RE-**THINK.**
RE-**FRAME.**
RE-**IMAGINE.**

A Year of Resilience

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Re-**Think.** Re-**Frame.** Re-**Imagine.**

A Year of Resilience

DESIGN FACTORY MELBOURNE EMBRACING RESILIENCE

Over a long 18 months, Design Factory Melbourne (DFM) has wrestled with ambiguity and uncertainty whilst revelling in all of the things we do best: converting our expertise into action and continuing to learn together.

We have launched projects off the giant shoulders of our students, developed new reasons for integrating design into science and inclusivity, and empowered hundreds of professionals with the skills to drive innovation.

Resilience in this text is defined by the challenges of working with complexity, the provision by the team of contributors and stakeholders to seriously pursue the challenges at hand. Design thinking and doing - along with other experimental models - offer our stakeholders the spoils of outcomes that are shared, transferable and generative.

The collective narrative in this publication traverses chapters that reflect our resilience and "walking the talk". A learning mindset allows us to *re-think* and break existing thought patterns. To *re-frame* challenging situations, it is essential to view new opportunities

with curiosity and seek fresh perspectives from diverse communities. This allows us to *re-imagine* the future, expanding the frontiers in inclusive design, design for science and technology and innovation ecosystems.

With our tenth year of existence just around the corner, we look forward to the future whilst also looking back and acknowledging the incredible work and past achievements of the DFM team and community. We continue the mission together with the global network, which is now standing 31 Design Factories strong. Whilst each Design Factory is unique, what unites us is our shared intrinsic motivation to make positive change in the world through passion-based co-creation, disruption, collaboration, and learning with diverse disciplinary student teams and partner organisations.

Prof. Anita Kocsis

Director, Design Factory Melbourne

DESIGN FACTORY MELBOURNE

We are a co-creation platform with the purpose to create the conditions for innovation, and empower interdisciplinary collaboration with students, researchers, industry and other organisations using design-inspired innovation methods. Established in 2011 at Swinburne University of Technology in Australia, we create change at the intersection of health, science, technology and design. We deliver a number of academic programs for students to work directly with industry on local and global challenges and facilitate a range of capability building for professionals. We are situated at the nexus of theory and practice, creating authentic and engaging learning experiences for students and offering models and methods for our researchers and partners to explore their own change.

We harness interdisciplinary research and innovation through design and build on the collective knowledge and collaboration through the Design Factory Global Network (DFGN). The DFGN has over 10 years of experience in university-industry collaboration and state-of-the-art design research practices.

DFM is a significant contributor to intersecting ecosystems through our projects, approach and people. We initiate and drive new experiments, share our insights and propose new opportunities. We connect ideas, people, and bodies of knowledge to bring about unlikely connections, facilitate serendipity, explore what has not yet been considered, and prototype ideas into reality. Our co-creation methods and discovery process create impact across sectors and disciplines.

Students participating in the university-wide Innovation Minor program collaborate in interdisciplinary teams to solve a real industry challenge.

Image credit: John Gollings for H2o Architects

A LEARNING MINDSET IS KEY TO ONGOING GROWTH AND ADAPTABILITY FOR THE FUTURE.

Learning is a process of acquiring new information and understanding which broadens our horizons and unlocks new opportunities. In today's climate of uncertainty, learning has never been more important. As we continuously face numerous disruptions and challenges, exploring new possibilities and ways of working is key to remaining agile and adaptive.

At DFM, learning is ingrained in our mission and present in everything we do. We embrace experiential learning, believe in learning by doing, and create authentic learning experiences by connecting theory and practice. Learning for us is a continuous life-long journey, taking different forms from formal degrees to bite-sized inspiration. Regardless of the way we learn, we believe we all need to stay curious, open-minded and embrace new opportunities for learning whenever and wherever they appear.

In this section, you'll see how we have created those opportunities and embraced different aspects of learning. We'll showcase how the past year has been filled with moments that shift perspectives and open new avenues for thinking - from professional learning engagements to sharing research into workplaces navigating the unprecedented.

In the workshops, participants leverage each other and cross-collaborate to solve problems and gain fresh perspectives to their context.

FUTURE READY SWINBURNE

Fearless Innovation Initiative Driving Innovation Readiness and Staff Capability

Words by Tiina Tuulos, Pauliina Mattila & Nicola Howard

Change and disruption has never been so prevailing and universally shared as it is today. We are all experiencing changes in the way we operate, communicate and collaborate. The future might seem uncertain and the challenges we are facing are complex and multifaceted. Navigating this change and finding opportunities in the transformation requires capabilities, skills and tools that we might currently lack. This need for continuous learning and upskilling was identified at Swinburne University and in response a staff capability development program was designed.

Enabling Swinburne staff to become and be future ready

The Fearless Innovation initiative was designed and developed to support Swinburne staff with capabilities to identify opportunities, create impactful solutions and have the confidence to drive change. Using Swinburne's 2025 vision as a catalyst, the program was developed in response to a need for Swinburne staff to build capacity for creative problem solving and creating the conditions for innovative practice. The program was initiated by Swinburne Business Partnerships and designed and delivered by Design Factory Melbourne.

The program consisted of three different stages, each building on one another: A brief introduction and inspiration to design thinking; a 2-day intensive Bootcamp to identify and create user-centred opportunities aligned with the 2025 strategy; and a business-driven team coaching to support continuous improvement. Between May 2018 and February 2020, these training sessions were available to Swinburne staff to partake in the form of professional development. Overall, 200 staff members across faculties, business units, roles and backgrounds participated in the Fearless Innovation initiative.

> *"The Fearless Innovation program is designed to improve communication across the organization, with a deliberate focus on building diverse teams of people for across Swinburne. Diverse teams learn from one another, challenging and offering different perspectives, which is vital for innovation. The user-centred design approach requires teams to listen to users and understand their needs, without which impactful solutions cannot be built. Creating a space for innovation and starting the Bootcamp with clearly articulated principles of teamwork, enables and builds trust. A key goal of the program is to empower all staff to take action and contribute to a solution."*
>
> Prof. Sarah Maddison, Pro Vice-Chancellor
> (Academic Innovation & Change)

The Fearless Innovation initiative started as a set of professional development training opportunities and continues to grow and evolve through a community of practice and actions and practices that the participants are taking as a result of the training.

Participant insights and experiences

These examples and insights from the program participants illustrate the benefits of engaging in creative problem-solving and applying design thinking to strategic areas, and how a culture of innovation can enable everyone to take the role and responsibility in proactively creating change.

Tim Binstead

Lead Process Analyst, I.T

"After the process, I reflected on what kinds of tools I had access to that would help me to keep going with this process. It gave me context to thing about how to repurpose existing tools on this journey, and I implemented this approach as a part of my problem-solving process and when creating solutions to business challenges. I took away tools and skills that I was able to apply directly to my role. For me it was definitely time well spent!"

Key outcome
Using the Design Thinking and double diamond process as a guidance and overview to solve problems. Embedding the iterative process and divergent/convergent-thinking with existing tools, systems and approaches to enhance own capability and impact.

Ella Scorringe
Associate Director, Student Experience, Student Life

"The Bootcamp was the single most valuable piece of professional development our team has done in the past few years. It shifted the way we operate. We don't only rely on what we know but also bring our customers' feedback and perspective into the process to inform us on what directions we could be taking. As a result we see an exponential engagement in our programs. We didn't take this approach to our program development before."

Key outcome
Increasing the skills and capabilities of the team, enabling new ways of working collectively, and co-creating new user-centred solutions and services as a response to business challenges.

Janice Jackson
Student Engagement, Careers & Employability

"We took elements from this experience and directly applied them into both our services and offerings to our key stakeholders, but also into our internal practice. As a result, we created radical new offerings and changed the dynamic when engaging with our key stakeholders. Getting to experience and understand more about Design Thinking influenced the content of our resources and the type of language we use, and clarified how we think about impact measures and communicate the value proposition of our offerings."

Key outcome
Foreseeing opportunities to redesign existing offerings with a fresh approach whilst embracing a new approach for problem-solving.

A THREE-TIERED PATHWAY

Fearless Innovation program from 2018 to 2020

Stage 1: Taster, 1hr inspiration

- 201 participants
- 9 training sessions

Stage 2: Bootcamp, 2 day intensive

- 178 participants
- 19 training sessions
- 2 different formats for individuals and for teams

Stage 3: Challenge, 1 day tailored coaching

- 12 participants
- 1 pilot session

"The DFM workshop was unique in its own way because it was able to mesh together the theory and practical work in one. It enabled conversation, idea thinking and allowing you to get out of your bubble."

"When you go through the training, it kind of almost unlocks a little bit of your brain that holds you back from doing things. So, you can try prototyping, or you can try something out and you kind of don't have that worry that you're going to say the wrong thing, because you're just putting it out there."

— University staff members participating in capability development training

PUTTING PEOPLE FIRST TO DRIVE INNOVATION

Key ingredients for staff capability building and life-wide learning

Words by Tiina Tuulos,
Pauliina Mattila & Nicola Howard

Capability building is a common way to increase the competence of an organisation. The way capability building activities are designed plays a major role on the type of benefits you gain from training as a participant and from an organisational perspective. This article outlines some of the benefits in two different staff training scenarios.

In the ever-increasing turbulent world, organisations are looking for ways to stay relevant and resilient. Specifically, numerous universities shape their strategies to become more agile, innovative, entrepreneurial and connected as a response to the changing needs of education and research. Staff training on new methods, skills or approaches is one way of increasing internal capability and introducing new ways of working which in the long term can lead to a more innovative organisation. Naturally, when investing time and resources in an in-person or online training, organisations hope to get the best return on investment for the time and effort used. However, research indicates that often these training and development activities don't produce desired results (e.g. Arthur et al., 2003) and we don't fully understand the effectiveness of the training (Martin, 2010; Sung & Choi, 2014). To impact training effectiveness, follow-up activities and learning transfer should be incorporated in the design of the training (Martin, 2010) and the client and facilitators need to work closely together to achieve this.

Over the past few years, DFM has provided training on creative problem-solving, design thinking and creating conditions for innovation to different organisations in various forms and settings. There is a vast number of variables that we can address in capability building and training design, and in this article, we shed some light specifically on training individual employees versus existing teams (we call them cohorts) and opportunities that arise as a result. The insights and findings in this article are derived from the Fearless Innovation staff capability development program at Swinburne University.

Key benefits of training range from creating unplanned connections to shaping complex challenges into tangible actions as a team

Through our research we've identified benefits in each training format. Regardless of the training scenario however, a key benefit is the increase in one's confidence in taking on new practices and a change in one's mindset to be more receptive to creative thinking.

"Recognition that I can actually describe myself as creative and capable of generating innovative ideas."

In a general training format with a mix of individuals from all across the organisation, an immediate impact of the training was that participants highlighted more practical tools and methods, hoping to share their learnings with their colleagues. As the participants came from a variety of different departments, the training was an opportunity to create new connections within the organisation, thus networking and meeting new people in training is a significant value-add. It builds a network of innovative staff members in the organisation and provides a mechanism to strengthen cross-departmental ties in the long term. Furthermore, training for individual staff members provides the participants a different context altogether from the daily work environment. It may offer fresh perspectives both through interacting with colleagues who are slightly removed from the daily work and are in a different physical environment or context.

"I liked working in teams with staff from Swinburne who I did not know prior to the workshop."

In contrast, in a cohort-based training format, one of the greatest benefits is that the format allows a more direct integration of the workshop design and content with the team's daily work. Hence, the impact of the training may be more immediate. The alignment with the program's focus and team's strategy strengthens the ability to apply the new practices (Clark et al., 1993) as teams get to leave with not only new tools and skills, but also tangible outcomes and solutions that they can build on and continue as a team. In addition, participants highlight the positive and inspiring atmosphere of the training which enables participants to collaborate as a team, hence the team building experience is an important positive by-product of cohort-based trainings.

"I think the training definitely encouraged me to challenge our normal way of doing things. Just because a certain process or procedure has been in place, doesn't mean that it necessarily always has to be done that way…"

What to remember regarding learning design

To boost the benefits of the capability building in both formats, there's a number of actions that participants, facilitators and managers can do. Specifically, individual staff members undertaking training tend to struggle to have the license and permission to designate time for training and feel the pressure to immediately disseminate and convey the insights from the training back to their team, as they have taken time out from the daily duties. This presents an opportunity to provide individuals with clear expectations and purpose prior to the workshop to justify the time spent on training. Furthermore, facilitators can provide supporting material to the individual participants' direct line manager and team members as it is a mechanism to disseminate the training across the organisation.

In addition to taking responsibility to champion the new knowledge, individual participants raise challenges related to managerial support and the ability to adopt new practices in their existing roles.

This is aligned with the findings of Martin (2010), as managers' role in supporting the adoption of new behaviours and practices coupled with peer support is recognised as highly essential. Information sharing is fundamental in this scenario, as participants often face the situation where colleagues and managers are unfamiliar with the new content the participant has just acquired in training. In cohort-based training, information sharing is integrated in the workshop setting and thus experimenting with the new approaches is often easier.

> "I would say this workshop is NOT a mere 2-day event, but is practically an on-going learning journey to continuously hone, improve and master the design thinking sets – skillset, toolset, knowledge set and mindset."

To boost managerial and peer support, action statements and reflections on how to bring the new learning back to the daily context can be integrated into the training design and participants can

be encouraged to share these with key stakeholders or a designated buddy from their team. This is a great mechanism to not only pass on information beyond the workshop situation but also to test how a participant has internalised training material. If possible, individuals should also consider encouraging a colleague to join the same training to enable deeper reflection on the learnings and to have an accountability partner with whom to share the opportunity to transfer the new approaches into the daily context more effectively. Having shared the experience with someone you work with makes it easier to introduce new ways of working back to the rest of the team and alleviates the burden of a lonely change champion.

"The reason I would recommend [this training] is that it is good to have other team members have similar knowledge so we can put some of these concepts into practice."

In cohort-based training, teams feel more confident being in the joint training situation as the managerial mandate is built in and the whole team is committing time to the shared experience. For teams specifically, what managers and participants should focus on is to be able to shake up the existing behaviour patterns. A familiar setting with work colleagues may present challenges in existing teamwork and they may be resistant to change. Facilitators need to offer mechanisms to provide fresh perspectives in team dynamics and the workshop content, which can be achieved, for example, by providing tools and frameworks for teamwork or bringing in other stakeholders to test and give feedback to experiments and development efforts.

"The training enables participants to contribute on an equal footing and to discover personal strengths that they may not ordinarily draw upon when collaborating in teams."

No one-size-fits-all: Pre- and post-training design is key in learning effectiveness

Cohort-based training tends to give participants and indirectly the organisation a head start in changing behaviour as external factors such as the application of tools and methods (specifically their relevance in daily work), team alignment and managerial support are built into the training delivery format. In addition, during team training the participants most likely already know each other, but the training acts as a further team building exercise to deepen the ties but also allows team members that don't normally work together in a day-to-day environment to bond.

On the other hand, from the organisational perspective, networking and new connections are beneficial (ties are completely new), as it promotes cross-departmental collaboration which builds towards a more effective cross-functional collaboration in the long run. When supported by their managers and peers, individuals all across the organisation also have the opportunity to disseminate and share the learning more broadly throughout the organisation, and thus the ripple effect of the impact of the training can be stronger. All in all, there are different benefits in each scenario, the format should be chosen depending on the aim and purpose of the training, and planning for what happens before and after training are as important as the training itself.

This article is based on a conference paper by Tuulos, Mattila & Howard (2019) published at the University-Industry Interaction Network conference in 2019, in Sydney, Australia.

Arthur, W., Bennett, W., Edens, P.S. and Bell, S.T. (2003) "Effectiveness of training in organizations: a meta-analysis of design and evaluation features", *Journal of Applied Psychology*, 88(2), 234-245.

Clark, C.S., Dobbins, G.H. and Ladd, R.T. (1993) "Exploratory field study of training motivation: influences of involvement, credibility, and transfer climate", *Group and Organization Management*, 18(3), 292-307.

Martin, H. J. (2010). Improving Training Impact Through Effective Follow-Up: Techniques and Their Application. *Journal of Management Development,* 29(6), 520-534.

Sung, S. Y., & Choi, J. N. (2014) Do organizations spend wisely on employees? Effects of training and development investments on learning and innovation in organizations. *Journal of organizational behavior*, 35(3), 393-412.

Tuulos, T., Mattila P. & Howard, N. (2019). Putting people first – Exploring the impact of staff training to support the transition towards an innovative university. *Proceedings of University-Industry Interaction Network (UIIN) 2019*, 11-13 February 2019, Sydney, Australia.

All quotes are sourced from DFM workshop participants taking part in the Fearless Innovation Bootcamp staff capability training.

During the training, participants unpacked Swinburne-relevant challenges and created prototypes of multiple ideas. Prototyping enhances communication within the team, enables testing with users, further builds on the initial ideas and allows better exploration of solution opportunities.

On the second day of the training, participants were challenged to show their rough ideas and prototypes to users to test their assumptions, get feedback early and to involve different stakeholders in creating more user-centred solutions.

The training enabled individuals from all across the organisation to network with new colleagues and through sharing the experience, become a part of a community of practice that champions new ways of working within the organisation.

Image credit: TOM: Melbourne

BITE-SIZED LEARNING SUPPORTING RAPID TRANSFORMATION

The creation of the 'Rev Up with DFM' Series

Words by Tiina Tuulos
& Pauliina Mattila

When capability building and training as the way we know them were disrupted in an unexpected way, we took on a challenge to identify new ways to continue giving support to professionals and organisations in response to the sudden move to remote work and online interaction. As a result, we created a series of articles on activities and approaches that support innovation efforts. This 'Rev Up with DFM' series consisted of 20 articles, published from May 2020 to October 2020, offering activities under themes Gain Focus, Boost Energy, Find Inspiration and Make Connections.

In this article, we'll reflect on our experience of creating this series and share some key insights from our journey.

Enabling Moments of Microlearning

Microlearning is present in our everyday life. We read and consume content online via blogs, videos and social media posts. Microlearning is an accessible and easy way to engage in new knowledge creation, and it is a necessary and complementary approach to more traditional and often formal learning arrangements.

As the future of work is getting more uncertain and complex, we are all required to upskill and reskill ourselves more frequently than ever. Learning is not just something we leave in the classroom once we graduate. Instead, it has become a core part of our professional lives. The demand and interest for work-based learning and lifelong learning will only increase as complexity increases and technologies advance, augment and replace tasks and jobs.

Similarly, we at DFM are equally challenged by the drastic changes in work and need to integrate continuous learning opportunities in our own work. As part of our core offering, we design, develop and deliver various professional development and capability building activities, aiming at equipping professionals with the skills, mindset and capabilities for the future. Traditionally, these activities take place in person, but when work at the start of 2020 was suddenly transferred into fully remote and online modes, we took on the challenge to consider different ways of supporting professionals in their innovation activities and building their capability in the new conditions and constraints.

Supporting professionals in crisis and transformation

Inspired by the principles of microlearning, we wanted to make an experiment of providing frequent inspirational content that is easy to access, digest, and put into action. With the creation of the article series, we addressed the well-known challenge of transferring learnings and knowledge to daily work practices.

> *"Microlearning facilitates self-directed lifelong learning, as short activities can be easily integrated into everyday activities. Small learning steps with small chunks of information can be used for learning in-between and on-demand."*
>
> (Buchem & Hamelmann, 2010)

Each write-up had a strong practical and evidence-based approach, giving the readers tiny bursts of ideas and activities and evidence of why adopting these new practices is beneficial. In addition, we included reflective practice in each article as reflection helps create clarity, ground our learning, and identify our agency for change.

Our intention was to provide similar opportunities for everyone working from home as they would have when taking the time to join an in-person workshop or training. This experiment brought about unexpected benefits and insights, which we were not able to anticipate and enabled us to reach professionals beyond the boundaries of our physical location – the Firestation and the Swinburne campus – creating a useful and long-lasting resource for inspiration and learning.

> **"We do not learn from experience, we learn from reflecting on experience."**
> — John Dewey

Rev up with DFM – a series of 20 inspirational activities and insights

Over 6 months, DFM co-wrote 20 short write-ups around different methods, approaches and tools broadly around innovation, creative problem-solving, collaboration and wellbeing.

The purpose of this experiment was to engage with and beyond our community, share our thinking, support professionals to navigate through changes of work, and to try different ways we share our training compared to the usual synchronous in-person workshops, projects and sessions.

To walk the talk of rapid experimentation, we kept our planning very simple and allowed our experiment to evolve as we went on. The main point at the beginning was to set a clear purpose and intention, and to agree on a few guiding principles for our experiment. First, we wanted to create something universally applicable and beneficial for any professional. Second, we wanted to address our own passion, capabilities and interests and make this a meaningful learning opportunity also for ourselves. Third, we wanted to have a

low threshold for creating and consuming the content, so that doing this experiment wouldn't burden us nor our users.

We started exploring different topics, themes and areas we would like to cover. Soon we realised that our interests span very wide and we would like to explore everything from the importance of grounding in your body and recognising physical presence to understanding the factors that contribute to our creativity and inspiration. After all, many factors in our environment, approach, collaboration, mindset and methods contribute towards innovation activities. We landed on four key themes, which would give us enough room to explore and share different viewpoints:

Gain Focus

Focus declutters the mind and directs our attention and efforts, making space for thinking.

Boost Energy

Energy drives our bodies and surroundings. It gives us enthusiasm and determination to get things done.

Find Inspiration

Inspiration reveals new opportunities and alters the perception of our own capabilities.

Make Connections

Feeling connected increases our sense of belonging and enables us to thrive.

To keep the series consistent and enjoyable to read, we set a structure for each post that allowed us to combine evidence and practice-based approaches. Every article introducing an activity, thought or tool begins with *what*, grounding the write-up with one of the four themes. *What* is followed up with the *why*, explaining the benefit and purpose of this particular activity, and is finished off with *how* and *when*, explaining how anyone can put these ideas, insights and principles into action and when they might be the most applicable and beneficial.

Finally, we explored different formats and platforms for sharing, such as podcasts, emails, calendar invites, designated learning groups on instant communication platforms, and social media. In line with our principles of easy access and creation, and reaching our community across organisations and countries, we decided to publish on LinkedIn. Publishing articles was effortless and anyone was able to access and read the articles at a time that best suited them.

Insights from experimentation - learning goes both ways

Reflecting back on our experiment, we started seeing unexpected benefits. We did not only see our community benefitting and engaging with our content, but perhaps somewhat surprisingly we saw how the experiment boosted our own confidence and built our thinking as coaches, lecturers and facilitators. This was a platform to explore areas we were curious about and interested in, and it also pushed us to articulate our thoughts and reflect on these topics each week. It created a continuous learning opportunity for us as a team, and became a work-based learning initiative on its own.

In addition, we found synergies whilst designing online capability building and training, as we were able to translate and tackle some of the topics and questions that came up in workshops in the Rev Up format. Furthermore, the bite-sized learning articles aligned with our online training content and we were able to use them as context setting or follow-up learning materials.

Throughout the whole 5-month journey we worked in a very collaborative manner, co-writing and planning content together. We were able to learn from each other and got to be exposed to each other's thinking in a whole new way. The series created a rhythm, a reason to come together on a weekly basis and an opportunity for us to be curious and explore a new topic together. Furthermore, as we chose LinkedIn as the platform for sharing the articles, it gave us an opportunity to share our thinking to our wider networks. We also had an opportunity to collaborate

beyond our immediate team, which was something we would have loved to explore even more.

We were really excited to see our community engaging with the content directly via comments in each LinkedIn article but also people sharing the articles in and outside of the original publishing platform. Participation and discussion as an innovation community was something we were hoping to achieve already in our planning phase.

As the creation of the articles was always very passion-based and organic, we did not expect to write an equal number of articles under each theme. As a result, most of our thinking circled around the themes *Find Inspiration (7)* and *Gain Focus (6)*. Most likely these two themes became most popular, as they provided context for creating conditions for innovation, creativity, inspiration and reflective practice.

