions across technology, products, space and services media to enhance relationships and engagement with users; and
  - (f) **Systems Thinking** – Identify, analyse and evaluate relationships among systems' parts, with the use of simulation tools and systems thinking techniques and frameworks to understand situations and drive change for improvements
6. To help aspiring individuals and in-service employees acquire skills necessary for various job roles, the Skills Framework for Design also provides information on training programmes for skills acquisition and upgrading.
7. SSG encourages enterprises that are keen to learn how the Skills Framework for Design can be adopted to enhance their Human Resource (HR) practices to register for the following:
- (a) **Workshops** for HR practitioners, line managers and leaders to understand the intent and purpose of the Skills Framework for Design, comprehend its components, and determine how it can be used to improve HR practices and support better business outcomes. Interested enterprises may sign up at <https://tinyurl.com/SkillsFrameworkWorkshop>; and

- (b) **Clinics** educating participants on how to use the Skills Framework for Design to address real-life HR issues.
8. In addition, there are other support available such as grants and downloadable HR templates.

### **Rolling out the Skills Framework**

9. For a start, seven organisations have committed to adopt the Skills Framework for Design. They include global companies, small and medium-sized enterprises, a public service agency, a corporate training provider as well as an IHL. These early adopters are Aleph, Dsg, Foolproof, METHODOLOGY, Ngee Ann Polytechnic, PALO IT and STUCK. These seven organisations have sought to improve their current HR practices and programmes by referring to the Skills Framework for Design. They aim to achieve the following objectives:
- (a) **Hire and attract the right design talent** – Refine job descriptions and hiring processes to better align talent acquisition with business requirements;
  - (b) **Create or update programmes to instil critical design skills in existing staff** – Revamp internal training and development programmes to ensure employees are equipped with essential design skills and competencies; and
  - (c) **Integrate design as part of their organisational culture** – Create a conducive work environment that encourages employees to actively update and apply their design-related skills in the organisation. In so doing, develop more user-centred and desirable products, services and experiences.
10. More details about the early adopters are as follows:
- (a) **Aleph** is a creative technology company specialising in research, strategy, design, and communications. Founded in Singapore in 2016, Aleph is now made up of more than 450 craftspeople of diverse backgrounds. Aleph maintains its boutique culture – working closely with client partners to understand a challenge and to deliver iconic and transformative solutions around humanised insights, experience design, and technology solutions for future-oriented clients.

“Ever since we were introduced to the Skills Framework for Design, it has been our inspiration to attract candidates and future-proof our design team.

With the macroeconomic context as its backbone, the Skills Framework will help us generate job descriptions with clearer candidate expectations and create better structured career maps for new and existing staff,” said Mr Poon Wen Ang, Design Director/Chief Opportunity Officer, Aleph.

- (b) The vision of the **DesignSingapore Council** (Dsg) is for Singapore to be an innovation-driven economy and a loveable city through design by 2025. As the national agency that promotes design, its mission is to develop the design sector, help Singapore use design for innovation and growth, and make life better in this UNESCO Creative City of Design. The Dsg is a subsidiary of the Singapore Economic Development Board.

“The DesignSingapore Council hopes to show how a public service agency can use the Skills Framework for Design to enhance staff development while shaping organisational culture. This first-hand experience will give us useful insights for improving the Skills Framework, allowing us to walk our talk as a Council. We hope our adoption will encourage other public service agencies to explore how the Skills Framework could positively influence their culture and talent development strategy,” said Ms Emily Ong, Deputy Executive Director, DesignSingapore Council.

- (c) **Foolproof** is an experience design company started with the goal of better representing customers in the design of digital products and services. The company supports partners across the design lifecycle, from shaping product and service ideas to designing and deploying digital experiences to tuning commercial performance in the long-term. Foolproof is part of the Zensar group, which is a global digital and technology services provider, and works across over 40 markets with offices in Singapore and the United Kingdom.

“For a specialist experience design company like Foolproof, talent development is critical to remain on the cutting edge of design thought and capability. The Skills Framework for Design allows us to have a shared language with the design industry and will improve our ability to attract and develop world-leading design talent. We will start with aligning our job descriptions to include the critical work functions, skills and competencies outlined in the Skills Framework,” said Ms Katherine Reyes, Managing Director, Foolproof.

- (d) **METHODOLOGY** is a design education company that believes that design can make a positive difference to the world. The team seeks to curate and share the world's best creative ideas and design processes by collaborating with global leaders at the forefront of design, craft and innovation to develop education programs, workshops, conferences and media.

WSG, METHODOLOGY and Dsg had recently launched the Professional Conversion Programme (PCP) for User Experience (UX)/User Interface (UI) Digital Design and UX/UI Spatial Design Professionals which is referenced from the Skills Framework. Launched in June 2019, the PCP for UX/UI allows mid-career professionals to develop industry-validated skills and gain entry into the industry as UX/UI designers.

"The Skills Framework for Design will help us have stronger discussions with clients on how to position design talent within Singapore's economic landscape. METHODOLOGY has aligned its new Professional Conversion Programme for UX/UI Digital and Spatial designers with the Skills Framework. Participants in the programme can therefore evolve their design careers to meet industry demands," said Mr Brian Ling and Mr Jackson Tan, Co-Founders and Directors, METHODOLOGY.

- (e) **Ngee Ann Polytechnic** (NP) was established in 1963 and is today one of Singapore's leading institutions of higher learning with more than 13,000 students enrolled in over 40 courses across nine academic schools, including the School of Design & Environment. It seeks to develop students with a passion for learning, values for life and competencies to thrive in a global workplace.

"Ngee Ann Polytechnic's School of Design & Environment used the Skills Framework for Design as a guide to develop our new Diploma in Design. As we begin rolling out the curriculum for the Diploma, the Skills Framework will keep us focused on the essential skills we want to impart to our students and ensure that the curriculum is relevant to industry needs," said Mrs Pang-Eng Peck Hong, Director, School of Design & Environment, Ngee Ann Polytechnic.

- (f) Established in 2009, **PALO IT** is a fast-growing consultancy of Agile Software builders with offices in Singapore, Hong Kong, France, Australia and Mexico. The firm is an expert in enabling innovation and digital transformation through agile methodologies and design thinking. The PALO IT team consists of Full Stack Developers, Designers, Scrum Masters, Agile Coaches, DevOps Engineers and specialist roles such as Data Scientists and Blockchain Experts.

"PALO IT's business – with its focus on Innovation and Transformation – is uniquely aligned with the Skills Framework for Design. We will use it to enhance our talent and development roadmap, incorporating relevant skillsets required by the market to create customised training programmes for our consultants to succeed," said Mr Eugene Yang, Business Innovation Director, PALO IT.

- (g) **STUCK** is a multi-disciplinary design studio that fluidly bridges physical products, digital interaction and user experiences. Since its founding in 2010, STUCK has helped define market-shifting innovations across strategy, industrial design and UI/UX for bold start-ups and forward-thinking brands around the world. The studio's progressive work has garnered over 30 international awards, including the Red Dot, iF, IDSA and the prestigious President\*s Design Award.

"As a design-centric company, STUCK is using the Skills Framework for Design as a guide to catalyse company-wide discussions about common goal setting and career growth. We are aligning our internal skills assessment and development mapping with our designers using the Skills Framework," said Mr Yong Jieyu, Co-Founder/Director, STUCK.

For more information on the Skills Framework for Design, please visit: <https://www.skillsfuture.sg/skills-framework/design>