Buchem, I., & Hamelmann, H. (2010). Microlearning: a strategy for ongoing professional development. *eLearning Papers*, 21(7), 1-15.

REV UP WITH DFM

Series 2020

All articles are available in full via the Design Factory Melbourne website and LinkedIn page.

Gain Focus

#1 **Connect with your body**
A short activity to enhance your physical and mental presence by engaging with your body.

#7 **Pomodoro for productivity**
Exploring ways to enhance productivity through a technique called Pomodoro.

#11 **Sharing and setting expectations**
Focussing on sharing expectations and feelings towards a challenge, task or project ahead.

#14 **Agency & Influence**
Exploring how to focus on the things that you can influence and ways you can expand your agency.

#15 **Resilience and post traumatic growth, feat. CXI**
Inspiration for you to explore the potential of post-traumatic growth for thriving, not just surviving, in today's challenging environment. This post is written in collaboration with Lois Shedd from the Customer Experience & Insight (CXI) Research Group.

#20 **Focus and changes in rhythm**
Looking into creating space and breaks for our thinking to allow opportunities for reflection, creativity and a change of pace in our days.

Find Inspiration

Make Connections

#4 **Sense of purpose**
Exploring the sense of purpose in your work and its connection to your day to day.

#8 **Tackling self-doubt**
Finding moments of connection and alignment, calibrating ourselves with the rest of the team and silencing the inner self-doubt.

#13 **Maintaining motivation**
Identifying connections with what motivates you and what the barriers are for your motivation.

#17 **Priorities through strategic thinking**
Enhance clarity in priorities, make time for strategic thinking and look into the ongoing challenge of juggling between urgent tasks and making time for what's important.

Boost Energy

#6 **Activities to boost energy**
Boosting energy and injecting humour and laughter into your day to get your body and mind reset and energised!

#9 **Exercising eye muscles**
Refresh and strengthen your eyes and take a break from screen time.

#18 **Energy and breathwork**
Exploring breathwork techniques to reduce stress and feel focused, energised and grounded.

THE WORLD AROUND US IS CONSTANTLY CHANGING. ARE YOU PREPARED FOR THAT?

We at DFM believe that achieving business goals and employees equipped with relevant innovation tools and skills go hand-in-hand.

In addition to our learning and teaching activities, we also have our consulting arm that supports organisations to boost their innovation capacity and to create radical solutions, enhancing their business. A holistic approach to improving innovation capability is the way to create long-lasting results.

We believe a training session or workshop can be an impactful and important step towards creating something new, however, it is just the first step. We challenge and support our learners along the journey of putting those learnings into practice and making initial ideas into tangible outcomes. Only then can organisations truly harness and capture the value of training.

Upskilling on Design Thinking? Understanding how to integrate user-centeredness? Need team alignment on a new direction and scoping a project? Change in work practices? Enhancing creativity? Need to unpack and solve tough business problems? These are all topics the team at DFM is curious about. Any area is a step towards driving innovation in organisations.

Stemming from interdisciplinary expertise in research and pedagogy we are in a unique place to provide the latest knowledge on creating the conditions for innovation and creative problem-solving in our training.

One year snapshot of capability activities for professionals

33 **WORKSHOPS** AND **BESPOKE PROGRAMS**

No.1 TOPIC:
CRITICAL THINKING AND **SENSEMAKING**

OVER **1200** **PARTICIPANTS**

MORE THAN **80** **HOURS** OF DELIVERY

No.2 TOPIC:
STRATEGY AND **DESIGN THINKING**

50% OF WORKSHOPS SUPPORTING **STRATEGY** AND **INNOVATION** AT **SWINBURNE**
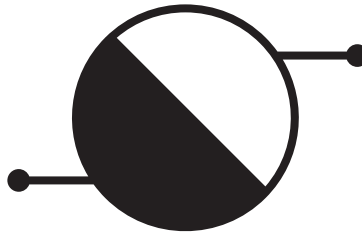
50% OF WORKSHOPS SUPPORTING **STRATEGY** AND **INNOVATION** AT **EXTERNAL ORGANISATIONS**

WITH: SPORT INNOVATION RESEARCH GROUP & NATIONAL RUGBY LEAGUE

Pacific Island Development program

Partner

In December 2020, DFM teamed up with the Swinburne's Sport Innovation Research Group to collaborate and run a workshop with the National Rugby League (NRL) and representatives from various Pacific Islands. The countries represented in the workshop were Papua New Guinea, Samoa, Fiji and Tonga.

Background

The purpose of the workshop was to bring together representatives from different countries to unpack societal challenges in their local context and to discover areas that could be addressed as a collective. The workshop was initiated to assist the work towards creating a 'Southern Cross" - an overarching strategy for the Pacific Island region. The development program aims to address challenges faced in the community such as gender inequality, violence, and lack of education.

By discussing and exploring the challenges in each region, the team was able to increase their shared understanding and identify areas for further development. The information gained from the session builds towards a regional direction that is shared across the four countries and guides the localised development.

Outcomes

The participants engaged in a lively conversation and did incredible work in unpacking the local challenges and creating potential pathways to addressing those challenges. As a result, the participants were able to form a Pacific NRL strategy, and set of principles and values, that could then be developed into bespoke programming for their local context. These principles, values and a common approach provided the stakeholders with the opportunity to collaborate and freedom to engage with their local community context and country needs.

> *"The workshop with the NRL stakeholders was terrific to set the organising frame for the work being undertaken in each country, and to ensure that each initiative is clearly aligned with both Australian Government goals, and also respectful and relevant for Pacific Island partners."*

— Emma Sherry,
Sport Innovation Research Group

The workshop was organised and delivered remotely, using online collaboration tools.

Program:	Strategy and visioning, online workshop
Industry Partner:	National Rugby League
Duration:	1/2 day, December 2020
Disciplines:	Interdisciplinary

LEARNING AND COLLABORATION AS TOOLS FOR NAVIGATING 'THE UNPRECEDENTED'

Words by Jessica Newnham, Tiina Tuulos & Pauliina Mattila

Dr Sean Gallagher

How well are Australian workplaces placed to discover new ideas and what role might creativity play in unprecedented times? Dr Sean Gallagher of Swinburne's Centre for the New Workforce shared with DFM his latest research and insights into how to innovate in the midst of disruptive conditions and what organisations need in order to navigate in the rapidly changing and dynamic environment. He emphasised the value of workplace learning, culture for curiosity and diverse collaboration to increase innovation readiness, which all resonate with the Design Factory mission to create change in the world of learning, research and practice through passion-based co-creation.

Understanding complexity and 'the unprecedented'

As humans, we are fundamentally pattern-seekers and storytellers. This is how we understand and convey our knowledge in order to pass it on to future generations. Our ability to imagine and envision things that don't exist and to use our creativity to produce something unexpected are inherent human capabilities. To complement this, we have also learnt how to analyse, organise and produce. These two factors provide the tools for us to understand complexity and have become increasingly relevant when trying to make sense of the current unprecedentedness surrounding the workplace.

A variety of factors are contributing to today's increased uncertainty and disruption. COVID-19 has exponentially accelerated the digitalisation of the workplace and brought new levels of hyper-connectivity to the forefront. Added to the equation are the social, mental, and physical challenges of an unfamiliar pandemic, increasing globalisation and the threats of climate change. These dynamics have resulted in the state of 'the unprecedented', in which rapid innovation becomes necessary for survival. So how do we navigate the unprecedented and ensure that organisations don't only survive but thrive?

Learning and collboration: how do they influence workplace culture?

As the Director of the Centre for the New Workforce, Dr Gallagher researches, advises and investigates the digital transformation of the workplace. His latest research 'Peak Human Workplace' includes a national survey conducted in November 2019, capturing a baseline for pre-COVID conditions and perspectives from a cross-section of Australian organisations and industries. The survey examined the influence of workplace learning and different types of collaboration on four different areas: workplace culture (including idea generation, curiosity, entrepreneurial mindsets), idea incubation (continuous improvement, learning from mistakes), enablers (supportive workplaces, passion, skills) and productivity.

One of the key insights derived from this survey is different attitudes to learning. The results indicate that even with a broad definition of learning, 51% of Australian workers do less than one hour of learning at work per week, with far less undertaking 'extreme learning' of five or more hours per week. The results show a significant benefit from embracing workplace learning as more learning on a weekly basis results in increased idea generation, idea incubation and enabling factors, whilst decreasing productivity only slightly. The challenge then becomes finding the right balance between exploration and execution to ensure that increased learning and exploration does not significantly hinder productivity.

*"In the unprecedented, workers
need to be empowered to learn
by themselves."*
— Dr. Sean Gallagher

Dr. Gallagher categorises collaboration
into three tiers of diversity, investigating
employees' connections and diversity
of collaboration. The three tiers consist
of daily in-team collaboration, in-team
ongoing project, and out-of-team project,
ranging from least to most diverse
respectively. His study shows how the
majority of Australian workers collaborate
mostly within their team, and only 20.3%
of workers are involved in out-of-team
projects. Increased diversity should be
encouraged, as the study found that
diverse collaboration positively influences
all dimensions of workplace culture.

Dr Gallagher points out how extreme
learning and extremely diverse
collaboration are the most effective drivers
for idea generation, while optimal idea
incubation requires only moderate levels
of learning and collaboration due to a need
for focus and 'honing in' on specific ideas.
But overall, the more workers learn at work,
and the more they are involved in diverse
collaboration, the more their workplace
culture is innovative.

Continuous learning – a crucial approach, culture, attitude and mindset for the future

"The future of work is learning."
— Dr. Sean Gallagher

Continuous learning has been recognised
as inherent in staying relevant in the
workforce. Not only is this relevant for
individuals but also for whole organisations
to stay innovative. The boundaries of work
and education are blurring, and Design
Factories across the globe are at the
forefront of enabling both our future talent
and current professionals across different
sectors, disciplines and industries to gain
the skills, capabilities and attitudes needed
for the future.

We'd like to thank Dr Gallagher for sharing
his work and look forward to hearing and
reading more insights from the "Peak
Human Workforce" report.

*This piece is a summary of from Dr.
Gallagher's public keynote organised
as a part of the International Design
Factory Festival 2020.*

Find the full webinar recording on
DFM's website and get to know
the Centre for the New Workforce's
National survey report "Peak human
potential" (2019) online.

Student Voice:

NATASHA MILES

Master of Design Strategy and Innovation

"The Design Factory experience changed me in a way that no other university, or workplace, context could: it taught me how to make things happen spontaneously, collaboratively and on the edge of what's possible. I learned new skills that I didn't even know existed and the best part was that they were often self-taught, and alongside my peers. The structure of DFM allows you learn not just from your lecturers, but also from other students, and you get to teach them, too. It's all about connection, growth and challenging the boundaries of your creativity."

FACILITATING AUTHENTIC LEARNING EXPERIENCES

Student programs at DFM

At DFM, we have co-created a range of learning experiences with industry partners, utilising our expertise to coach and empower others in innovation methods and mindset. Distinct programs of study have been developed to offer students the opportunity to build interdisciplinary collaboration skills, capability in design-inspired innovation methods and experience working with industry. Whilst projects may vary in duration and intensity, the same principles of creative problem-solving, learning by doing and a team-based approach underpin each project at DFM.

Students become a part of an innovation community, get to learn and experiment in a safe environment, and have the opportunity to enhance their professional capability by learning skills for the future. Our students are curious, creative, diverse, and full of amazing potential. Teams apply design-inspired innovation method to explore real human needs that lead to validated and impactful outcomes for our industry partners.

Design Factory continues to deliver inspiring, industry-relevant learning experiences for Swinburne students through a range of interdisciplinary programs as part of their discipline degree:

Innovation Challenge Project

Part of the university-wide Innovation Minor, this 12 week project provides students with the opportunity to experience and understand the challenges of working as part of an interdisciplinary team. Teams apply various creative problem solving tools and approaches to generate and develop innovative solutions in response to a real-world project brief.

Challenge Based Innovation CBI A3

CBI A^3 is a Design Factory Melbourne initiative, which builds on earlier Challenge Based Innovation (CBI) pilots at IdeaSquare CERN and is focused on using radical design innovation and future-focused design to develop outcomes that connect CERN technology with societal needs in a tangible way. It is open to Design Factories from the Design Factory Global Network and sees students present design solutions for the future over a 6.5 month period.

Stanford ME310/SUGAR Program

The ME310-SUGAR program is run in partnership with Stanford University's ME310 program, and partners from the SUGAR network. Over 9 months students work remotely as part of a globally distributed team, comprising students from Swinburne and an international university, on international corporate challenges.

Inclusive Design

In collaboration with Tikkun Olam Makers & TOM:Melbourne – we are pioneering the TOM@University program connecting Masters of Occupational Therapy and Design students with Need Knowers to generate universal design solutions for those living with disabilities.

Product Development Project (PdP)

Run in partnership with Aalto University, Finland, interdisciplinary global teams are given a product development challenge from a manufacturing company seeking innovative solutions to emerging problems and trends.

Design for Science and Technology

A 12-18 week local program that sees Design students connect with local partners such as ANSTO and CSIRO looking at using design for science and technology.

Toolbox for Prototyping & Collaboration

A series of elective subjects that teach students from all disciplines the fundamentals of prototyping, human-centred design, and interdisciplinary collaboration.

OVER 192 STUDENTS
PARTICIPATED IN DFM CLASSES

800+
CONTACT HOURS
OF TEACHING DELIVERY

100%
OF DFM PROGRAMS ARE
INTERDISCIPLINARY

12 INDUSTRY PARTNERS
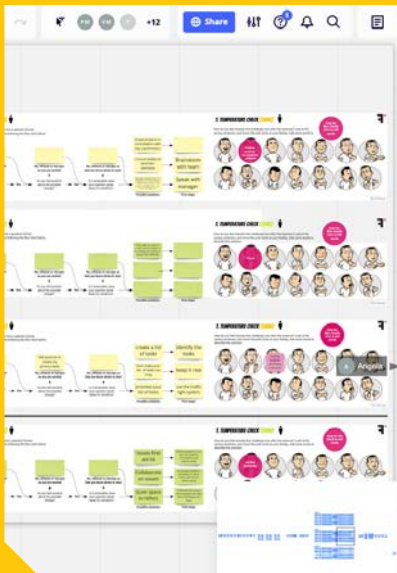## ON STUDENT PROJECTS IN THE 2020 ACADEMIC YEAR

A **DIVERSE** RANGE OF **DISCIPLINES** IN STUDENT TEAMS:

- **DESIGN**
- **BUSINESS** (ENTREPRENEURSHIP & INNOVATION)
- OCCUPATIONAL **THERAPY**
- **ENGINEERING**
- **INFORMATION TECHNOLOGY**

LEAD UNIVERSITY-WIDE INNOVATION MINOR

"Getting things wrong is part of searching for what is right."

LEARNING ONLINE

What have we learned from creating engaging and authentic learning experiences in a digital environment?

Throughout 2020, we have used an online collaboration platform Miro to support team-based experiential learning in creative problem solving. Some of our key takeaways and identified benefits include:

- The digital trace, that enables continuous documentation and idea advancement, making thinking more visible.

- Flexibility of the platform allows rich content and different types of media in one location.

- Visual communication and creation increases shared understanding.

- The endless online space allows our creativity roam free. We are not limited by any physical boundaries, which promotes generative and iterative thinking.

The DFM team presented some of their insights and reflections at the Swinburne University of Technology's Transforming Learning Conference 2020 that focused on digital transformation within education.

WITH: WORKFLEX

Supporting flexible work.

Partner

Start-up company WorkFLEX are interested in the implementation of flexible work practices to ease the urban congestion that the traditional 9am-5pm job brings. However, many organisations struggle to implement and manage flexible work practices, with managers often receiving no formal training or support for the process.

Challenge

COVID-19 forced the closure of many workplaces and the adoption of full-time working from home arrangements on short notice. Companies are now considering a hybrid physical/remote workforce as a more permanent feature of the future of work, and WorkFLEX sees the lack of management strategies to bridge this transition as a commercial opportunity. As such, WorkFLEX are now offering an online course to train professionals in improving their organisation's flexibility, as well as a bespoke online consulting service. In this Design Factory Melbourne project, WorkFLEX challenged six teams of undergraduate students from Business and Design backgrounds to explore cost-effective options for customer acquisition to reach a wider audience.

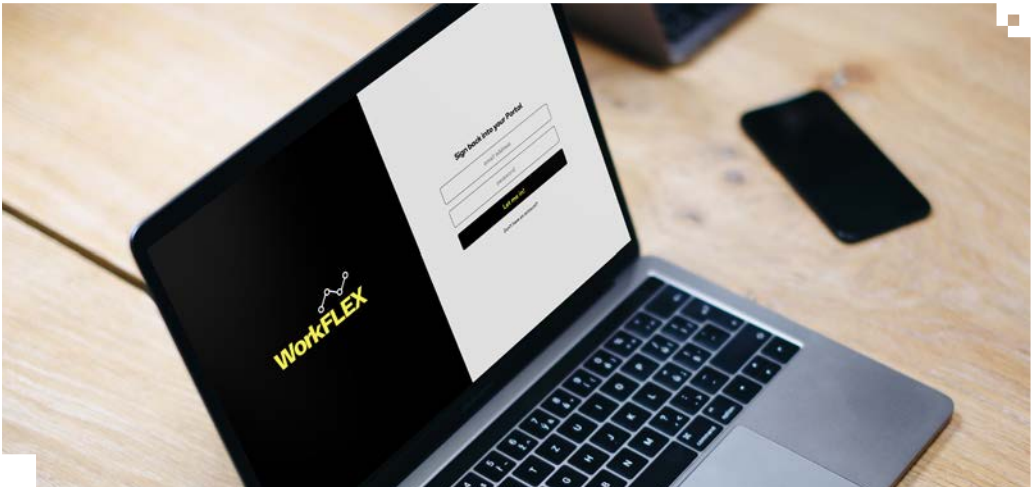|	
Program:	Innovation Challenge
Industry Partner:	WorkFLEX
Duration:	August 2020 – November 2020
Disciplines:	Business & Design

Image credit: The A Team

Selected outcomes

The offering of value packages to medium or large businesses which contain tailored courses, one-on-one consulting and access to a network of other like-minded organisations.

Team Gotham Squad
Steven Lazenkas (Civil Engineering & Business), Rupa Samanta (Business), Nadine Godlieb (Business & IT), Lula Tiver-Smith (Business & Media Communications) & Mork Oungchhilvong (Business).

A diagnostic test and updated branding which create a more personalised user experience, saving the customer time and allowing WorkFLEX to deliver courses in an effective and engaging manner.

Team Blue Dots
Danielle Wolff (Business), Jahria Langford (Business), Liam Gruber (Business), Tatt Siang Khaw (Business), & Valeri Susantijo (Business).

The inclusion of keynote presentations from industry experts, product options depending on business size, and a WorkFLEX care package which provides tangible objects to aid in the transition to flexible working.

Team Undergrads
Cooper Fennelle (Business), Jarrad Mezzadra (Business), Roxy Sefton (Business & Health), Hussein Seifeddine (Business) & Ben White (Arts & Business).

A new online learning platform designed with user feedback in mind to ensure the best learning experience.

The A Team
Sebastian Walker Staalkjaer (Business), Daniel Volpe (Business), Sharifah Zhairah Syed-Charles (Business + Finance) & Jonathan Lee (Health Science & Information Systems).

NEW OPPORTUNITIES AND CAPABILITIES EMERGE FOR THE ONES WHO ARE CURIOUS TO DISCOVER, EXPERIMENT, EMBRACE RISK, PURSUE IDEAS AND LEARN FROM MISTAKES.

A curious mind sees opportunities for learning in everything. Trying, trialling, experimenting and doing – this is the way to make sense and move forward in the ever-changing world. Experimentation can be embraced both as a process to reduce uncertainty and get more information to support decisions. It is also a mindset that embraces learning by doing, taking risks, and pursuing ideas. Being open to new experiences unleashes inspiration and growth.

At DFM, we create meaningful and authentic learning experiences supporting everyone in their innovation efforts by bridging the gap between theory and practice. We embrace experiential learning and create opportunities for learners to explore, master new skills, strengthen capabilities and apply approaches to problem-solving, innovation and change agency. When you open the door to DFM you never know what you'll experience. DFM is a journey and a destination, it is the launch pad for learning and growth where each student and professional has their own path to discovery.

This section presents stories and experiences that capture the essence of rapid exploration, iteration and discovery mindset. In addition, these stories highlight our practice to support experimentation and our thinking concerning some of the key skills and capabilities for the future.

INNOVATING WITHOUT FEAR
My time at Design Factory Melbourne

Words by Kanika Shah

Kanika Shah, a member of our Student Advisory Board and alumni of our Global Programs, shares her experience and reflects on the value of embracing failure and creating a supportive work culture. Kanika is a passionate and empathetic designer and strategist who believes working in culturally diverse teams brings in more perspective and helps drive creativity and innovation.

In early 2019, I made the move of leaving my home in Mumbai, India, to pursue a two-year-long Master of Design course at Swinburne University. Three months into the course, I was accepted into Design Factory's Global Program where I immersed myself in a different way of learning and culture - both of which have had a lasting impact and value on me today. The experiences I gained at Design Factory have now become the fundamental reason for my shift in career - from interior design to a more strategic role.

During my time at Design Factory Melbourne, the relationship with my peers, teachers and coaches was built within the brick walls of an old Firestation – that sheltered an organized, chaotic communal kitchen and classrooms stocked with post-its, recyclable craft material and 3D printers. It was the place to be for design buffs, engineers, or anyone who wanted to create impactful solutions combining science, business and humanity.

As part of the Global Program, I participated in the Challenge Based Innovation, CBI A³ Program within the Design Factory Global Network. My project largely focused on integrating CERN technology through design to address the United Nations' Sustainable Development Goals 6 *(Clean Water and Sanitation)* & 14 *(Life Below Water)* in Melbourne. This experience challenged me to think outside the box and dive into areas out of my comfort zone such as science and technology.

Through this journey at Design Factory, I've gathered two key takeaways that I value the most to date - *Learning from Failure* and *The Importance of a Safe Work Culture.*

Embracing Failure

Whether it was CERN's Knowledge Transfer technology or 3D printing a robot, we often threw ourselves into the deep end of a problem we were unfamiliar with. Self-doubting ourselves to solve such problems, we would sometimes fall flat in our faces – a cycle I believe is a part of the failure. However, we learned to pick ourselves up by using a *team feedback method – I like… I wish… I wonder…* – where team members would write and voice both positive and constructive feedback. Furthermore, it also helped us reflect on our attitudes, work ethic and communication skills thus, helping us understand each other better. Uncovering our individual strengths and weaknesses, in turn, encouraged us to reach for the deeper meaning and reason with our doings. Over time, constructive feedback on our failures made us more resilient designers with a greater capability to design with compassion, kindness and empathy – skills I believe I carry with myself even now.

Supportive and Safe Work Culture

At first, the farther away I was from my home, culture and comfort zone the more constrained I felt to explore and innovate. But once emotions, strengths, weaknesses and thoughts were openly shared within our teams using the *team feedback method*, the safer I felt to share my ideas, thoughts and doubts.

Healthy conversations around constructive feedback helped me better understand how people from different cultures think and work. For example, I've always had formal relationships with my professors in India but having casual conversations over coffee with my professors at the communal kitchen was new and amusing to me. I was able to share such thoughts openly during our constructive feedback sessions and likewise, my team members and I were gradually able to develop a common language. Mutual respect and understanding encouraged us to generate ideas with more creativity and not shy away from our problems. I've gradually learned to accept the discomfort of not knowing and this is what constantly drives me to improvise and seek feedback in the professional world.

At DFM, I've always felt culturally safe, valued, respected and heard. Having the freedom to think, without being dismissed is invaluable for any practitioner and I strongly believe my freedom to imagine and create fuels from the support I received at Design Factory. Changing my field of practice to a more strategic role where I can be fearlessly imaginative at every stage of the creation process stems from DF and I'm so grateful for this incredible support.

To DFM, my mentors and peers,
Thank you for picking me up when I fell,
Thank you for embracing my culture,
Thank you for letting me share and imagine,
Thank you for your empathy and warmth,
And thank you for teaching me how to
be a human-centered designer.

Kanika alongside members from Design Factory Melbourne, inno.space, New York City Design Factory & IdeaSquare at CERN, Geneva as part of the CBI A³ program.

THE PARADOX BETWEEN THE VALUE OF SPENDING TIME IN UNPACKING CHALLENGES AND THE URGE TO JUMP INTO SOLUTIONS 'TO GET THINGS DONE'

Words by Pauliina Mattila, Tiina Tuulos, Amelia Iverson & Floris van der Marel

The ability to unpack and scope problems is essential to creating innovative solutions and outcomes. However, there is a tension between the value of spending time unpacking challenges and the pressures of having immediate answers and providing solutions quickly. This article outlines some of this tension and shares our key insights on how and why we should focus on unpacking challenges and flipping them into opportunities to drive action.

From childhood we are strongly encouraged to be solution-minded and ready to provide answers. However, research shows that this is a significant issue. Not spending time on challenges to understand them well incurs significant costs to businesses, and furthermore, businesses tend to underperform at the task. In other words, organisations lack capability in daily problem unpacking and framing (Wedell-Wedellsborg, 2017). We often don't designate time for unpacking problems and when diving straight into solutions, we make several assumptions about the problem and end up putting a lot of resources into solving something that might not be the right thing, or a proposed solution may be costly and too complex compared to the value gained.

This tension, the evident need to have skills to unpack and frame problems in a meaningful way, was something we at DFM wanted to further explore. What intrigued us was to enhance our ability to frame and unpack challenges in ad-hoc conversations and in meetings on a daily basis. We wanted to put together a set of tools and frameworks that help us to unpack challenges we face in our professional context and frame them in a way that drives better solutions in the short term and long term. Seeing your challenges in a new light can result in radical improvements. We believe innovation is everyone's right and responsibility, and we need to empower people across whole organisations so that the skill of identifying and solving better problems has a wider impact. Design Thinking and other problem-solving processes do have their place in solving wicked problems, giving overarching frameworks for and driving larger projects and keeping teams coordinated in their efforts, but based on our experience and insights from theory, we identified that there may be an appetite for a simplistic approach to frame challenges in everyday work.

Feeling inspired by this challenge, we created an approach to unpack and reframe problems and ran a pilot workshop to test how it may work for a large variety of challenges. Prior to the session the participants were asked to identify 5 challenges that they are currently facing in their work. In a short 90min session and through a range of activities, the participants mapped their challenges, unpacked them

"If you define the problem correctly, you almost have the solution."
— Steve Jobs

by identifying underlying issues behind the challenges and widening their perspective of the problem space, and by inviting external viewpoint to generate questions related to the problem. They finished by doing an acid test to make sure the challenge was framed in a way that enables meaningful solutions and corresponding actionable steps towards improvement. Participants shared how "*after re-framing I now have some clear steps to take in my control*" and "*seeking feedback from others helps to gain a different perspective*" showcasing how they were able to shift their thinking and see a challenge in a different light. Below are a few simple tips how you can integrate unpacking challenges and reframing them in your daily work.

1. Explore the underlying issues

Often what you're experiencing face-on is only a surface level issue of something bigger. Explore what some of the underlying issues are related to your challenge. A simplistic way to do so is to ask the question 'why.' 5 Whys is an established root cause analysis method and the way to do it is to repeat the question 'why' until you reach a root cause of the challenge. Ideally you want to focus on solving the root cause, however, if it is something that is beyond your control to solve, pick the level that you can have influence on.

Image credit: Jaime Murcia for CXI - Customer Experience & Insights Research Group

2.   Find an external viewpoint

It is indeed challenging to see your own challenge from a fresh perspective. However, a relatively simple method to do so is to ask someone else to look at your challenge. Someone who possibly understands the context but isn't invested in your challenge can provide unexpected viewpoints. You might think of someone from another department or field in your organisation who feels comfortable to speak freely. The aim is not to suggest solutions, but instead, to seek input and encourage the other person to provide a fresh viewpoint and generate more questions related to your challenge. A good tip is to avoid describing why you think the challenge exists so that you don't influence the other person's viewpoint too much. *"By definition, outsiders are not experts on the situation and thus will rarely be able to solve the problem [...] They are there to stimulate the problem owners to think differently."* (Wedell-Wedellsborg, 2017). A method to do this step is to briefly explain your challenge to your chosen colleague and ask them to brainstorm 10 questions related to your challenge.

3. Final cross-check of whether your reframed challenge is ready for ideation

First of all, frame it into a question instead of a statement. This sets your mind into thinking about solutions and opens up new opportunities. Then ask yourself:

1. Do you have control over implementing solutions to your challenge? If not, then reframe it in a way that makes you more empowered to create change.

2. Do you feel positive about the possible change? If not, reframe again so that you become more excited. Motivation is a fuel that takes you a long way.

3. Is your challenge actionable? Does your question spark ideas? If not, reframe once more so that you know where to start. The value lies in the combination of ideas and actions.

Finally, reframing and unpacking challenges should be quick and iterative. Think of it as your "*cognitive counterpoint to rapid prototyping*" (Wedell-Wedellsborg, 2017). And when thinking about your challenges like rapid prototyping, the same principles apply; bias towards action, experiment to think, test and learn by doing.

Wedell-Wedellsborg, T. (2017). Are you solving the right problems? *Harvard Business Review*, 95(1), 76-83.

From Experience:

UNIVERSITY STAFF MEMBER

who participated in DFM's online
'*From Challenges to Opportunities*'
interactive workshop.

"I was provided with enough tools to immediately start rolling out my team's ideas. I was also provided with a solid framework for immediate implementation within my own business unit. Normally workshop ideas are great on paper but very hard to implement in real life."

Chatting with DFM Alumni:
JOSH BRAGAGNOLO

Words by Jessica Newnham

We interviewed Josh Bragagnolo, who recently completed his Industrial Design (Honours) degree with Design Factory. Josh talks about his experience taking part in one of our global innovation programs. He shares his key takeaways, unforgettable memories and reflects on the value of diversity in collaboration. The experiences at DFM increased Josh's confidence as a professional.

Can you describe Design Factory Melbourne in three words?

Collaborative, open, welcoming.

What sort of projects did you work on at DFM?

I did the global program, which incorporated a fair few sprint projects that got everyone mingling and working together. We did some rapid prototyping projects which got the ball rolling and gave us a taste of what future projects had in store for us. It gave us an insight into how intense and exciting DFM projects could be.

After these preparation projects, we started our global SUGAR project where I was a part of an interdisciplinary team with students from DFM and Kyoto Design Lab. We were set a design challenge by Japanese company, Yanmar, that asked us to explore solutions for small-scale, multi-variety farmers.

How would you describe your experience with the Global Program?

It was awesome and fun. We started off by flying to China for the SUGAR Network Kick-off. At this point, we didn't know anybody besides one other group from the SUGAR program. But once we got there, that's when the real opportunities started to open up.

Con

Rationale

Farmers spend a lot of tir
harvesting. This can use l

Functional system conce

Carty is a durable, multi
farm tasks more efficent.
modular and has capacity

20-2021

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SEM 1, 2021

CBI A³

SUGAR/me

DESIGN FO
+ TEC

2 - Research
3hrs x

- DST P

3hrs x (

Design Factory offer a range of student experiences through our Global Programs - which include SUGAR-ME310, Challenge Based Innovation CBI A³ and Product Development Project with our networks internationally.

The SUGAR-ME310 Design Innovation Program, originating from Stanford University, guides interdisciplinary teams of students how to use the IDEO/Stanford design process in product development, concentrating on practise-based learning. Teams work in globally distributed teams to prototype, test and iterate in order to develop and implement innovative solutions to real world design challenges set by multinational corporate sponsors. Students travel and connect internationally as part of the collaboration activities in the program.

"I really enjoyed the collaboration aspect and how you have to join your ideas together and figure out what's works to find the best solution for a real client."

We met so many people and clients and listened to speakers from different universities across the world. That was an awesome experience to see how we learn and collaborate on an international scale. It was also great to work in the same environment as other students from all different backgrounds, and to work with real clients on real briefs. We also met some awesome people during our research, like some farmers who we'd came into contact with purely because of the nature of our project. We ended up doing research on farming and agriculture, which was something we hadn't foreseen but was a great opportunity to develop research skills.

What skills do you take away from this experience?
Communication, definitely. I also got to enhance my industrial design skills like 3D modelling, rendering and product development. Those are all skills I had coming in, but they definitely got enhanced. The nature of the project is that you are paired with people who don't have the same skillset, so you have to think about what you offer and be the leader in that department.

Confidence was another thing. As part of my research, I got to do interviews with real people and I started to realise the magnitude of the work I was doing. I think a lot of undergraduates lack real life experience and can be overwhelmed with those sort of things. But by doing it, you learn to become comfortable with it. Also, presentation skills get boosted as well because you present every week.

What was your biggest learning?

Communication on a global scale with language barriers, and how we needed to change our method of communication to get the best outcome we could. While there were definitely some hardships with that, it was good because we got to see how different demographics work as opposed to Australians.

What will you take away moving forward?

The skill of listening and learning from other people – I think that doesn't get highlighted to you unless you work in a team environment.

Is there something you miss about DFM?

The people. Everyone's awesome, they want to collaborate as much as you do, and there's a lot of common ground with the people you work with. I think the people are who I'll miss the most because I've gone from seeing them five days a week to not seeing them at all, which is quite different.

What is your key take-away from DFM?

The most significant thing for me was working with a client and with amazing people towards a common goal. It's what I've appreciated the most and it's an experience I will always remember.

WITH: YANMAR

Kansroo

In a collaboration between Design Factory Melbourne, Kyoto Institute of Technology (Japan), Kansai University (Japan) and Japan-based company Yanmar, a team of students were challenged to find solutions to common issues faced by farmers which could maximise their productivity. They developed Kansroo, an autonomous robot which collects data on crops and farming conditions, enabling farmers to make informed farming decisions.

Partner

Japanese engineering company Yanmar's core business sits in the development of diesel engines, agricultural machinery, power generation, construction equipment and marine vessels. Recognising that the future is shifting to renewable technologies and electric powered systems, Yanmar are looking further into the complexities of their individual markets to identify new product opportunities in order to stay competitive.

Program: Global – SUGAR

Industry Partner: Yanmar

Academic Partner: Kyoto Design Lab
Kyoto Institute of Technology
Japan

Duration: October 2019 – June 2020

Disciplines: Business & Design

Challenge

To identify problems that small-scale multi-variety farmers' experience, and develop an innovative user-centred solution that reduces pain points to ensure efficient farming practices and maximise farmers' productivity.

Outcome

The team created Kansroo, an autonomous mobile field robot that monitors and analyses crop health and farming conditions. The robot's cameras and sensors can formulate digestible information for farmers and present it via an application. This application allows farmers to observe their crops, view informative data, schedule tasks, view weather forecasting, and check previous data to recognise patterns. This can enable farmers to visualise the effect of their farming actions on their crops. The precise data can empower farmers to make smarter farming decisions which may improve crop health and maximise yields.
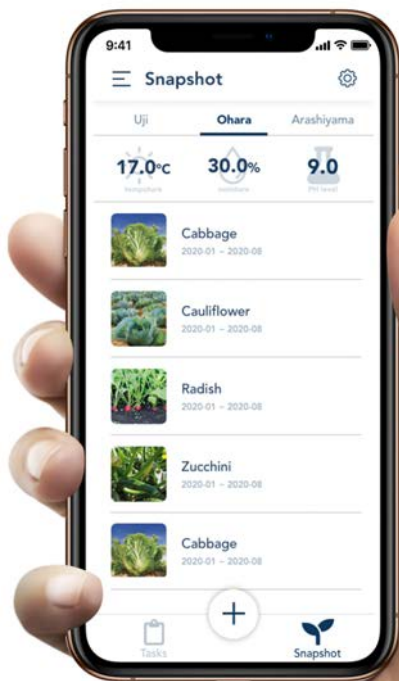
Team

Josh Bragagnolo

Industrial Design
Swinburne University of Technology

Hikaru Inoue

Informatics
Kansai University

Masaya Kibayashi

Space Design
Kyoto Institute of Technology

Natasha Miles

Communication Design
Swinburne University of Technology

Akimi Ono

Architecture
Kyoto Institute of Technology

Liam Tai Olynyk

Business
Swinburne University of Technology

Yuki Tamiya

Electronic Engineering
Kyoto Institute of Technology

Soil analysis (moisture and temperature)

Camera for crop health analysis

Adjustable height extends 2m high

GPS data

Weather station:
- Temperature
- Wind
- UV
- Rainfall
- Sunlight

Efficient power consumption

Quiet and unobtrusive design

Automatically returns to charging dock

Autonomous driving

All-terrain, all-weather tracks

View and manage analysed data

"KANSROO CAN HELP US UNDERSTAND THE NEEDS AND ACTIVITIES OF SMALL-SCALE MULTI-VARIETY FARMERS"
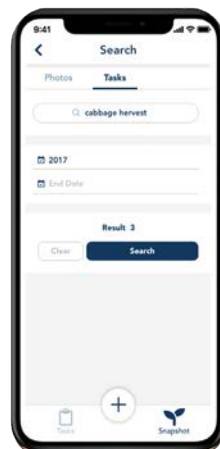
– Masaki Yamada

Planning Group, Research Planning Division, Yanmar.

Task and time management

Collect data and monitor crops

Track trends and patterns

PROTOTYPING FROM HOME
Supporting students to create remotely

Words by Nick Adams
& Aaron Down

Originally published in
Swinburne News

We created *'ProtoKIT'* to help students build and make prototypes while they study remotely. The kits provide students with the materials and tools they need for rapid prototyping, enable better communication and teamwork, and lower the barrier for learning by doing. Prototyping is a core activity and mindset in our approach and always integrated into our interdisciplinary learning activities.

Prototyping helps students understand why both the process and outcome of creating something tangible is instrumental in helping them to think, communicate, empathise and bring ideas to life.

The ProtoKIT idea was initiated by our Academic Director Prof. Christine Thong who saw a need to create something inclusive that gives students from across diverse disciplines such as design, health and business, fundamental resources for exploration and experimentation.

> *"We decided to walk the talk and find innovative ways to support physical prototyping when students can't come to campus. These kits are an inclusive way to give everyone some fundamental resources and tools to explore and develop ideas through making. It's a new way of supporting the home classroom."*
> — Prof. Christine Thong

During a regular semester, our students would have access to soft-prototyping facilities and on-hand prototyping support, but COVID-19 restrictions limited students' possibilities to access to these facilities.

> *"The prototyping kits provide materials that help students to explore, develop and communicate ideas from their home. Teaching creative problem solving with creative problem solving. We conceived the take-home prototyping kit to keep our students engaged and continue high quality learning and student experience."*
> — Prof. Christine Thong

Developing the kits

The kits were developed and produced by our prototyping coaches Thom Luke and Elliot Henkel, with the support from the rest of the team. Our prototyping coaches assist students to advance their ideas, challenge their thinking and help to develop solutions in a digital or physical form.
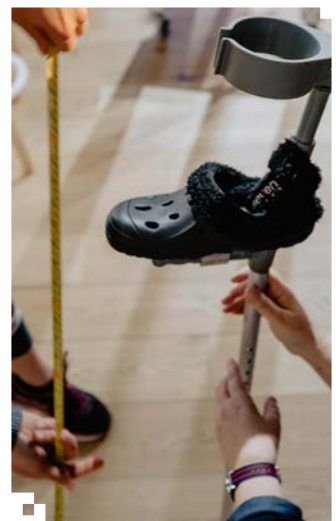
"As designers, having the necessary tools and materials at hand to help facilitate the making process is vital. In a turbulent environment, where access to resources is at times very limited, self-sufficiency is often the key to continued development and ultimately, success with an idea."

"These kits represent an avenue to bridge the gap COVID-19 has cut through our established learning environments. By facilitating the recipients with a range of materials and tools, we allow them to continue to innovate, whilst echoing the environment and ideals we foster in the DFM Firestation."
— Thomas Luke

Made in Swinburne's ProtoLAB, we mailed the kits to our students as stay-at-home restrictions continued in Melbourne.

The prototyping kits embody one of our key principles around learning by doing. It is an integral part of the design process and helps to showcase gaps in the knowledge and thinking that might otherwise not be recognised.

We prototype to 'build to think', to communicate, to empathise and to bring ideas into the world. Our students bring their experience and talent to their working teams and leverage the skills of prototyping to translate, facilitate and transform ideas. They are empowered to work together across multiple and diverse teams and in practice gain valuable skills through the language of prototyping.

To conceive something is only half the challenge; to demonstrate it no matter how rough or formative is a powerful skill as it offers multiple forms of communication and opportunities for testing for user input and further improvement.

The ProtoKIT is the physical side of ProtoSOURCE, a virtual knowledge platform for students' prototyping needs and on-demand coaching. The digital and physical elements support each other in building students' creative confidence and encouraging them to experiment and prototype at home.

The kits provide students with the materials and tools they need to help them in their prototyping efforts.

ADOBE INNOVATION GRANT
ProtoSOURCE

DFM Prototyping Coaches, Thomas Luke and Elliot Henkel, were awarded one of Swinburne University's inaugural Adobe Innovation Grants in 2020 for "*ProtoSOURCE- An integration of physical, analogue and digital prototyping in the remote learning environment*" to further explore the role of resources to support prototyping activities. The Adobe Innovation Grants support new approaches to learning and teaching as part of Swinburne's Adobe Creative Campus partnerships, the first and only Adobe Creative Campus in Australia.

Student Voice:
JAIDEN GUSTI
Bachelor of Design (Honours)

"Design Factory is such a welcoming and open space to explore design and design thinking. Overall, it has been a great experience as <u>it taught me to work with people from different backgrounds and apply design in a non-traditional way.</u> There are so many different ways of learning, and I see DFM as a space to grow. It's where everything can be pulled together and not only help you to develop your design skills, but also develop as a person."

SHARING DFM EXPERIENCE GLOBALLY

A webinar to support Swinburne's International Recruitment activities

DFM staff, Aaron Down & Tiina Tuulos presented in an online Webinar to over 140 International Agents in partnership with the Swinburne International Recruitment team in November 2020. The webinar showcased opportunities in online learning and shared Design Factory's approach to creating and facilitating engaging learning experiences.

WITH: TAKEDA
Habitual

During a 9-month project, as part of the SUGAR Network for Design Innovation and in collaboration with Japanese biopharmaceutical company Takeda, a team of students from Design Factory Melbourne and the Hasso Plattner Institute (Germany) developed a digital solution for people with narcolepsy to track their unique symptoms, medication and habits, allowing them to be better informed on how these factors correlate.

Partner

Based in Japan, Takeda is a patient-focused, values-based, R&D-driven global biopharmaceutical company. Their mission is to continue contributing to the health of patients worldwide through the creation of quality medicines. With the patient at the centre, Takeda aims to continue to implement changes to create innovation in the future.
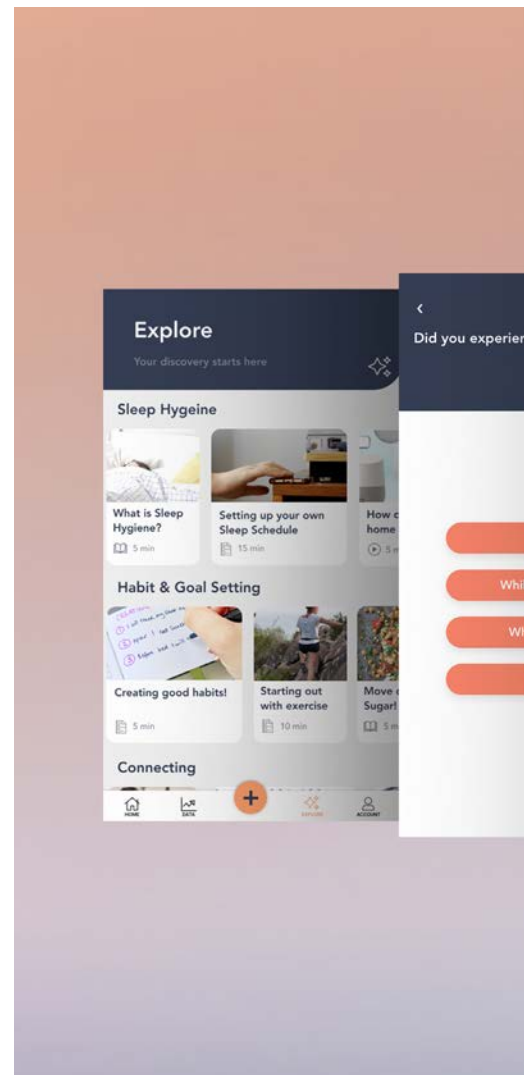
Track
Narcolepsy specific topics such as sleep, napping, energy and cataplexy

My data
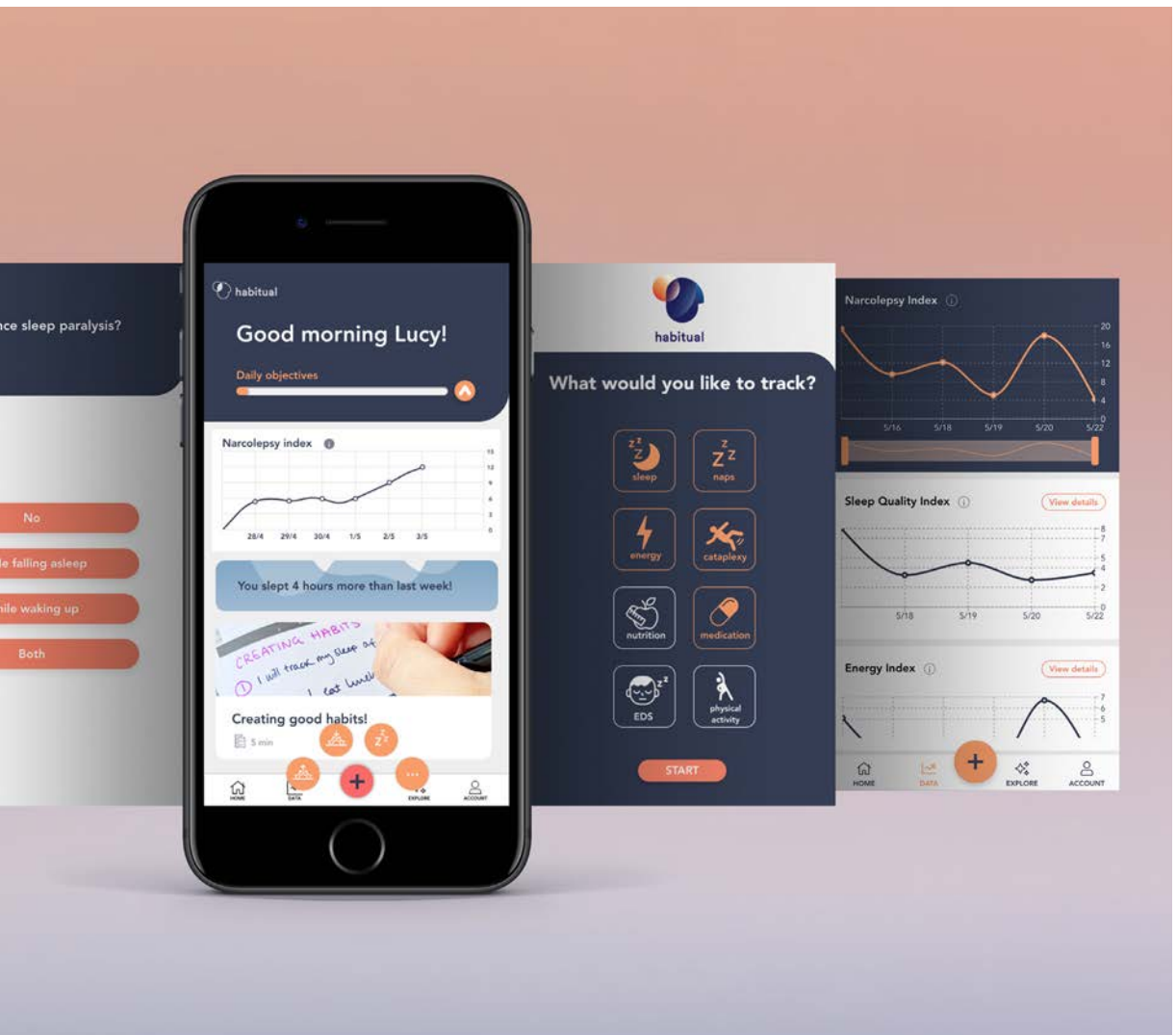See the patterns and trends in your data

Explore
Personalised programs based on your narcolepsy

Report
Create comprehensive reports to show to your physician

Program:	Global – SUGAR
Industry Partner:	Takeda, Germany
Academic Partner:	Hasso Plattner Institute, University of Potsdam, Germany
Duration:	October 2019 – June 2020
Disciplines:	Design & Digital Health

Challenge

How might we support people living with narcolepsy to predict and manage their condition? Behavioural changes are a fundamental part of managing narcolepsy. The condition is treated by a combination of medications and the adoption of behavioural and lifestyle changes (e.g. sleep hygiene, exercise, diet).

As narcolepsy is so diverse and each person's experience is varied, the challenge for many people with narcolepsy and their specialists is to understand their conditions and how the various symptoms and lifestyle factors correlate.

Outcome

The team developed Habitual, an app which acts as a personal companion for people living with narcolepsy. It enables them to learn about their individual condition and understand how their symptoms, medications and other factors correlate with each other. The team found that with regular tracking, a person with narcolepsy can see how their condition correlates with their medication, their lifestyle, and most importantly, the impact on their sleep. Since narcolepsy is so diverse, Habitual allows people with narcolepsy to track their specific symptoms.

With regular use, they will be able to use the tracked data to better adapt their lifestyles, schedules and habits. In the future, the team hopes Habitual will be invaluable to people with narcolepsy by benefitting them both immediately and in the long term.

Team

Melanie Calleja

Design
Swinburne University of Technology

Juan Carlos Niño

Digital Health
Hasso Plattner Institute

Julius Severin

Digital Health
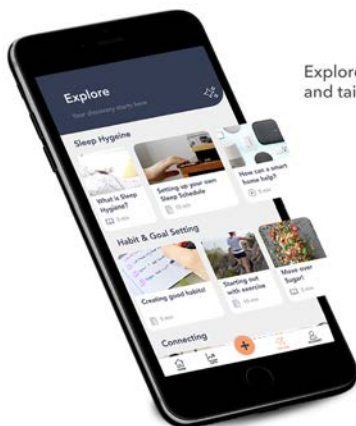Hasso Plattner Institute

Wiktoria Staszak

Digital Health
Hasso Plattner Institute

Manami Ray

Design Strategy and Innovation
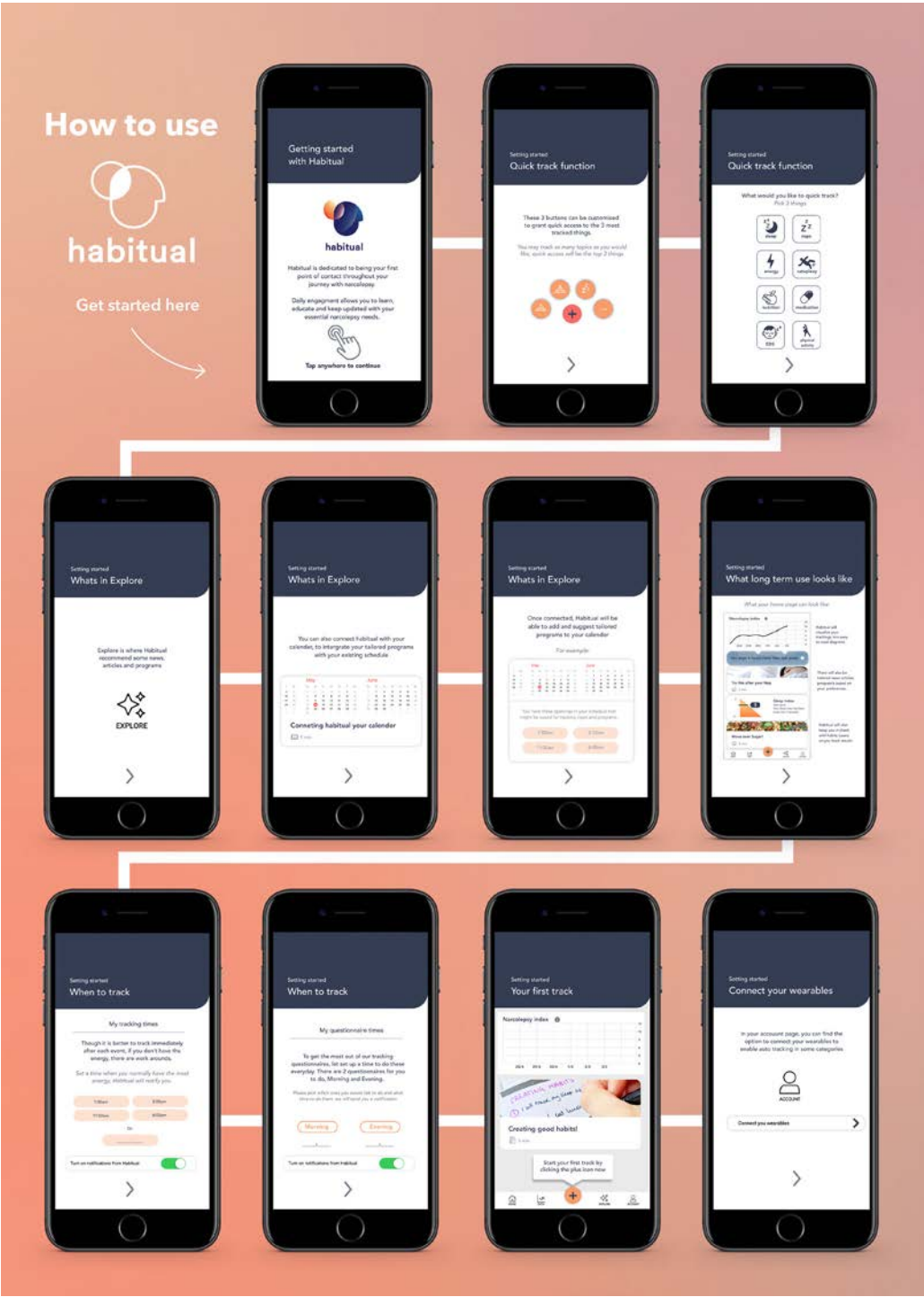Swinburne University of Technology

Ethan Zhang

Design
Swinburne University of Technology

Explore personalised and tailored programs

See trends and patterns in your data

How to use

habitual

Get started here

A DIVERSE AND SUPPORTIVE COMMUNITY SHARING SIMILAR VALUES AND A PASSION FOR DOING FOSTERS INNOVATION AND DRIVES CHANGE.

Strong, supportive, diverse and inclusive communities are key to innovation. Diversity unlocks radical perspectives and opportunities as different experiences, knowledge and viewpoints are brought to the table. For such communities to thrive they need a conducive environment for interaction and collaboration.

We foster and embrace a community mindset. DFM brings together students, researchers, industry, academics and professionals from different fields to share ideas, solve problems and learn. We believe all people have potential, and by creating a safe space to explore, learn and experiment, we can truly harness the value of different viewpoints coming together. Our mission to create the conditions for innovation fosters collective approaches in communities of different scale and form, both locally and globally.

This chapter showcases our community near and far, the co-creation and collaboration, sharing and doing beyond time zones and geographical borders. These stories showcase the engagement connection within the Design Factory Global Network and the vibrant and warm community embrace within the Firestation.

COLLABORATION IN A GLOBAL VIRTUAL FESTIVAL

How to bring five continents virtually together for one week to collaborate effectively

Words by Marthe Dehli,
Tiina Tuulos &
Pauliina Mattila

What do you do when you are expected to gather together representatives from 25 different universities and research institutions around the world and the calendar shows the upside-down year of 2020? You defy 18 hours of time difference between the East and the West, and you move everything online.

A GLOBAL COMMUNITY

Design Factory Global Network (DFGN) is made up of innovation hubs in universities and research organisations in five continents of the world. DFGN is on a mission to create change in the world of learning and research through passion-based culture and effective problem solving. Common values and practices enable Design Factories in the network to collaborate efficiently across cultures, time zones and organisational boundaries fostering radical innovations.
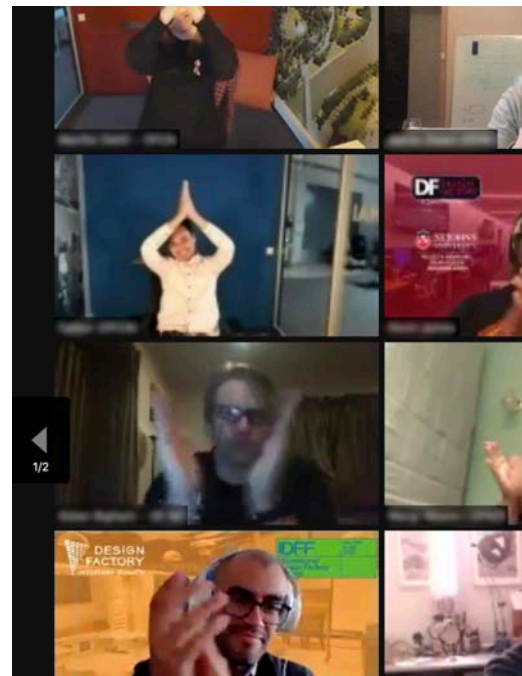

Image credit: DFGN

Every year, members of different Design Factories across the globe gather to share best practices, plan for collaborations and get to know each other in the quest of making higher education more innovative. The location and the host for the week change each year, allowing every Design Factory to introduce their ecosystem to the network and vice versa. The Design Factory Global Network (DFGN for short), now standing 31 Design Factories strong, consists of innovation hubs in different universities and research institutions, spanning from North America to Oceania. Common values and practices enable the members to collaborate across time zones and cultures, despite differences in governance and setup.

This year the annual gathering became the International Design Factory Festival.

"*We were supposed to meet at the Future Design Factory in Leeuwarden, Netherlands. As the COVID-situation developed, it became evident that we had to go back to the drawing board to rethink and redesign the concept.*" says Päivi Oinonen, DFGN Manager from an office in Aalto Design Factory, where a dedicated team supports the Design Factory Global Network.

Challenging circumstances provided an opportunity to move the annual gathering online for the first time. "*The digital format comes with its own set of challenges and opportunities. When we meet in person, we have to limit the participation to two representatives per Design Factory. By moving everything online, we were able to up parts of the program to the whole network and beyond,*" Oinonen explains.
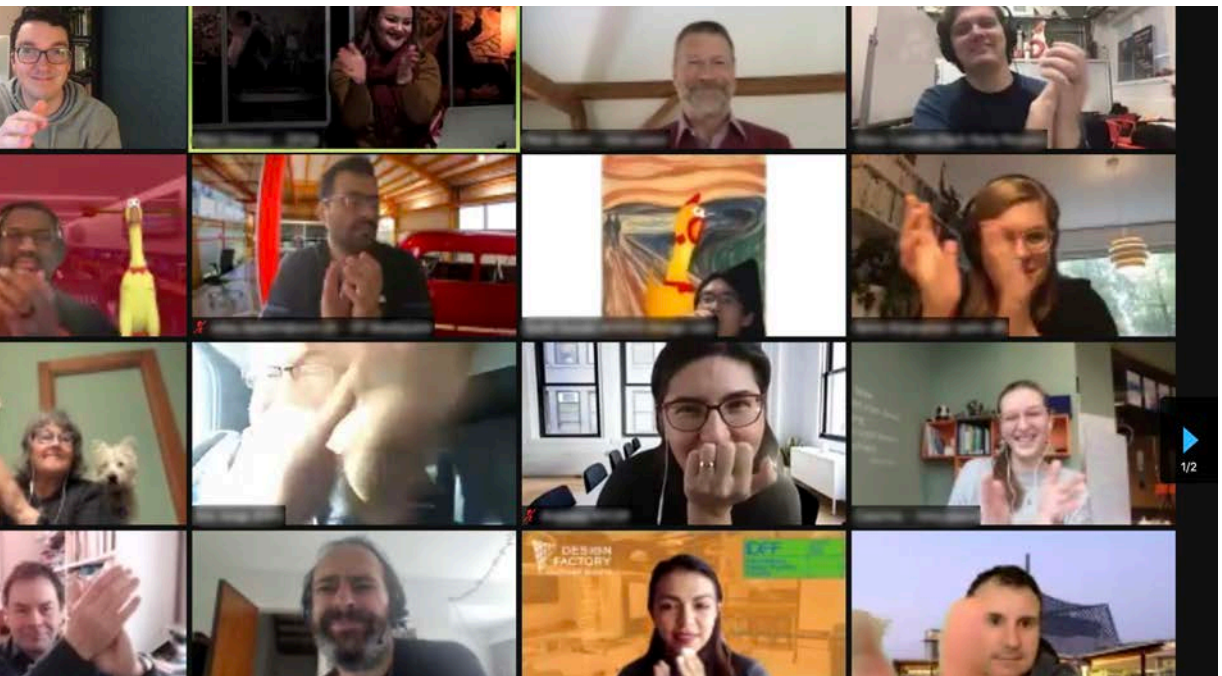
The previous concept took a slightly different shape and grew into a week-long virtual festival that included several events and activities. All of these online encounters and activities enabled us to learn from direct peers and the wider communities, get to know how other Design Factories '*do Design Factory*', be inspired, find motivation, and gain new insights.

Different Design Factories created, facilitated and hosted programs around the clock. The week offered 59 different events and a total of 66 hours of programs. The sessions varied from panel debates on learning in different contexts and conditions, to interviews with in-house prototyping experts, to discussions and workshops on best practices in digital learning – just to mention a few. A total of 1081 participants joined the program, and according to Oinonen, they had engaging experiences.

> "*The feedback from the participants was even better than we dared to hope for. But most importantly, we had more project collaboration ideas come to fruition than expected in this unusual year. And even better, the ideas for collaboration are well thought through and I expect many of these to take place in the following year.*"

DFM had a pleasure to co-host different events in the Eastern time zones together with Design Factory New Zealand. The sessions we hosted focussed on exploring future skills and learning, showcasing tools to enable prototyping in an online and a virtual context, identifying and unpacking challenges in innovation cultures and ecosystems, and advancing our collective understanding and practice of coaching in innovation ecosystems.

We were specifically interested in exploring coaching with the network, as it one of the essential ingredients of the Design Factory approach, engendering '*what we do*' and '*how we do it.*' The topic was investigated during the week in an exploratory workshop, followed by further development in an Open Space collaboration. As a result, a community of practice in the Asia-Pacific region was established. This community of practice now comes together on a monthly basis, aims to formalise coaching expertise in the innovation and higher education context and looks forward to sharing best practices within the DFGN. The way this topic was explored and advanced during the week is for us a testament to how we can effectively work on something together in a virtual environment.

All in all, we at Design Factory Melbourne found the IDFF to be a wonderful opportunity to collaboratively explore and discuss topics relevant to our context together with our peers and colleagues from all around the world. We would like to thank everyone who joined us during the week in the different sessions and shared their insights and expertise!

If you would like to revisit or get to know some of the discussions and expert insights from IDFF, read more on the DFM website.

IDFF HIGHLIGHTS:
Sessions hosted by DFM

Keynote by Dr Sean Gallagher from the Centre for the New Workforce at Swinburne University.
Dr Gallagher talked about how well Australian workplaces are placed to discover new ideas in his talk '*Hunting down ideas to enable innovation in the "unprecedented"*'. Find the full keynote on the DFGN Vimeo account.

Panel discussion exploring learning in different contexts and conditions.
Four distinguished panel members from industry and academia, Dr John Hopkins, Amelia Iverson, Caroline Sanz and Ethan Lankshear shared unique perspectives as we explored how we might create better conditions for learning, what some of the skills needed for the future are and how we can keep continuously learning. Find a podcast of the full panel discussion on DFGN Soundcloud.

Lunchtime Learning with Nicole Symington on Avoiding the Empathy Trap.
Nicole shared insights from her PhD research and shared a process based on a reflexive practice, to help uncover where empathy might either help or hinder design decisions and process. Find the full recording on the DFGN Vimeo account.

DESIGN FACTORIES AROUND THE WORLD

DF
GN

DESIGN
FACTORY
GLOBAL
NETWORK

01 Aalto University Design Factoy
Aalto University, Helsinki, Finland (2008)

02 Sino-Finnish Centre
Tongji University, Shanghai, China (2010)

03 Design Factory Melbourne
Swinburne University of Technology,
Melbourne, Australia (2011)

04 Duoc Design Factory
Duoc UC, Santiago de Chile, Chile (2012)

05 Ideasquare@CERN
CERN, Geneva, Switzerland (2014)

06 Design Factory Korea
Yonsei University, Seoul, South Korea (2015)

07 Porto Design Factory
Porto Polytechnic, Porto, Portugal (2015)

08 Nexus Design Factory
Thomas Jefferson University,
Philadelphia, USA (2015)

09 Frisian Design Factory
NHL Stenden University of Applied Sciences,
Leeuwarden, the Netherlands (2015)

10 METU Design Factory
Middle East Technical University,
Ankara, Turkey (2016)

11 Design Factory Javeriana Bogotá
PUC Javeriana, Bogotá, Colombia (2016)

12 NYC Design Factory
Pace University, New York City, USA (2016)

13 RTU Design Factory
Riga Technical University, Riga, Latvia (Oct 2016)

14 UPV Design Factory
Universidad Politècnica de València,
Valencia, Spain (2017)

15 Design Factory São Paulo,
Universidad São Paulo, São Paulo, Brazil (2017)

16 A Design Factory New Zealand
Wintec, Hamilton, New Zealand (2017)

17 Warsaw Design Factory
Warsaw University of Technology, Warsaw, Poland (2017)

18 Fusion Point
ESADE, Universidad Politècnica de Catalunya and IED Barcelona, Barcelona, Spain (2017)

19 Kyoto Design Lab
Kyoto Institute of Technology, Kyoto, Japan (2017)

20 Cali Design Factory
PUC Javeriana, Cali, Colombia (2017)

21 Inno.space
Hochschule Mannheim, Mannheim, Germany (2018)

22 University of Tartu Delta Sandbox
University of Tartu, Tartu, Estonia (2018)

23 SIT Design Factory
Singapore Institute of Technology, Singapore (2018)

24 HAMK Design Factory
Häme University of Applied Sciences. Hämeenlinna, Finland (2019)

25 St. John's University Design Factory
St. John's University, New York City, USA (2019)

26 Hannam Design Factory
Hannam University, Deajeon, South Korea (2019)

27 Shenkar Design Factory
Shenkar College, Tel Aviv, Israel (2019)

28 OPER.SPACE
University of Bologna, Bologna, Italy (2019)

29 Technovation HUB
KU Leuven, Leuven, Belgium (2020)

30 DESIGN FACTORY LONDON
Brunel University London, UK (2020)

31 NANDIN
ANSTO, Sydney, Australia (2020)

DFGN GLOBAL IMPACT IN 2020

DFGN IS A **GLOBAL NETWORK** OF **31** DESIGN FACTORIES

25 COUNTRIES

DF GN

204 STAFF IDENTIFY AS **DF**

651 STUDENT PROJECTS

6675 PARTICIPANTS

76% OF **DESIGN FACTORIES** HAD PROJECTS IN COLLABORATION WITH **OTHER DESIGN FACTORIES**

424 INDUSTRY PROJECTS THIS ACADEMIC YEAR

462 PARTNER ORGANISATIONS GLOBALLY

100% OF **DESIGN FACTORIES** HOST **INTERDISCIPLINARY ACTIVITIES**

DESIGN FACTORY GLOBAL NETWORK COMMUNITY DAY

In May 2020 Design Factories across the globe came together to share experiences and learn from each other at the inaugural DFGN Community Day.

DFGN Community Day was a day full of insights into what different Design Factories are doing across the globe and brought the community together to learn from each other, share ideas, experiences, and project outcomes.

Some of the highlights from DFM included:

- An interactive discussion with two DFM Lecturers Dr Clementine Thurgood and Dr Esther Wilding on how to run real-life student projects remotely. The discussion was full of lessons learned, best practices, challenges and experiences on rapidly adjusting project-based learning into an online environment.

- Online training 'Challenges to Opportunities' on prioritising challenges and scoping them to drive relevant solutions. This interactive short training was run by the DFM workshop team.

Students from inno.space, DFM, NewYork City Design Factory connecting at IdeaSquare at CERN as a part of the CBI A³ program.

Image credit: DFGN

DFGN chats to DFM Director,

ANITA KOCSIS

Words by Marthe Dehli

Marthe Dehli from the Design Factory Global Network team sat down with DFM's Director, Anita Kocsis to give others a window into DFM, our space, our students and our hopes for the future

This article is part of DFGN's interview series to get to know other Design Factories around the world through the eyes of its people.

Can you describe your Design Factory in three words?

Local, global, boundary riders

Who are your students?

We are a part of Swinburne's Innovation Precinct and lead a number of student programs from undergraduate all through to PhDs, so provide students from all across the university with an innovation experience. Typically this means our space is filled with students from design, entrepreneurship, business, and health. Occupational therapy students are one of the largest cohorts working together with designers. We have recently designed a new Master's of Design program – embracing new innovative ways of learning and collaborating with industry – so that's exciting!

What does a typical day look like in DFM?

On a typical day in Design Factory Melbourne, you walk through the doors and you see a sign that tells you when the coffee was brewed. You see someone making something delicious or stinky in the kitchen, and then to the right there is the studio where a team is doing something awesome together. That's the first layer of activity, what I would call the swan. Underneath all of that are the legs of our team, furiously kicking and creating energy. There is a lot of work, a lot of collaboration, and a lot of planning that goes into our team-based activities to get stuff done.

What kind of projects do your students work on?

Everything! I am always amazed by the range of challenges our student teams tackle. But the common thread is trying to solve something for someone – whatever the context! In the past, students have worked on new products, systems, service offerings together with banks, government, big science, startups, retail, healthcare, hospitality, food... you name it! We've seen teams reimagine the future of snack food, create smart buildings, new water experiences, and much more. Recently, we've championed TOM@University together with people living with disabilities to bring occupational therapy, design and engineering students together to solve challenges and strive for inclusive design solutions. We love our global friends in SUGAR/ME310, CBI [Challenge Based Innovation], and PDP [Product Development Project] programs. Our CBI initiative, CBI A^3, students tackle UN sustainable development goals, and explore future solutions with CERN tech.

What is your favourite Design Factory memory?

Ah, I have many. If I add them all up like a series of quick moments in time and turn them into a movie, the consistent thing is about the collective happy place, the collective energy. So for me, it's more of a feeling rather than a thing.

"I see us as a resource or some sort of evidence that the passion to collaborate sometimes in itself is more useful than what we collaborate on."

Where do you see your Design Factory in five years?

I would like to see it as an experimental lab that functions as the engine room where it is okay to work in the boundaries. Where it's okay to work across any discipline with the aim to produce meaningful solutions, where students are the ones who are the smartest people in the room. Researchers and partners still have to be there, but I would like to see an opportunity where leadership is more acknowledged around the student engine.

What is your dream for the DFGN?

My dream for the Design Factory Global Network is that we provide a look-in for others, whether they're startups, whether they're corporations, whether they're universities, that we provide a lens for how to, and that we are transparent enough to demonstrate that we don't really know how to at all times. But we are a brand that provides methods and embraces opportunities for other organisations. I see us as a resource or some sort of evidence that the passion to collaborate sometimes in itself is more useful than what we collaborate on.

GLOBAL INNOVATION ASIA-PACIFIC TRIPLE E AWARDS

Swinburne Firestation – was the first runner-up for Innovation and Collaboration Space of the Year in the inaugural 2020 Asia-Pacific Triple E Entrepreneurship and Engagement Excellence Awards in Higher Education.

The Swinburne Firestation's aim is to engage and build a culture of innovation with staff and students across the university; upskill and grow enterprise; and connect innovators with industry and investors to enable the rapid scale-up of research-led ideas into real-world solutions. The Innovation Precinct works side-by-side with DFM to help innovative ventures to thrive.

Student Voice:

AMELIA IVERSON

Bachelor of Business

"Design Factory has taught me the power of collaboration and working with people from different backgrounds - I worked with designers, engineers and business students, which was really great.

This definitely enhanced my communication and interpersonal skills because you have to be so clear collaborating with others, to unlock the potential of the teams' diversity."

DISCOVERING A SAFETY NET IN DISRUPTION

My time at Design Factory Melbourne

Words by Victoria Marszalkowski

DFM's former Staff & Students Coordinator, Victoria Marszalkowski shares her experience and reflects how our five principles helped her navigate disruption and empowered her to grow. Vikki is a champion for the DF community and culture - bringing an incredible energy and passion in all that she does.

A place to call home and a home away from home. A community of like-minded individuals, ready and willing to challenge the status quo. Industrial designers, engineers, mad makers, disruptors, all creators in their respective field... and all somewhat gastronomically obsessed or curious. This is how I would encapsulate the brilliant couple of years and the incredible people I worked alongside during my time at Design Factory Melbourne.

When I first started at DFM, the very concept of a Design Factory – with its interdisciplinary learning, teaching and research, coupled with a heuristic approach to just about everything – was all shockingly new to me. To see business students working with industrial designers and occupational therapists was inspiring yet thought-provoking. The communal kitchen space, the seemingly never-ending source of creative energy and output, not to mention the open-minded curiosity and wide smiles of all who worked there, caused me much disbelief.

Inevitably, I began comparing myself to my high-achieving, innovative peers, and as a result, there were times when my confidence took a huge hit. But in these moments of uncertainty when I found myself falling, I always knew that the principles of DFM – those of safety, of accepting and learning from failure, of responsibility, of communication and collaboration – had my back and were always there to catch me.

The five principles

DFM's principles work in unison, but if there had to be one overarching theme, for me it was safety. If there is safety, in every sense of the word, wrapped around and within what you are doing, then it is almost effortless to challenge the status quo. Apart from the standard company *'mantra'* or *'motto',* I had not come across a workplace with a set of *'ground rules'* before. Once I got my head around what this framework really meant, I began searching for every opportunity to be a part of that community of disrupters. As the proverb states, *'rules are made to be broken',* and Design Factories across the global network (DFGN) are constantly challenging the status quo. However, having a framework to *'break those rules within'* can open the floodgates for autonomy and personal drive within a team. Each DF within the network is essentially working within their own environments but with a fundamental theme that centres around passion-based co-creation which can be felt as soon as you enter any of our buildings around the world.

Failing forward and responsibility

The fear of failure can be completely paralysing but when these societal barriers and norms are challenged, wonderful things occur. In times of high stress due to deadlines and events, small and sometimes even big things can go wrong. But whether they were individual or team mishaps the response from my team was always the same – to see it as an opportunity for growth and learning.

Diving into the deep end, (even if you are not an expert swimmer) and pushing yourself beyond your expectations is vital to personal growth and key to setting new, unexpected boundaries for yourself. An important stepping stone on this and any journey is also being surrounded by colleagues who support and encourage you (even during your failures). Knowing there is someone more experienced than you that has your back, in those moments of vulnerability, is priceless.

Something that also goes hand in hand with learning from any experience or mishap is to take responsibility for your actions and be accountable for your words

and how you conduct yourself. If you are juggling and you drop a ball, there is no one else that can own it but you. This is by no means about pointing fingers and blame, instead, recognising; what occurred outside of the plan, what could have been done differently and what can be learned going forward. Easier said than done when there are emotions and egos in the mix, but it is essential if you wish to move on. Responsibility, failing fast and communication are the ultimate concoction, ensuring a team can operate cohesively and encounter all levels of success and failure together.

Kitchen and connection

Who would have thought that a kitchen could cause so much chaos?! A disruptive initiative, but also a crucial source of community, all Design Factories are essentially built around a welcoming and practical kitchen space (with mandatory and complimentary coffee!).

At DFM, the kitchen served as the heartbeat of our building, proving pivotal in fostering serendipitous connections and idea exchange. This is where I truly found my feet.

The kitchen is so central in the building that regardless of where you are going, you will have to pass by the space, meaning there was always an opportunity for a chance encounter. The smell of cuisines from the other side of the globe wafting around, luring you downstairs for a peek at who was cooking something utterly scrumptious. Another opportunity to connect with someone outside of our team; a student perhaps, cooking lunch with their friends, an industry partner or researcher catching up over coffee.

These shared moments of stillness and connection offered much respite from the regularity of endless meetings and a flooding inbox.

Whether we were whipping up a quick salad for lunch or spending a few hours after work baking the famous Finnish korvapuusti (I'll leave it to you to look that up), coming together over food in such an open and relaxed area allows you to leave insecurities at bay and helped break down many of the formal barriers that often exist in the workplace.

The informal space allows colleagues to discuss some of these seemingly *'uncomfortable'* matters in a space of total safety... and with a bowl of steaming hot soup in front of you!

Everyone has potential

Potential is different for everyone, but regardless of what it means to you – leaving assumptions at the front door, being open to the viewpoints or perspectives of others and learning through your peers are all factors in our personal growth. Of all the lessons I have learnt during my time at Design Factory Melbourne, my biggest takeaway is that everyone has potential given the right support and environment, and it is the principles outlined above that enable us to drive meaningful change.

DEAN'S AWARD FOR SESSIONAL LEARNING & TEACHING.

DFM Sessional Lecturer, David Mesa was awarded the 2020 Dean's Award for Sessional Learning & Teaching in the School of Design. David has excelled in interdisciplinary teaching over the past 3 years in Design Factory Melbourne and Product Design Engineering, as a highly professional and collaborative educator going above and beyond for his students.

In 2020, he played a significant role in the translation of a prototyping and collaboration unit to be successfully delivered online, one example of his excellence as a collaborator and innovator in exploring new approaches to learning and teaching!

VICE CHANCELLOR'S AWARDS

DFM was recognised in the 2020 Vice Chancellor's awards in multiple categories. The Swinburne University of Technology VC Awards 2020 were celebrated under the theme '*Celebrating resilience and creativity'* and the awards ceremony was held virtually for the first time.

HIGHLY COMMENDED NOMINEE for "*Inspiring and motivating interdisciplinary collaboration experiences through design-led innovation*" for the Vice-Chancellor's Teaching Excellence Award (Higher Education).

Passion-based co-creation and creating conditions for innovation are team efforts, and these recognitions belong to the whole DF community.

Chatting with DFM Alumni:
JAIDEN GUSTI

Words by Jessica Newnham

Communication Design student Jaiden Gusti immersed himself in DFM's vibrant community during his Honours year. He experienced how to collaborate in diverse teams and saw how design approaches bring value across disciplines. The time at DFM broadened Jaiden's horizons and unlocked new opportunities for growth for him.

*Can you describe Design Factory Melbourne
in three words?*

Engaging, exciting, collaborative. It's kind of hard to put it all together in just three words – it's a truly wild experience!

What sort of projects did you work on at DFM?

The classes I did with DFM were the Toolbox class and the Innovation Challenge.

The Toolbox was my introduction to interdisciplinary work – it was the first time in my Bachelors Degree that I got to do that. We built catapults and then machines to load the catapults. It was a great way to really get you engaged, as well as getting you involved with group work which requires you to work with people from different backgrounds.

The Innovation Challenge was another awesome opportunity to get to work with big industrial partners – in my case Mondeléz. I got to work with an interdisciplinary group on the brief and develop something worthwhile. We conducted lots of primary and secondary research, so it felt as if we were developing something compelling which had a place in the market. Overall, it's been a great experience as it taught me to work with people from different backgrounds and apply design in a non-traditional way.

What is the point of difference of DFM for you?

I would say it is the overall experience, which is what I love most about DFM. I think It is the way the students are really getting involved, collaborating together. It's the way we're able to work with industry partners. It's the way we're being taught.

What is your favourite DFM memory?

Probably the prototyping room – there are so many great experiences in there. It's nice to get hands on and really work with people. Also, getting the chance to present my work to industry partners at the DFM Showcase. There are so many opportunities which come with that.

"There are so many different ways of learning, and I see DFM as a space to grow. It's where everything can be pulled together and not only help you to develop your design skills, but also develop as a person."

What skills do you take away from this experience?
Definitely interpersonal skills, as in the way I work with people. It's really taught me a lot about group work. In my Communication Design degree, you're working with people from the same background. And so coming into DFM, you've really got to observe how people understand design, and how everyone is involved in the design process.

Was there something you found challenging?
Probably the same thing. With interpersonal skills, I find I'm not always the most confident person. And so in those first couple of units, especially the Toolbox, when I was coming from a communication design background and had to work with people from business or entrepreneurial backgrounds, I found there was a learning curve to kind of strip away my ego. I had to let that go and be on the same level as those from non-design backgrounds. It's a very human-centred way of design, and it made me realise that Design Thinking is something that should be available to everyone.

Do you think it's valuable to overcome this challenge?
Yeah – I think there's a lot of empathy involved with human-centred design. When you work with different people, you understand how they work and how they bring in their knowledge from their own discipline. I got to see how it all worked together with design and my own discipline. It was a bit of a steep learning curve, but it's a skill that once you learn, you take so much away from it.

Is there something you miss about DFM?

Not only just the people, but the space as well. I think DFM as a whole has such a great community around it. So many people are involved in making the space amazing for everyone who comes in.

Whether you're just doing it for one semester or the whole minor, it's such a welcoming and open space to explore design and Design Thinking.

What will you take away moving forward?

I've definitely learned heaps about design and design thinking, as well as its applications. I think it's broadened my career path, because originally I was very focused on doing communication design, but DFM has opened me up to service design and systems design. There are so many opportunities that I have now from being a part of DFM, and I think I really want to test the experience as much as I can.

What is your key take-away from DFM?

DFM is multifaceted, it's experiential, and it's something that you don't get to experience much at university.

DFM is such an experience in itself – it's not only very hands on, but you get to go in depth with whatever brief you're given. It's taught me a lot.

Image credit: Socialise Photography

WITH: CITY OF BOROONDARA

Placemaking in Glenferrie.

Undergraduate students from Business and Design backgrounds were challenged by the City of Boroondara to design a placemaking solution for the Glenferrie Road precinct in the Melbourne suburb of Hawthorn. Their solutions needed to enhance the sense of community while respecting sustainability and heritage concerns. Five interdisciplinary teams of students developed their own unique concepts to fit the brief, three of which are shown here.
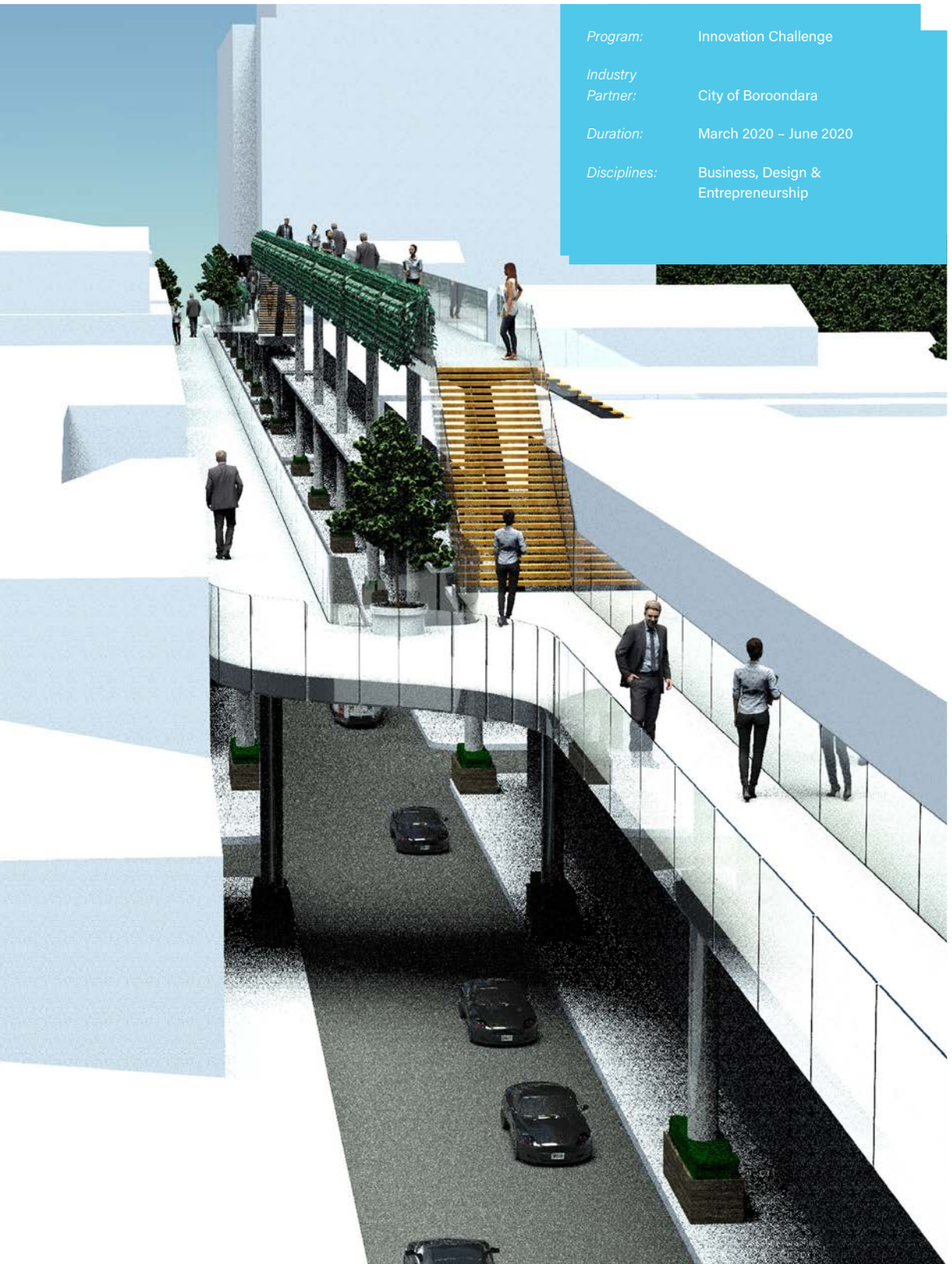
Partner

The City of Boroondara is a local government area in Melbourne's eastern suburbs. Boroondara encompasses Swinburne University of Technology's Hawthorn campus and Design Factory Melbourne.

<u>Selected outcomes</u>

Garage Complex

A multifunctional garage structure to reduce traffic congestion and provide a rooftop community space for events.

<u>Acquisition Consulting</u>
Corey Kain (Entrepreneurship & Innovation and Business Analysis), Julia Persson (Entrepreneurship & Innovation and Public Relations), Jake Sleeman (Entrepreneurship & Innovation), Mudhhi Saeed (Entrepreneurship & Innovation), & Joshua Trainor (Entrepreneurship & Innovation and Human Resource Management)

Glenferrie Switch Park

A new park with art walls and sustainably-made play and gym equipment which can be moved by users to suit their needs.

<u>Space Invaders</u>
Jess Davey (Social Media Marketing Strategy), Sarah Konda (Information Systems), Chris Pase (Digital Advertising), Luc Tunbridge (Social Entrepreneurship), & Grace Wilson (Communication Design)

The Glenferrie Highline

A multi-story footpath above the ground level path that reduces foot traffic, increases road safety and allows for a greener area and aesthetic sense of place in the Boroondara region.

<u>The A Team</u>
Orin Giesbers (Industrial Design), Chloe Hondrokostas (Media & Communications), Fraser McGill (Business), Georgia Ryan (Business), Bethany Shell (Media & Communications and Business) & Lachlan Stasiewicz (Information & Communication Technology)

CO-DESIGNING WITH COMMUNITY

Creating a shared vision of an agile learning environment in collaboration with industry, students, alumni and academic staff.

In 2019 and 2020, DFM organised several co-creation sessions with student representatives, internal staff members and industry representatives to design together a future vision for a new agile learning experience. DFM's student advisory board brought the student and recent graduate voice and perspective, our staff brought various experiences on the table regarding learning facilitation, delivery and pedagogy, and industry representatives shared insights on business needs and practice. These co-creation sessions focused on identifying key capabilities and characteristics for future graduates and design innovators, envisioning the context of future of work and co-designing different learning experiences and modes of delivery to support the development of these capabilities.

The outcome is a stream in a new Master's of Design program that offers a wide range of engaging and authentic experiences to enhance and apply design innovation.

The DFM team presented some of their insights and reflections at the Swinburne University of Technology's Transforming Learning Conference 2020 that focused on digital transformation within education.

STUDENT AND INDUSTRY ADVISORY BOARDS

To support with new program development, enhanced student experience and innovation culture, DFM established two advisory boards to bring the student and industry perspective to the forefront. Both Advisory Boards represent a diverse range of experiences, backgrounds and thinking.

Student advisory board members

- Kanika Shah
- Amelia Iverson
- Melanie Calleja
- Melanie Phillips
- Robert Thomas
- Michael Carter
- Gabriel Mello
- Adrienne Byrt

Industry Advisory Board members

- Zaana Howard
- Ching Tan
- Nick Rakis
- Kirsty Cleland
- Michelle Downsy
- Mark Bray
- Hiroyuki Koyama
- Margi Moore
- Elicia Wong
- Michele Martin

IT IS AT THE INTERSECTION OF DISCIPLINES, MINDS AND CONTEXTS WHERE INTERESTING AND UNEXPECTED THINGS HAPPEN. BRINGING ABOUT THESE CREATIVE COLLISIONS AND HARNESSING DESIGN INNOVATION GENERATES UNIVERSAL VALUE.

Design innovation is a vehicle to unpack and understand wicked problems of the future. The principles and approaches of human-centeredness, problem scoping and understanding, experimentation and the interplay between divergent and convergent mindsets are transferable across industries and sectors.

We apply and practice interdisciplinary research and innovation across our learning & teaching, research, and capability development. We are especially interested in the intersections of design and science, design and health, and design and systems thinking, and create impact in these boundaries through experimentation and exploration.

Our agile innovation culture creates a low barrier model for industry collaboration and problem solving within these areas and beyond.

This section highlights our work and thinking in the areas of science and technology, inclusive design and innovation ecosystems. We share examples of our practice at the nexus of different disciplines, creating new opportunities and driving change.

DISCOVERY AND IMPACT AT THE INTERSECTIONS OF DISCIPLINES
Research approach at DFM

We see an opportunity for research and discovery in everything we do. For us, research means discovering new opportunities and creating new knowledge, with theory and practice constantly informing one another. When we make space for creative collisions between disciplines and backgrounds, unexpected insights and perspectives start to emerge.

Our approach stems from a broad range of topics such as passion-based co-creation, structured serendipity, the conditions and culture for innovation, the diffusion of big science, future thinking and much more.

DFM research is post-disciplinary and focused on future collaboration to solve, generate something novel and navigate in an uncertain world. We can't do research without impact. For us, doing research and having an impact go hand in hand. And from the creation of new products, services and practices we can build new theories. The knowledge we create will always be informing new products, services or practices. Reflecting this nexus of theory and practice, we never do research alone. Instead, we work closely with practitioners and academics across sectors.
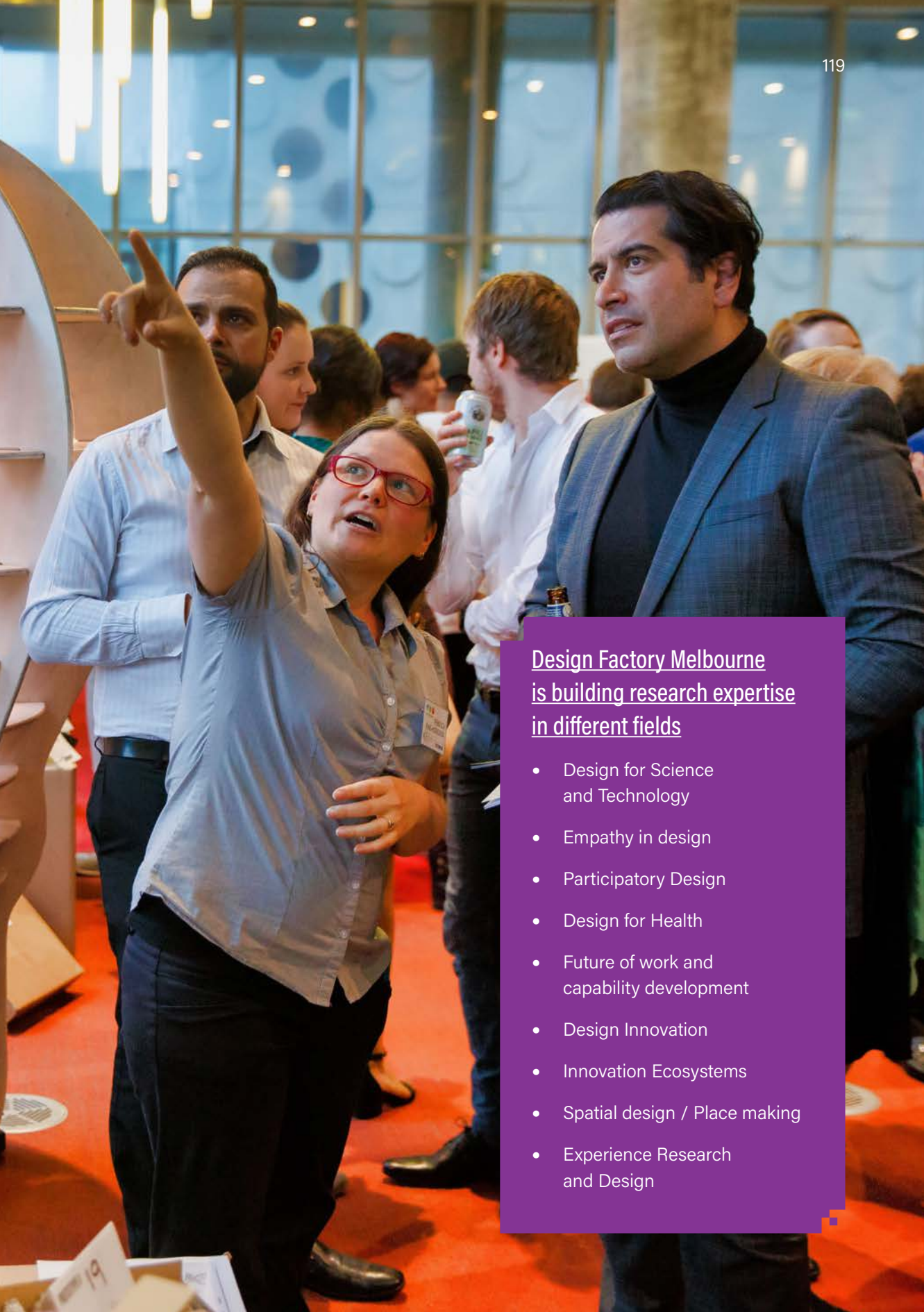
Design Factory Melbourne is building research expertise in different fields

- Design for Science and Technology

- Empathy in design

- Participatory Design

- Design for Health

- Future of work and capability development

- Design Innovation

- Innovation Ecosystems

- Spatial design / Place making

- Experience Research and Design

KEEP EXPERIMENTING - ESPECIALLY IN A CRISIS!

Words by Pauliina Mattila

The Covid-19 pandemic and emergency measures have had a global impact, disrupting the production, sales, distribution channels and consumption patterns across sectors and regions.

Being interested in creativity and innovation processes at Design Factory Melbourne, these times provided us with an opportunity to look at how organisations might stay innovative in a crisis context. Teamed with researchers from Aalto University in Helsinki, Finland, we wanted to better understand how an organisation can navigate through turbulent times and what their actions are for survival. How does one retain their business and what actions spark innovation and creative outcomes?

Key takeaways

- See opportunities for experimentation in all areas of the business, including your offerings, internal processes, capability building and revenue models.

- Experimenting in one area of the business may lead to a more comprehensive change in the whole business model when experiments are bundled. This approach tends to be a sustainable way to create change at a significant scale.

- Seek partners and other organisations to experiment together to enhance the resilience of the business collective.

- Experiments have direct benefits such as added sales or cost savings, but also advance the solution space, which is a range of potential solutions that hold the opportunity for capturing tangible benefits in the future.

- Don't only experiment when times are tough, find opportunities for experimentation at all times.

Sweeping across the globe, the pandemic has caused disruption in many sectors in an unprecedented way. A common response by companies would be to play conservatively and minimise risks in order to preserve the business as usual. However, our research into the responses by Finnish food and beverage entrepreneurs in their business models challenges that assumption. In our research, we investigated social media responses from 66 ventures from the packaged food and beverage industry in Finland and interviewed a subset of 17 of their founders.

We found that companies were active experimenters right away when the pandemic hit. For example, a dessert company created a new chocolate pack aligned with seasonal themes that took place during stay-at-home orders. Founders recalled that it only took 48 hours from the initial idea to concept photos published on their social media channels. A brewery bundled their existing products in a more commercial format to increase their sales and were surprised by the success as the customers found the purchasing experience easy and convenient.

Facing the constraints imposed by reducing the spread of Covid-19 pandemic, entrepreneurs quickly responded and experimented across all areas of their business. By leveraging existing resources and acquiring new ones, they created new offerings, operations and partnerships. For example, a modern distillery faced severe losses in sales as restaurants closed and events were cancelled. Instead of laying down staff to cut costs down, they created new value offerings (*capturing of*

the value proposition of a firm, their target customers and their strategic positioning in the market) to compensate for the plummeting alcohol sales. They created a novel product category by starting to produce hand sanitiser. Doing this also required experimenting in value architecture (*core competencies and resources of a firm, organisational structure, distribution channels*) with novel supply chains and production methods, as well as new revenue and cost models (*a way a firm generates income and manages its costs*). All these experiments led to further trials with new delivery models and partnerships that would not have been possible with their original products.

Through analysing entrepreneurs' actions, we discovered that rather than conducting isolated experiments, several elements were typically bundled together. Initial responses often led to further action, sparking repetition, iteration and scaling of efforts, building on what entrepreneurs learned from the initial experiments. These initial actions serve as stimulating experiments in developing and revising entire business models. They promote a virtuous cycle of action, which further expands potential future solutions accessible to entrepreneurs.

What this means is that although the thought of introducing a new product, service or process to the market, for example, may initially sound risky to pursue especially in turbulent times, acquiring new information through a series of small experiments can create a relatively low-risk pathway to doing so.

Our research suggests that not only were ventures active experimenters during the crisis, but experimenting was also a way to thrive in tough conditions. In fact, many entrepreneurs described the crisis lowering the threshold for experimentation as it created a sense of urgency and a mandate to try out new things.

Despite severe hardship, crises can foster innovation, and experimenting is a way to de-risk the exploration of these unknown conditions and directions. Even if an experiment doesn't result in immediate business benefits such as increased sales, the organisation gains something worthwhile such as invaluable information on the market or a new expertise area, always expanding their solution space (*represents the range of potential solutions available to a a venture, of which on a portion is actualised in any given moment*). One of the coffee roastery founders' comment captures well the value of experimentation efforts:

> "*You just have to keep moving, do things, be present and show that you're alive and everything is happening, that might provide some bigger things over time.*"

> "*The corona situation has made it very concrete that we have to come up with things, and try things out.*"


Image credit: SUGAR Network/Falk Uebernickel

From our findings, we identified four different ways how organisations through experimenting create solutions or increase the capacity to create solutions in the future.

1. The first pathway extends the solution space directly through new products, services, production, sales solutions and so forth.

2. The second pathway relates to the expansion of the solution space as it extends ventures' internal capabilities such as learning new domain-specific skills and knowledge or gaining new insights on the direction and processes of the venture.

3. The third pathway increases capacity through relational and ecosystem capabilities. That means growing networks with new contacts and diversifying and deepening interactions with existing ones.

4. Finally, the fourth pathway builds relational and ecosystem value creation capabilities through experiments in prosocial help.

Global crises, despite their adverse effects, can create opportunities for value creation. Through experimenting, entrepreneurs can manage the immediate crisis by maintaining their operational viability through searching for alternative revenue streams but also further enhance their resiliency through increasing the amount of potential solutions and the capacity to execute on them.

Predicting the value and originality of new ideas is difficult without actioning
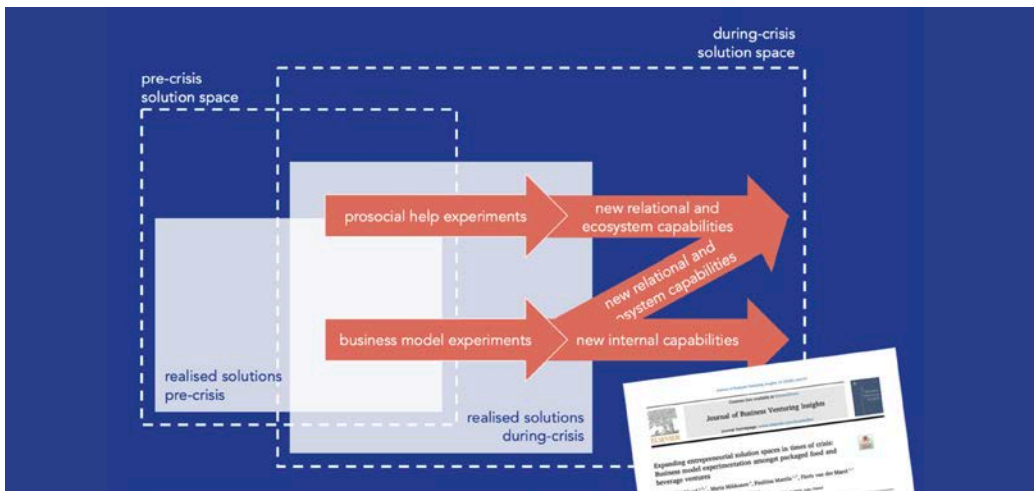
Through experimentation, organisations can expand their solutions space in four different ways.

on those ideas and seeing the results. Experimenting and taking action in small steps creates new knowledge, skills and resources that inform us whether subsequent efforts should be discontinued, modified or scaled.

This suggests that when in doubt, entrepreneurs may be well served by action rather than inaction.

Experimentation allows us to gain crucial knowledge to speed up our decision making. Especially in certain conditions when only a limited amount of information is available to us, it offers an important feedback loop of informing what to do next rather than making those decisions based on assumptions. Experimentation can be a pivotal activity to stay in control of the situation rather than predicting uncertain events.

In the future, organisations shouldn't wait for a crisis to lower their threshold for experimentation. Even incremental and trivial experiments can serendipitously lead to radical innovations and directly benefit the company. In addition, early

experiments - even those seemingly superfluous or trivial - can lead to a lasting competitive edge through action-based learning and capability building, which increases the potentiality of capturing benefits in the future.

Specifically, organisations should look for partners to share experiments. Collaborative experiments not only benefit the development of an organisation's internal capabilities but also allow the extension of resources collectively for all organisations involved, further expanding the potential for future joint value creation and ecosystem resilience. As such, they initiate virtuous spirals of co-development with shared learning, which results in more innovative and connected enterprises.

This article is based on a journal paper by Björklund, Mikkonen, Mattila & van der Marel (2020) published in the Journal of Business Venturing Insights.

Link to the original article https://www.sciencedirect. com/science/article/pii/ S2352673420300536

CREATING IMPACT: SCIENCE & TECHNOLOGY

Integrating Design with Science and Technology is vital not only for Australia's National Innovation and Science Agenda but also for our global future. We apply design approaches to science and technology challenges, shortening the time from technology inception to implementation in products and services for society.

EXPERIENCE RESEARCH FOR COMMERCIAL IMPACT

In 2020, DFM's Director Professor Anita Kocsis together with Professor Sarah Kenderdine co-founded, *muse*. Enabled by the Migros Pioneer Fund and supported by École Polytechnique Fédérale de Lausanne (EPFL), *muse* is an innovative, design-based tool for evaluating visitor experience in museums and research organisations. Applying simple interactive applications, *muse* lets museums hear directly from their audiences. In addition to quantitative metrics (age, gender, geographic origin, number of repeat visitations and so on), cultural institutions can also gain qualitative insights into the immediate experience of a visit. Through *muse*, audiences become an active part of the exhibition and assist in defining value in cultural organizations.

Their work has embraced experience research through design, to uncover subjective and complex science and technology experiences relevant to broad fields.

The first phase of development was conducted in 2020 in collaboration with eight partner museums in Switzerland: Museum of Design Zurich, the Rietberg Museum in Zurich, House of Electronic Arts Basel (HeK), Geneva Museum of Ethnography (MEG), International Red Cross and Red Crescent Museum in Geneva, the Château de Morges and its museums, the Olympic Museum in Lausanne and EPFL Pavilions.

EXPERIMENTS IN DARK MATTER + DESIGN INNOVATION

The Australian Research Council (ARC) Centre of Excellence for Dark Matter Particle Physics was funded $35 million in 2020 to explore and understand the nature of Dark Matter, which is significant as discoveries will extend the Standard Model of particle physics. Headed by Professor Elisabetta Barberio, the Centre has many researchers and partner institutions across Australia (and internationally), and features state-of-the-art detection facilities such as the Stawell Underground Physics Laboratory (SUPL). Design Factory Melbourne, via Professor Christine Thong, an Associate Investigator in the Centre, will power an Innovation Lab aimed at increasing the societal impact of the Centre's science and technology. A range of design-driven initiatives, including adopting CBI A^3 methods, will explore new applications and commercial opportunities inspired by the Centre's scientific capability.

DFM students and staff touring CMS Experiment, 200m underground at CERN.

DESIGN FACTORY MELBOURNE & ANSTO INTEGRATING DESIGN AND SCIENCE

Design Factory Melbourne is proud to collaborate with nandin Innovation Centre, Australian Nuclear Science and Technology Organisation (ANSTO) to fund and leverage challenge-based design initiatives, featuring an innovative PhD program connected into the Design Factory Global Network. 6 new PhD projects at the intersection of design and science will explore commercial application and innovation approach over the next 5 years.

Prof. Anita Kocsis and Prof. Christine Thong from DFM have been appointed ANSTO Principle Innovation Fellows via nandin and Tim Boyle, Director Innovation and Commercialisation at ANSTO and Director of nandin has been appointed an Adjunct Professor at Swinburne via Design Factory Melbourne.

Project Collaborations with ANSTO and DFM:

2019   Redesigning beamline user cabin space and workflow at the Australian Synchrotron

2020   Designing a garment to improve breast cancer patient screening and treatment experience

2020   DFM Alumni as Design Thinking coaches at the ANSTO Science Week Hackathon

2021   Internship opportunities at the nexus of design and science with nandin startup community

2021   1st PhD candidate Shakila Fernando will commence on a Nuclear Medicine Generator re-Design project, in conjunction with ANSTO and Swinburne's Iverson Health Innovation Research Institute.

Tim Boyle speaking at GradX 2019

"*As a physicist, I am normally concerned with quantitative measures when solving a problem. In this collaboration I really liked the way the students decided which features of the project they wanted to pursue. They casted the net very far and wide, unpacked the problem and redefined the challenge, and then looked into which one they wanted to focus on. That for me was really interesting. I think that the approach the team took was perfect and brought a lot of value to the process, and they did this with a very systematic and evidence-based approach.*"

— Mitra Safavi-Naeini
ANSTO

Lead Scientist at ANSTO, DFM Project partner 2020

"*Collaboration with DFM perfectly describes the collision of human-centred design with science and deep technology. While the projects represent early designs, they demonstrate fantastic potential to further investigation and impact on user experience.*"

"*ANSTO's partnership with Design Factory Melbourne and Swinburne has only just started and while this is a great outcome, it is still just the beginning. Buckle up and hang on for the ride as the best is still to come.*"

— Tim Boyle
ANSTO

Director, Innovation & Commercialisation at ANSTO, Adjunct Professor at DFM
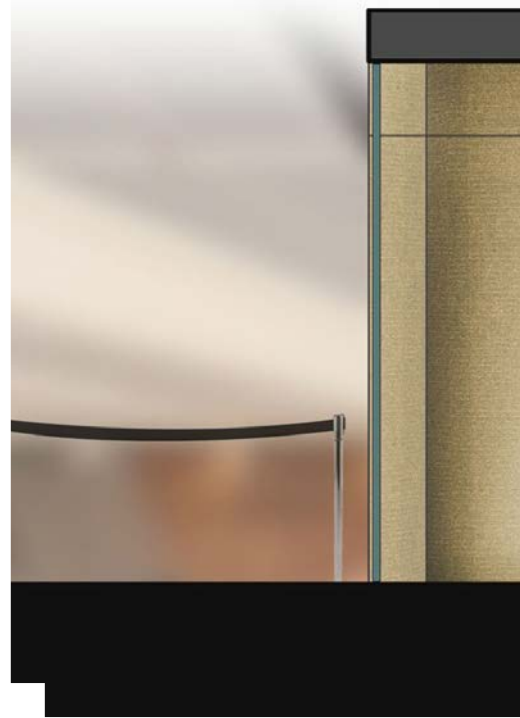
WITH: IDEASQUARE@CERN

Halo

As part of a Challenged Based Innovation (CBI) project, a team of DFM students devised a solution to address the United Nations Sustainable Development Goal 3 – good health and wellbeing. Attending a two-week intensive at science organisation CERN's Ideasquare lab in Geneva, the team generated ideas for possible solutions. Their concept, HALO, is a border checkpoint designed to tackle the illicit drug trade in Australia.

Challenge

The CBI program is a yearly collaboration between DFM and Switzerland-based science organisation CERN's Ideasquare lab, along with other partner institutions in the Design Factory Global Network. Students are challenged to use design innovation to develop solutions that connect technology with societal needs. The concepts are framed around a United Nations Sustainable Development Goal (SDG) and utilise the latest technologies developed by CERN.

This year, our team of students explored SDG 3 (good health and wellbeing) and how it could relate to their local context of Melbourne, Australia. They were tasked with making connections between the SDG and the potential of CERN technology, and to develop a tangible solution with future strategies for long-term implementation throughout 2020, 2025 and 2030.
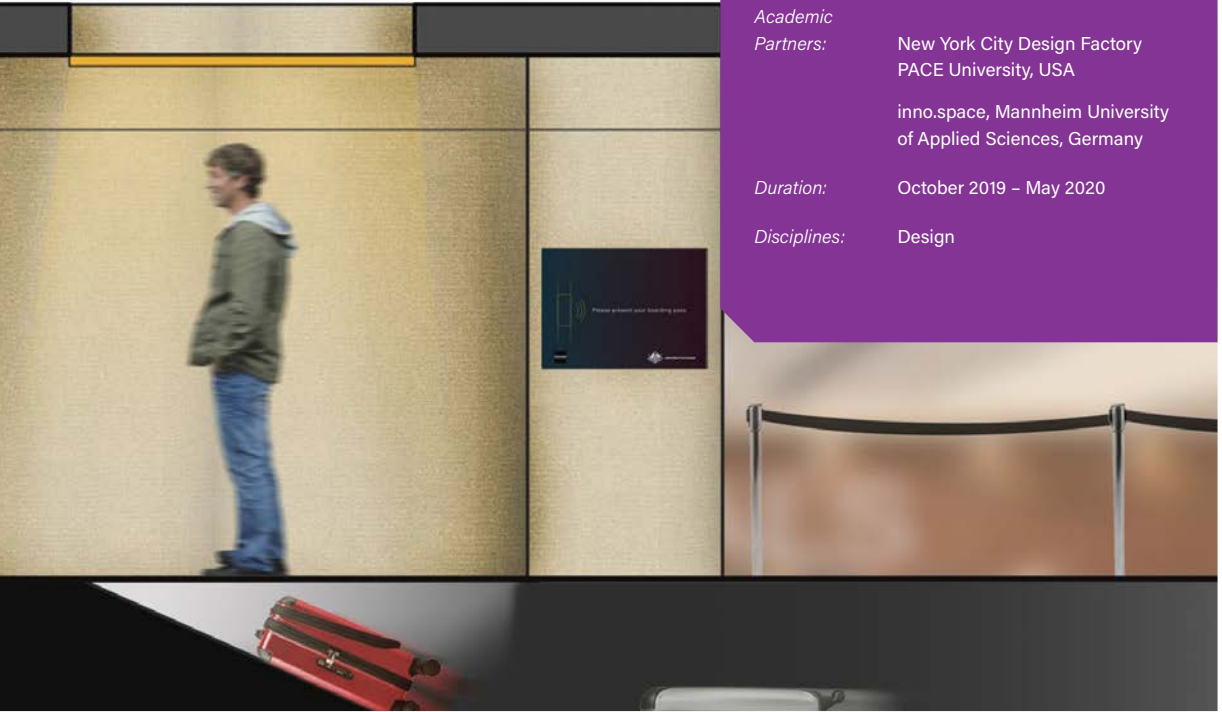
Approach

Team ASE decided to address Australia's illicit drug trade as the basis for their solution. Airports have been under fire recently, as airport staff and officers have been known to misuse their authority and aid in the smuggling of drugs. This is done through micro trafficking of drugs in smaller quantities or importing the drug's raw material, making it hard to detect through current technology.

With police attention aimed at bulk seizures, micro-trafficking has become an increasing problem. However, trafficked amounts are sometimes too small to detect, providing an avenue for corruption to prevail. The team sought to address this issue in their project.

Outcome

The HALO is a checkpoint designed for Australian Border Security, combining immigration, customs and declaration into a holistic solution. It helps in the micro-imaging and scanning of incoming passengers, luggage, cargo and mail to identify any drugs crossing Australian borders through airports, ensuring minimal human intervention and negligence.

The HALO is built with CERN technology, allowing for the detection of illicit substances that might be carried on a passenger, in cargo or a corrupt officer by Medipix3 – a micro imaging device. ROOT – a data analysis technology – gathers data from Medipix3 and compares it to data already stored on the HALO system outlining illicit drugs through supervised machine learning.

With increased detection and seizure of illicit drugs at key entry points, Australia could potentially have a reduced illicit drug marketplace. With less access to these substances, the team hopes that Australian communities could see increased wellbeing through the reduction of addiction and overdoses.
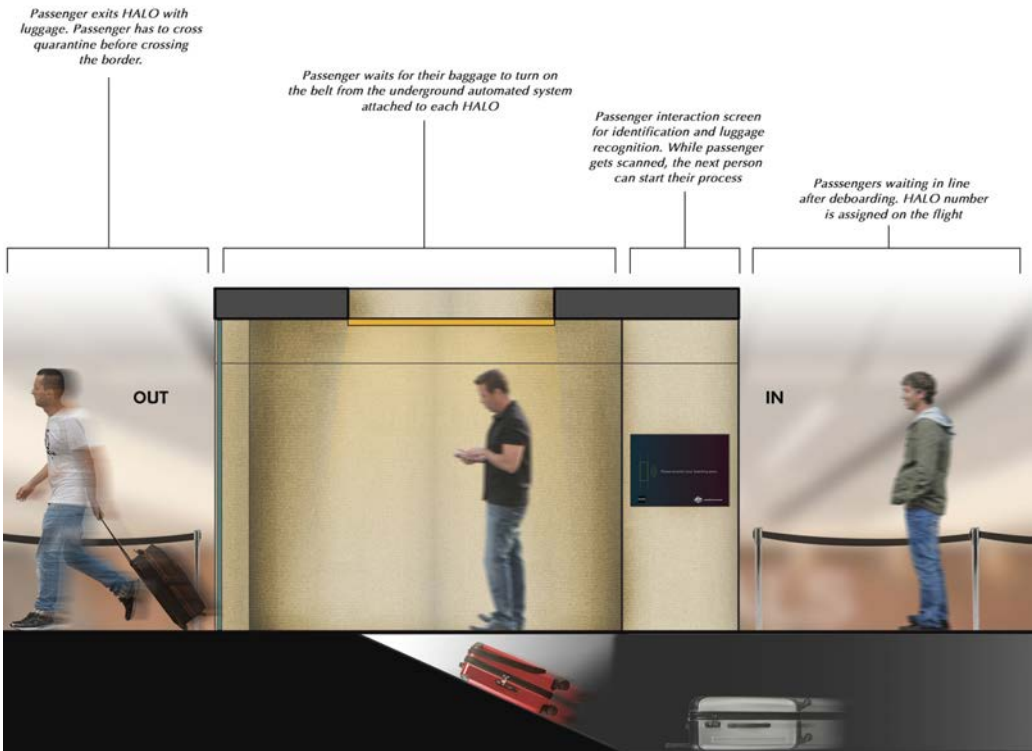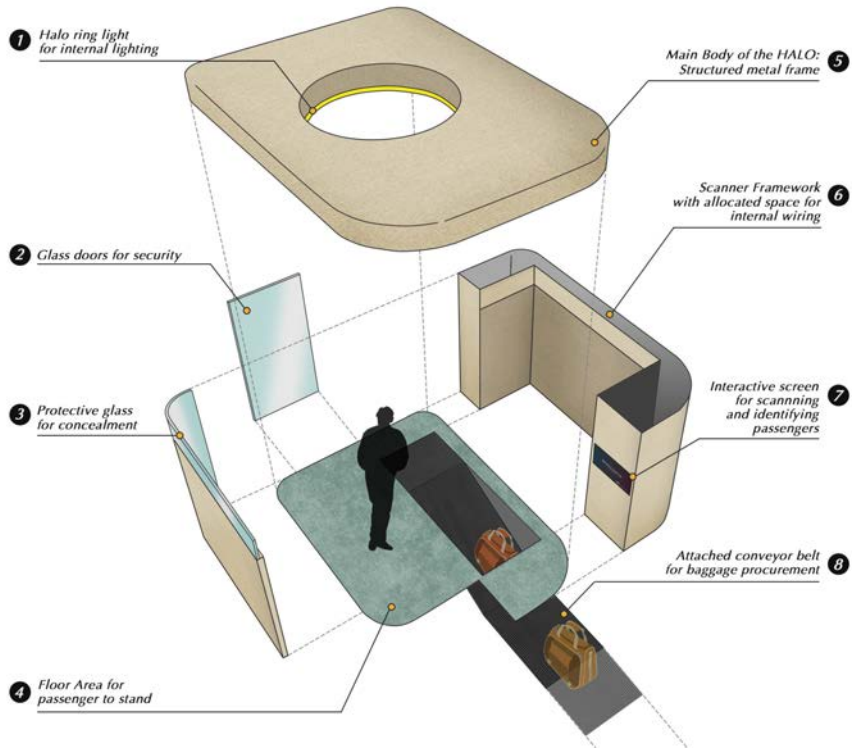
Team

Evan Broumos
Design Strategy & Innovation
Swinburne University of Technology

Amandeep Singh Narula
Architecture & Design
Swinburne University of Technology

Suzi Tzuwei Su
Design & Visual Communication
Swinburne University of Technology

1 Halo ring light for internal lighting

5 Main Body of the HALO: Structured metal frame

2 Glass doors for security

6 Scanner Framework with allocated space for internal wiring

3 Protective glass for concealment

7 Interactive screen for scannning and identifying passengers

8 Attached conveyor belt for baggage procurement

4 Floor Area for passenger to stand

Passenger exits HALO with luggage. Passenger has to cross quarantine before crossing the border.

Passenger waits for their baggage to turn on the belt from the underground automated system attached to each HALO

Passenger interaction screen for identification and luggage recognition. While passenger gets scanned, the next person can start their process

Passsengers waiting in line after deboarding. HALO number is assigned on the flight

OUT

IN

CREATIVE COLLISIONS
Collaboration with The Centre for Astrophysics & Supercomputing

Words by Amelia Iverson
& Pauliina Mattila

Design is a universal approach to problem solving across disciplines. What if we applied this to the field of astronomy? Stars were aligned when Design Factory Melbourne and The Centre for Astrophysics and Supercomputing joined forces by exploring creative solutions for reducing the carbon footprint of astrophysicists.

There is growing recognition nationally and internationally around the need for astronomers to lower their carbon footprint. This challenge presented an opportunity for Swinburne University's Centre for Astrophysics & Supercomputing (CAS) to take action and show leadership in the Greening Astronomy.

CAS had identified a number of areas in which the Astronomy industry is contributing tons of CO_2 into the atmosphere. The amount of traveling required for observing, attending conferences, and maintaining active collaborations, both domestically and internationally, causes CAS to be the most travelled research team in Swinburne. Another major energy consumer is the use of the OzSTAR supercomputer. The temperature management of the equipment and the operating systems of the computer have a major impact on the amount of energy used at Swinburne.

To tackle this problem, CAS wanted to explore creative responses to these challenges and collaborated with DFM to strive for sustainability in this field. Pauliina Mattila from our DFM team ran a creativity workshop with Professor Christopher Fluke and participants from the CAS to help build creative confidence across disciplines in problem solving. Astronomy PhD students worked with ideation tools from the design thinking process to figure out how they might reduce the environmental impact of their work in astronomy. Different ideation tools stretch participants' thinking as they force exploration of ideas that at a first glance may look too wild, but hold a promise for an innovative, yet implementable solution. One of the workshop participants articulates this well:
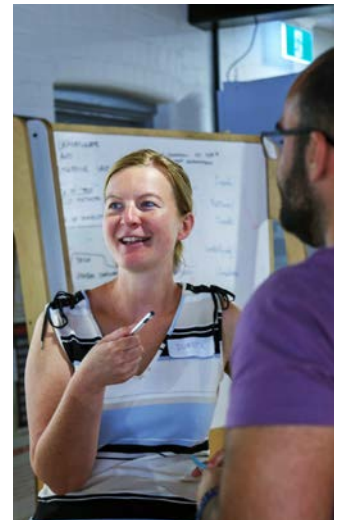
"I have to train myself to think more wider and without sorting and therefore excluding ideas immediately."
— Participant reflection

WITH: IMAGINE INTELLIGENT MATERIALS

Carelink

A team of students from Aalto Design Factory (Finland) and Design Factory Melbourne developed Carelink, a smart mattress to detect and prevent incidents in Aged Care Homes. Their solution uses Graphene – a smart material produced by Imagine Intelligent Materials that can detect pressure, movement, heat and moisture.

Partner

Imagine Intelligent Materials develops sensing solutions that extract data for large areas such as buildings, infrastructure and logistics. The combination of their expertise in signal processing and a unique ability to incorporate Graphene into different materials allows for the creation of products that essentially perform as '*human skin*', providing important data and feedback. Imagine was founded in 2014 with a headquarters in Geelong, Australia, as well as a digital processing engineering team in Salo, Finland. Imagine also works in partnership with Swinburne University of Technology for research and product development.

Program: Global - Product Development Project (PdP)

*Industry
Partner:* Imagine Intelligent Materials

*Academic
Partner:* Aalto Design Factory,
Aalto University, Finland

Duration: October 2019 - May 2020

Disciplines: Occupational Therapy, Engineering,
Business & Design

Challenge

Envision the possibilities for a sensing surface – enabled by Imagine Intelligent Material's Graphene product – that is cost-efficient, solves a real-life problem, and could potentially change lives.

Outcome

The quality of aged care facilities and services has been put under a microscope in recent years, across the world from Australia to Finland. The team devised Carelink, a solution, which aims to improve the quality of life for elderly people in aged care facilities and reduce the healthcare burden of ageing populations with a simple, easily-integrated mattress and a software solution.

Carelink uses a mattress with a Graphene-based sensing layer, which can detect proximity, pressure, rapid movement (indicating seizures or pain), moisture (indicating incontinence) and heat. The mattress also includes a call button for residents to intuitively call for help.

Via a software application, aged care staff can receive notifications for any alerts detected through the mattress (i.e. a resident falling out of bed). The software app also includes each resident's information, incident history and their current status. Aged care nurses can respond to alerts and input incident reports into the app.

A web application allows the facility's management to download reports of data input, allowing incident trends to be discovered and therefore the development of tailored preventative solutions for the residents.

Impact

The Carelink solution can provide a better quality of care for aged care residents, with faster detection of incidents leading to faster response times. Carelink also aims to facilitate more positive interactions with aged care nurses as a result of a reduced workload due to a streamlined approach.

Team

Aleksi Huttunen
Mechanical Engineering
Aalto University

Jessica Kearney
Occupational Therapy
Swinburne University of Technology

Laura Kytömäki
Collaborative and Industrial Design
Aalto University

Liana Stratsianis
Occupational Therapy
Swinburne University of Technology

Pin Tian
Human Computer Interaction
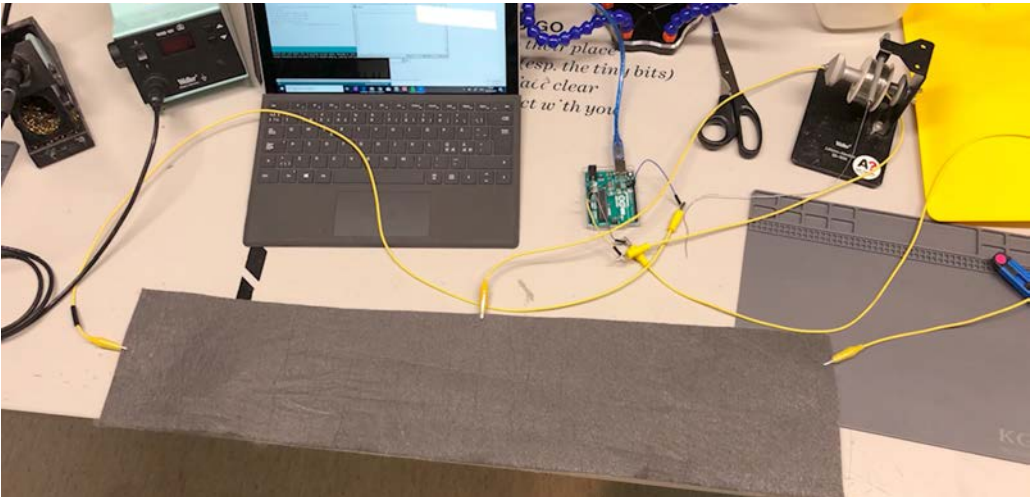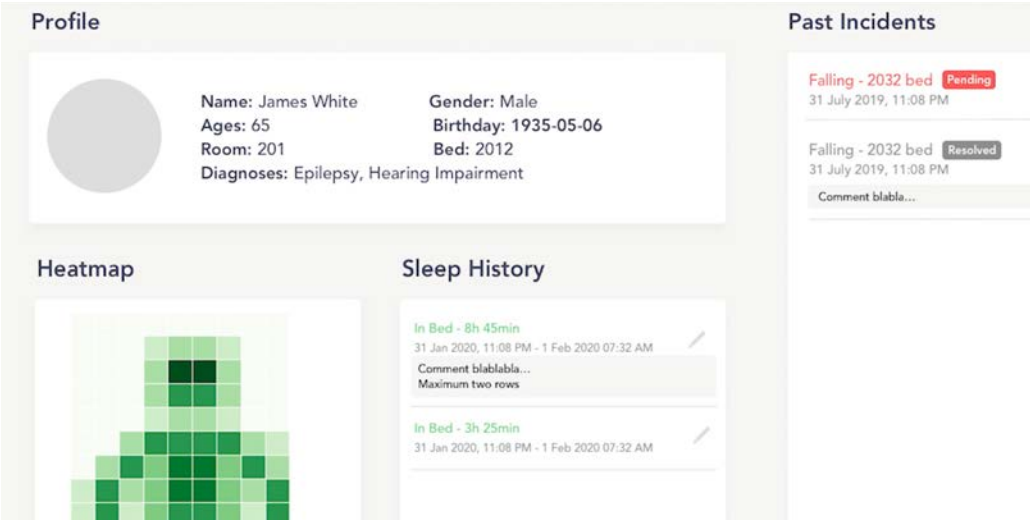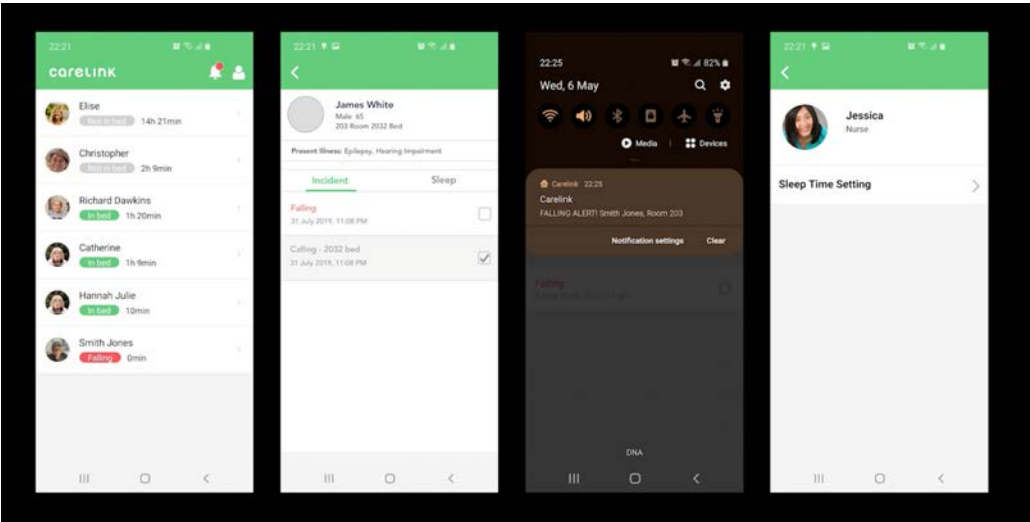and Design
Aalto University

Ilari Tillikainen
Mechanical Engineering
Aalto University

Uyen Truong
Water and Environmental Engineering
Aalto University

Jessica Wright
Occupational Therapy
Swinburne University of Technology

Profile

Name: James White
Ages: 65
Room: 201
Diagnoses: Epilepsy, Hearing Impairment

Gender: Male
Birthday: 1935-05-06
Bed: 2012

Past Incidents

Falling - 2032 bed   Pending
31 July 2019, 11:08 PM

Falling - 2032 bed   Resolved
31 July 2019, 11:08 PM
Comment blabla...

Heatmap

Sleep History

In Bed - 8h 45min
31 Jan 2020, 11:08 PM - 1 Feb 2020 07:32 AM
Comment blablabla...
Maximum two rows

In Bed - 3h 25min
31 Jan 2020, 11:08 PM - 1 Feb 2020 07:32 AM

WITH: NAKATASHI METAL CO

Frio

A team of students from Design Factory Melbourne and Kyoto Institute of Technology (Japan) created Frio, an energy-saving smart fridge system for hotels using new innovative cooling technology from Nakanishi Metal Works Co., Ltd.

Partner

NKC Nakanishi Metal Works Co., Ltd. manufactures factory automatic products in Japan for a global market. Their research and development division, Kaimen, are looking forward to solutions that can impact human life in the most effective way by developing products and systems for them.

Challenge

Kaimen has developed a compact and energy efficient micro cooling compressor. NKC asked the team to identify a problem which could benefit from NKC-Kaimen's new innovative compressor-powered micro-cooling technology, and develop a solution using said technology.

Outcome

In hotel rooms, fridges are usually the most energy-consuming appliances and the current management process to optimise fridge energy consumption is labour-intensive and inefficient. Frio is an energy- and space-optimising smart fridge system for hotels. It integrates innovative, compact hotel room fridges with dedicated software that reduces energy consumption by monitoring and controlling the fridges according to hotel reservations. The fridge's digital interface also improves guests' experience with respect to food and drink consumption in hotel rooms.

Team

Prathan Baxi
Design
Swinburne University of Technology

Ricardo Costa
Entrepreneurship and Innovation
Swinburne University of Technology

Sanika Dandekar
Design
Swinburne University of Technology

Takumi Kaiya
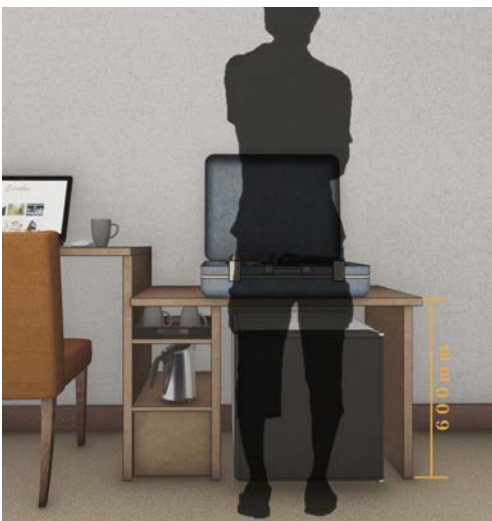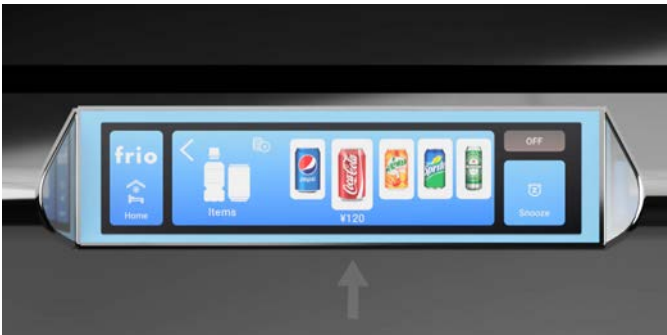Computational Design
Kyoto Institute of Technology

Narumi Ono
Architecture
Kyoto Institute of Technology

Matthew Wohlabaugh
Design
Kyoto Institute of Technology

Reo Yasue
Computational Design
Kyoto Institute of Technology

Program:	Global – SUGAR
Industry Partner:	Nakatashi Metal Co
Academic Partner:	Kyoto Design Lab, Kyoto Institute of Technology, Japan
Duration:	October 2019 – June 2020
Disciplines:	Architecture, Business, Design, Entrepreneurship & Innovation

CREATING IMPACT: INCLUSIVE DESIGN

Traditionally, products and services are designed with an average user in mind. Every design decision has the potential to include or exclude different users, and we can easily be cut out by our physical ability, age, gender, culture needs etc. Applying inclusive design and universal design principles means that the solutions are accessible for as wide a spectrum of people as possible. Taking an inclusive design approach enables us to create better products with greater user satisfaction and greater commercial success. We have the privilege to work with health disciplines such as occupational therapy resulting in deep expertise in human behaviour and well-designed solutions addressing the needs of many.

Need Knowers, people with a lived experience on disability, are at the heart of the TOM@ University program. They collaborate closely with student teams in research, ideation and testing of the prototypes.

Image credit: TOM:Melbourne

TAC SPINAL CORD RECOVERY PROJECT

Design Factory Melbourne is part of a research project together with researchers from Swinburne, University of Southern Queensland and NDIA for Traffic Accident Commission (TAC) related to the community integration of Victorians who experience traumatic spinal cord injury. DFM is leading the co-design interactions with consumers and stakeholders. The project aim is to understand the current effectiveness, impact, and economic value of a program that has been established in response to a previously identified challenge to assist a spinal cord injury client's transition from inpatient rehabilitation to community living.

Student Voice:

EMILY CHEESMAN

Master of Occupational Therapy

Emily completed a stream of units with DFM, where she has had her first taste of design-inspired methods.

"The biggest value for me from DFM was the self-reflection exercises. In Occupational Therapy, we're reminded constantly that it's important to understand where we're coming from to ensure we can support our clients' aspirations and the best outcomes for them. But sometimes when you're focusing on understanding the clinical work, you don't really sit down and think about what you've learned or why you're approaching something in a particular way. DFM's self-reflection process gave an opportunity for that, and it reminded me how helpful it is to set aside time in a project to think about what went well and what could be improved. Overall, I think it's good to be exposed to different disciplinary perspectives to understand what they contribute and what your own discipline may be lacking."
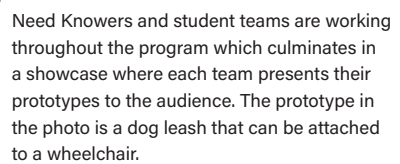
Need Knowers and student teams are working throughout the program which culminates in a showcase where each team presents their prototypes to the audience. The prototype in the photo is a dog leash that can be attached to a wheelchair.

Image credit: TOM:Melbourne

TOM@UNIVERSITY

TOM (Tikkun Olam Makers) is a global movement of innovators dedicated to creating affordable solutions for the needs of people with disabilities worldwide.

TOM@University program in partnership with Swinburne University and TOM:Melbourne combines the TOM process and teams of makers and Need-Knowers, with Swinburne University's interdisciplinary, human-centred design and engineering curriculums to create solutions that enhance the lives of people with disabilities. Since 2018, through the annual program, the teams have created a broad range of assistive technology solutions ranging from a wheelchair cleaner to a flotation device for hydrotherapy. In 2020, the student cohort addressed challenges related to creating an inclusive and accessible workforce of the future.

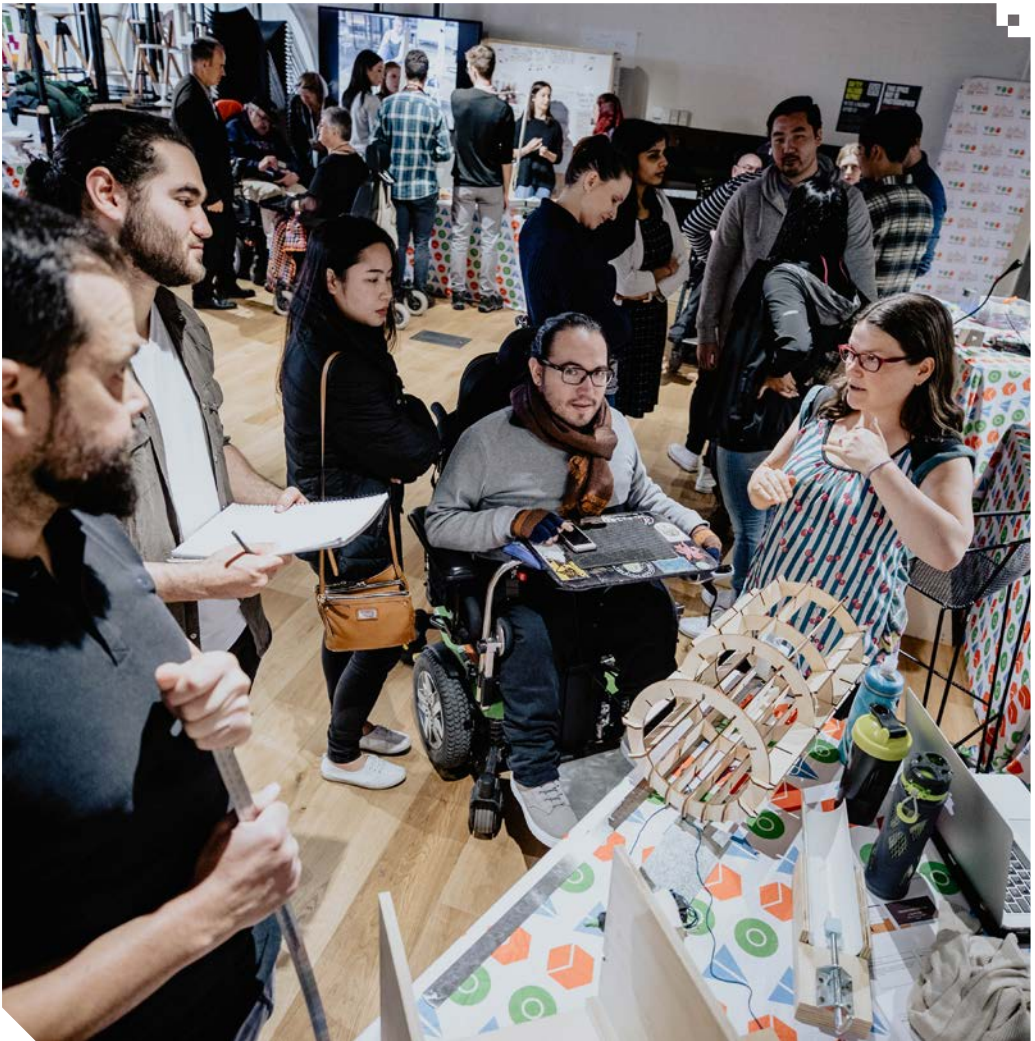|	
Program:	TOM@University
Industry Partner:	TOM:Melbourne, Solve, Scope, Untapped and Swinburne AccessAbility Careers Hub
Duration:	August 2020 – November 2020
Disciplines:	Occupational Therapy (OT) & Design

Image credit: TOM:Melbourne

Image credit: TOM:Melbourne

GLOBAL INNOVATION ASIA-PACIFIC TRIPLE E AWARDS

Swinburne's TOM@University program won the Innovation Challenge of the Year category in the inaugural 2020 Asia-Pacific Triple E Entrepreneurship and Engagement Excellence Awards in Higher Education.

WITH: SOLVE

Hybrid world of work and study.

Partner

Solve Disability Solutions is a not-for-profit organisation providing occupational therapy and custom assistive technology equipment services for people living with disability.

Challenge

To explore accessible and inclusive work and study environments that allow people with disabilities to study and work effectively in multiple locations. In collaboration with Solve, student teams researched a range of challenge areas and explored solutions that enable greater participation and performance across working environments, and support retaining and maintaining employment.

Outcomes

Accessibility Hub App

A digital interface to provide campus accessibility information so that students with disabilities including new students and visitors can navigate their way around the campus and use the spaces effectively.

Big Smiles
Carlisa Pumar (OT), Nathan Reid (OT), Nick Simpson (OT) & Tahmid Hossain (OT)

The Easy Plug

A plug grabber and inserter that helps the user to insert plugs to the power points and take them out with ease.
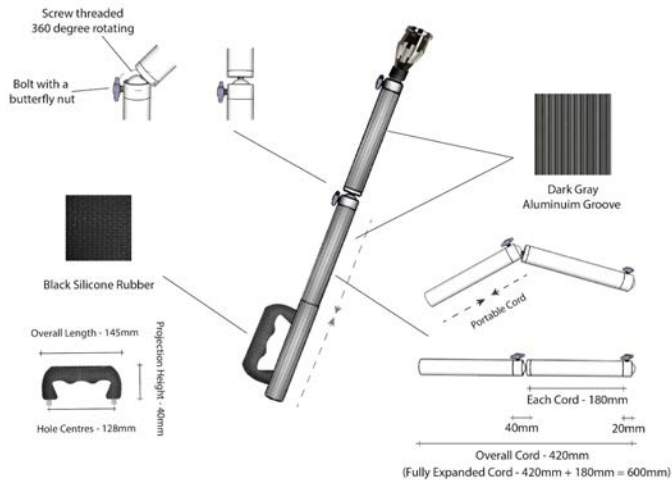
CELeBS
Charlotte Di Leo (OT), Ebony Bellerose (OT), Lomchan Punthurungsee (Fashion and Textile Design), Belinda Krechman (OT) & Sivmey Taing (Interior Design)
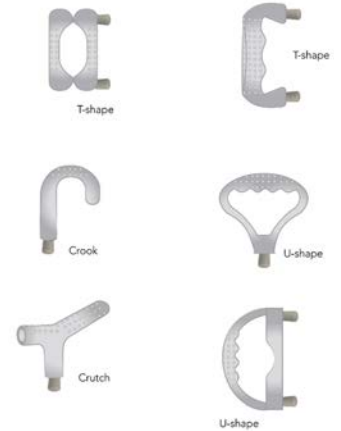
Desk Organiser

A desk organiser with storage space, easy access to power points and cord management features. The desk organiser would be collapsible for easy transportation.

Supreme Squad
Dean Fontbin (OT), Emily Jackson (OT), Jesse Philpot (OT) & Travis Chan (OT)

WITH: SCOPE

Enhancing job-related interactions.

Outcomes

Interactive Touch Table & App

Enabling seamless communication between staff members with intellectual disability and customers.

Gucci Gang
Camille Evangelista (OT), Evelyn Vo (OT), Genevieve Martin (OT), Phoebe Williams (OT) & Vanessa Bowie (OT).

Partner

Scope is one of the largest disability service providers in Victoria, Australia. Scope supports people with physical, intellectual and multiple disabilities and developmental delays to achieve their goals.

Challenge

To enhance job-related interactions for Scope customers with intellectual disabilities who often face added challenges socialising with people who are inexperienced in such situations. Proposed solutions aim to reduce barriers to small businesses hiring people with disabilities, which would enhance Scope's success in supporting their customers to secure meaningful work.

Co-work & ConNect

A workplace app that helps bridge communication gaps in the work environment and enables co-workers to learn more about each other and their work preferences. The app includes features like worker profile screen, a work roster, a new co-worker notification and 'text to voice' function.

Cool Name Pending
Dean Fontbin (OT), Emily Jackson (OT), Jesse Philpot (OT) & Travis Chan (OT)

WorkBud App

A digital interface to help with common communication phrases and vocabulary, a work 'to do' list with a detailed breakdown of steps and coping strategies to regulate feelings and emotions.

The Massive Minds
Alexandra Sison (OT), Maggie Wong (OT), Shala Smith (OT) & Shiat Hui Chow (OT).

Eye-Chat

Wearable glass technology and an accompanying app to offer dynamic and seamless communication support. The app supports the user for more immediate responses to non-verbal communication, encourages dynamic and appropriate interactions and builds the user's self-efficacy and skills.
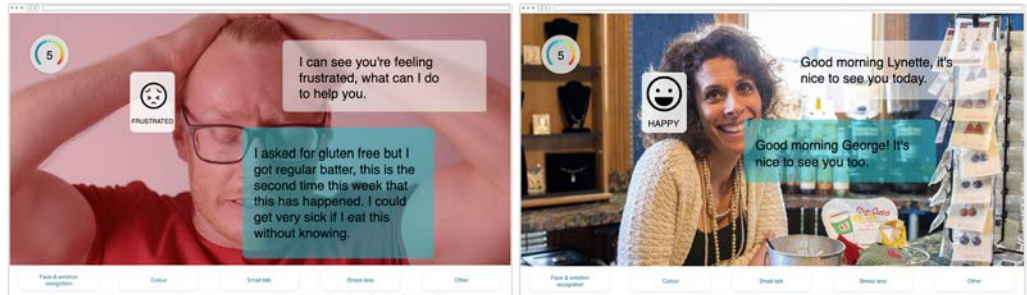
Team Eye-Chat
Emily Cheesman (OT), Emmy King (OT), Emma McMartin (OT) & Claire Stueart (OT).

Application
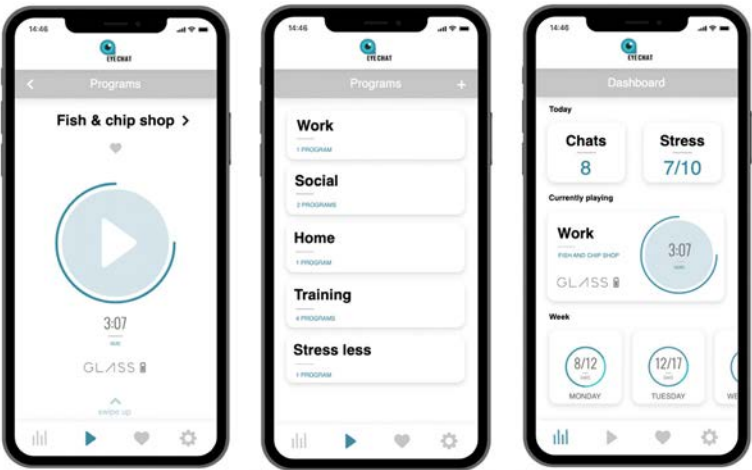
Smart Glasses

WITH: SWINBURNE ACCESSABILITY CAREERS HUB

Inclusive and Accessible Career Pathways.

Partner

Swinburne AccessAbility Careers Hub housed at Swinburne University supports students living with a disability or a medical or mental health condition to develop career management skills and employability.

Challenge

To create design solutions for people living with disabilities to make future work more inclusive and accessible. In collaboration with Swinburne AccessAbility Careers Hub, students explored ways to encourage organisations to become more confident recruiters of people with disabilities. Solutions range from building awareness to accessible and inclusive recruitment processes to a focus on developing research and best practice on onboarding and reasonable adjustment processes for employees with disabilities.

Outcomes

Grad2Employ

A central online place of support for individuals with invisible disabilities (e.g. mental health conditions) during the job seeking process. The platform assists job seekers in their job seeking process and provides support and information to help a job seeker achieve their career goals.

Real MVPs
Tyler Gilmer-Reeves (Design), Bernadette Beghetti (OT), Kiran Johal (OT), Alexia Nicolaou (OT) & Caia Reis (OT)

WorkABLE

An app for employees and employers providing tailored workplace adjustments with a focus on mental health.

Team WorkABLE
Emily (OT), Stephanie Setiawan Hartanto (OT), Arianne Jacobs (OT), Sophie McNally (OT) & Amira Seneque (Design)

InRecruit

App providing interactive training modules to improve the capability and inclusive practices of recruiters. Interactive learning experiences aim to illustrate how disability affects jobseekers' everyday life and to enhance inclusive recruitment practices through empathy and understanding.

Under Constructions
Madeleine Kilpatrick (OT), Grace Yang (OT), Charlotte Dinnie (OT) and Katie Grieve (OT)
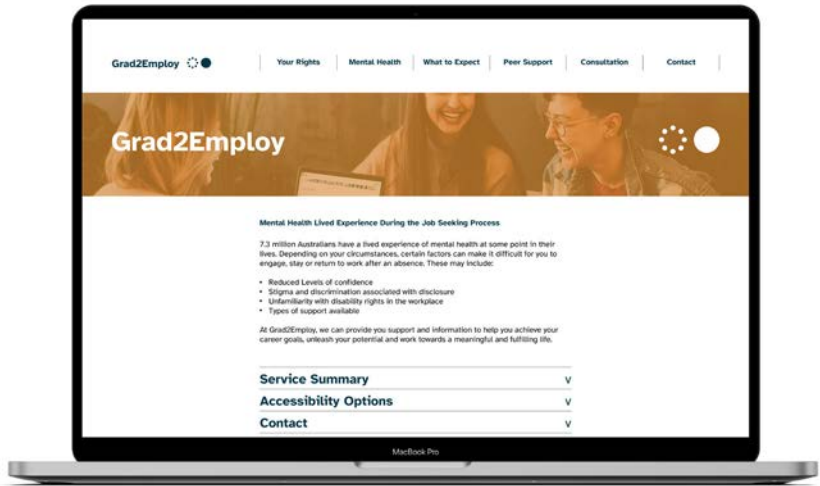
Image credit: TOM:Melbourne

COLLABORATING TOWARDS INCLUSIVE BANKING

Industry partner reflecting on the collaboration experience

Words by Xialene Chang from Untapped

Originally published on The Neurodiversity Hub

Untapped is a network of autism professionals, recruiters, software developers, training providers, researchers and workplace consultants, all passionate about neurodiversity inclusion.

Their mission is to build high-performing teams from groups of highly-skilled individuals. Untapped is passionate about identifying commercially-compelling opportunities in organisations for neurodiverse teams and uncovering extraordinary individuals to form those teams.

Untapped's first-ever collaboration with Swinburne University of Technology's 2020 TOM@University program, Building An Accessible and Inclusive Future Workforce, was a hugely successful and rewarding experience for all participants – despite the challenges of an unprecedented online semester.

TOM@University partnered with TOM:Melbourne to combine the TOM mission – to create and disseminate affordable solutions to the neglected challenges neurodiverse and physically disabled people face– with Swinburne's human-centred design and engineering curriculums. Pauliina Mattila, Design Factory Melbourne coach and program advisor, talks about the aim of the 2020 program:

"The challenges tapped into the large movement towards an inclusive and diverse workforce, a topic that was particularly relevant in the pandemic times and for addressing the very low employment participation rates for people with disabilities in Australia. The student teams went above and beyond in their efforts and created some very interesting concepts ranging from inclusive banking to improving access to study, an inherent part of the pathway of pursuing a career and independent life."

For the initial twelve-week program, Untapped was paired with a bright team of Occupational Therapy and Design Honours and Masters students who enthusiastically took on the task of creating a solution to the industry challenge we put forward: improving the accessibility of financial services and products to the neurodiverse cohort. Jaiden Gusti, speaking on behalf of his other team members Courtney Forbes, Claire Ioannidis and Celestine Le Blanc says:

> "*We live in a world of convenience, with it becoming increasingly more digital. It is only right that we continue to design the world we live in to be one for everyone, especially for those who have been disenfranchised so frequently before. Having the chance to not only interview, but collaborate with neurodiverse people to develop an experience that would be relevant for everyone, was an opportunity our team could not pass up!*"

Throughout the twelve weeks, Untapped representatives had the opportunity to regularly ideate with the student team and facilitate meetings with relevant experts, researchers, and user groups. These sessions proved extremely fruitful and we would like to extend a special thanks to Ru Ying Cai from Autism Spectrum, trainees in ANZ's Spectrum Program, and ANZ's digital banking and diversity team for being generous with their time and knowledge.

At the end of the twelve weeks, an impressive prototype of the proposed solution – an all-inclusive financial literacy and banking app called Money&Me

that can be optimised for individual engagement preferences – was presented by the student team to a range of stakeholders, including ANZ's Head of Accessibility, Meg Dalling, who says:

> "*We were delighted to welcome the students to ANZ to present the results of their work- an innovative prototype banking app designed to tackle the barriers that can present for the neurodiverse community. Their approach represents the best of inclusive design- underpinned by insights from those whose needs are often not met by mainstream services. We know that accessible banking is fundamental to financial inclusion, which in turn supports confidence, dignity, independence and financial wellbeing. The project sparked a great conversation between our designers and the students on the power of inclusive design to change lives.*"

During the second phase of TOM@ University, Swinburne's engineering students develop some of the prototypes into open products which are to be ultimately disseminated globally through the TOM Project Platform.

TOM@University does an inspiring job of bringing together educational institutions, influential corporations, small businesses, diverse user groups and a young-generation of interdisciplinary minds to address the neglected challenges of people living with disability – and in doing so, shows that making the world a more accessible place requires the efforts of all of us.
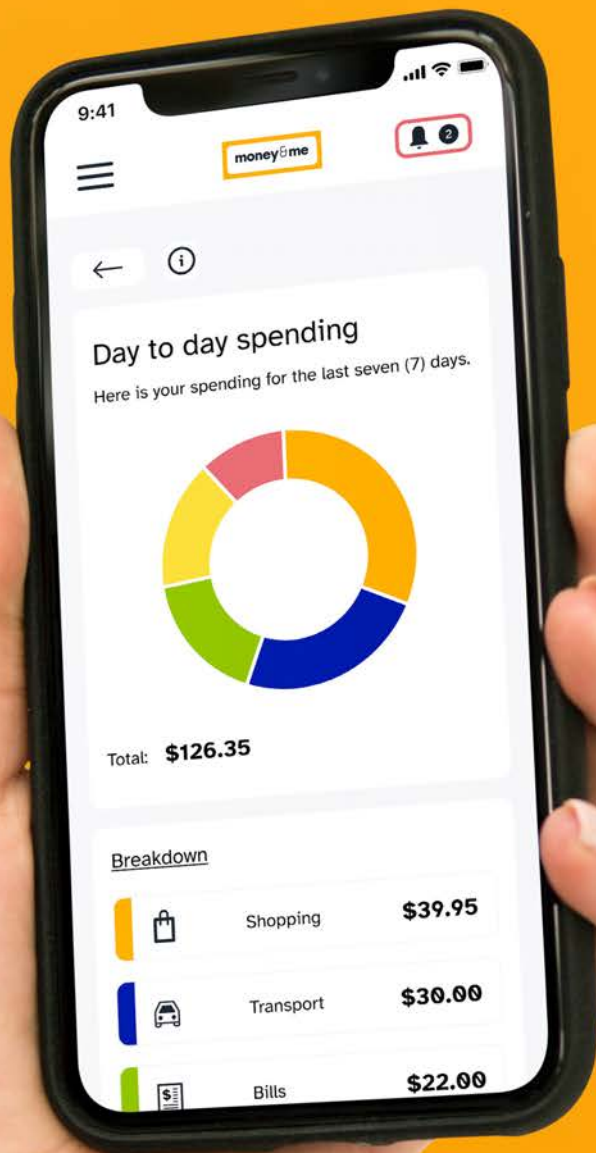
WITH: UNTAPPED

Inclusive Banking and Financial Independence.

Challenge

In this challenge, the student team collaborated with *Untapped*, leaders amongst neurodiversity research and promotion, to improve accessibility of banking services for neurodiverse people. The team focused on Autism Spectrum Disorder (ASD), a population with sensory processing differences who experience challenges with communication, social interactions and repetitive behaviours. They sought to consider how we might ease the process of managing finances for young people with ASD to gain independence as an adult. Key themes from research included the need to improve financial literacy and online banking interfaces, which led to inform and frame their design solution, Money&Me.

Outcome

Money&Me is a digital banking app, designed for neurodiverse young adults, which takes fundamental financial literacy learning modules and incorporates them into personal banking. The solution not only provides accessibility to banking services for neurodiverse people but provides a universal design solution for all to engage in an inclusive platform to improve their financial literacy, as well as secure their long-term financial security and wellbeing.

Team

Courtney Forbes
Occupational Therapy
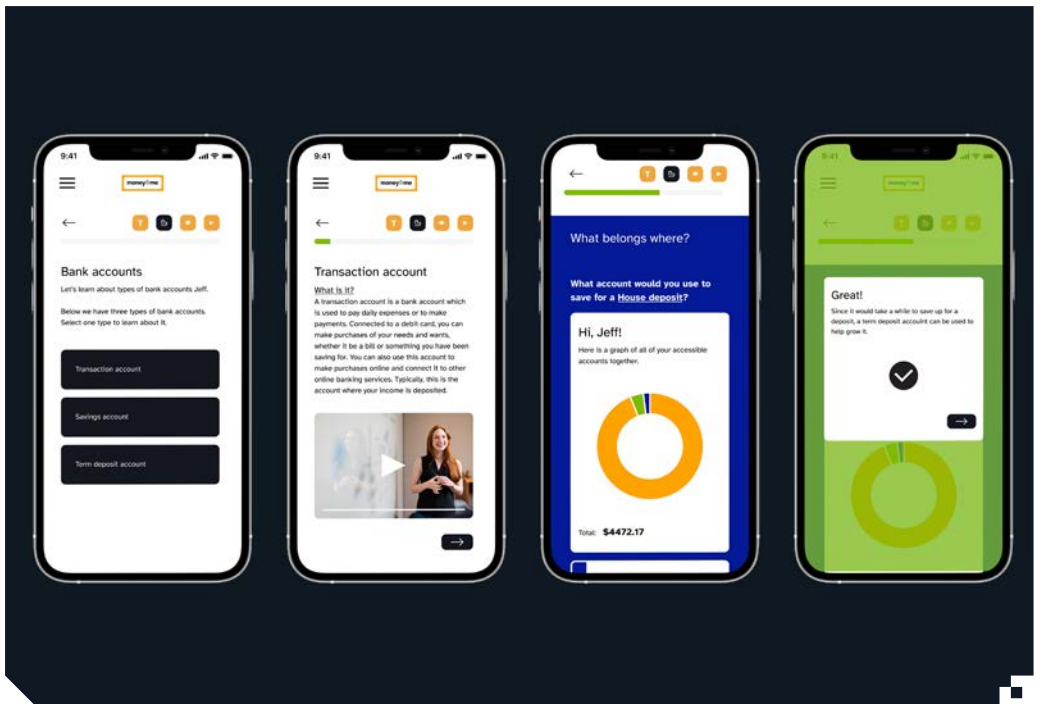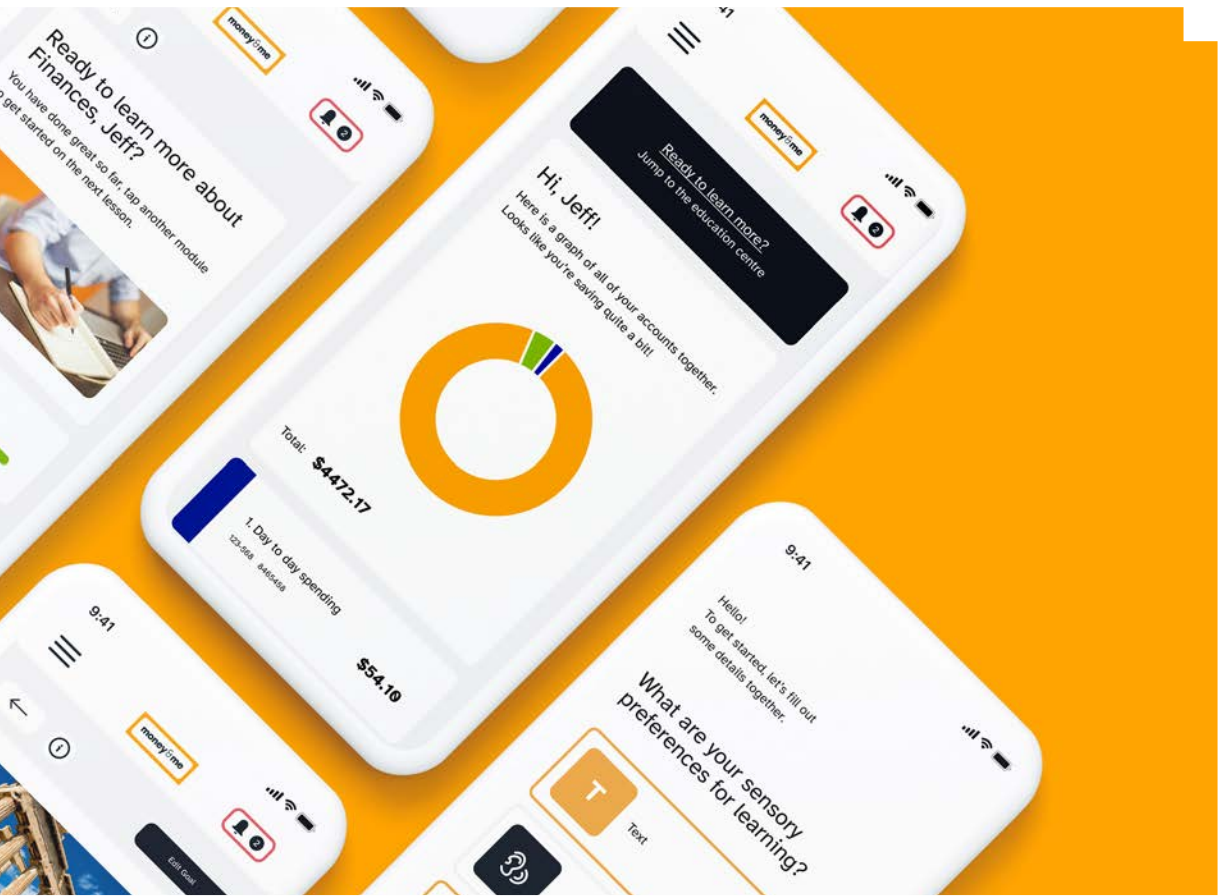
Jaiden Gusti
Design

Claire Ioannidis
Occupational Therapy

Celestine Le Blanc
Occupational Therapy

CREATING IMPACT: INNOVATION ECOSYSTEMS

Thriving innovation ecosystems drive economic growth, deliver new jobs and create prosperous communities for residents to live, work and visit in. Overall, they're important drivers for larger societal wellbeing. Although innovation ecosystems are large systemic entities consisting of the public sector, industry, academia and citizens, their success comes down to meaningful interactions between individuals. We at DFM are interested in understanding how to foster these communities on all levels driving coherent, systemic change.

FUELLING INNOVATION IN MANUFACTURING TO NAVIGATE IN UNCERTAINTY AND TO SPUR GROWTH.

The pace of technology change is faster than ever before and each industry and sector is being impacted by the increased uncertainty of the future.

Innovations – including technology innovations – require a holistic approach to ways of working and certain conditions to flourish, consisting of processes, environments, culture and mindset.

DFM ran an innovation webinar as a part of Factory of the Future Industry 4.0 Training Webinar Series. We shared and explored influencing elements and conditions that contribute towards innovations across technology industries and sectors. We unpacked different factors that enhance or hinder the likelihood of innovations taking place now and in the future, and shared our view of the innovation framework around:

- Process: advancing creative problem-solving and experimentation
- Mindset: the attitude driving behaviour and approach
- Environment: the surroundings and space where work happens
- Community & culture: the people who we work with and the collective values

GLOBAL CONVERSATIONS AROUND ENTREPRENEURIAL ACADEMICS AND SPANNING BOUNDARIES

Engagement with the University-Industry Interaction Network

UIIN is an international knowledge leader on university-industry engagement, entrepreneurial & engaged universities and knowledge transfer. They conduct research, organise events and provide training and consultancy services to the community of 100x organisational and 500+ individual members.

DFM Coach Pauliina Mattila joined a panel of international experts to discuss Entrepreneurial Academics. The panel was organised by the University Industry Interaction Network (UIIN). The vivid conversation unpacked the profile of an entrepreneurial academic, how entrepreneurial behaviour can be developed and what kind of support mechanisms would allow for more entrepreneurial academic behaviour. Main insights were around understanding that an entrepreneurial attitude is almost ingrained in an academic role and inherent in surviving in today's drastically changing world.

September 2020

The UIIN Boundary Spanning Champions online forum Dec 2020, represented by 40 participants from several European countries, including Australia, the US and Africa, came together to progress the field of boundary spanning. The diverse approaches highlighted people who are at the forefront of brokering, interaction and championing meaningful engagement with university and industry. The consistent theme across diverse approaches was that grand global challenges rely on collaboration beyond silos, disciplines, business models and politics.

Bricolage and Boundary Riding Through Passion Based Culture to Make a Difference in the World

In her talk, DFM Director Prof. Anita Kocsis focused on the challenges of championing the champions inherent in boundary spanning work through the lens of the bricoleur as inspired by French anthropologist Claude Le'vi-Strauss to demonstrate the creativity and resilience required in cross- institutional, cultural, disciplinary, sectoral collaboration. The metaphor of the bricoleur reinforces the organic, creative and strategic evolution of the DFM initiative.

Prof. Kocsis presented insights born out of her experience as a custodian of DFM and associated challenges of boundary spanning work within the university, research organisations and enterprise including the work of organisational complexity, multiple accountabilities, strategic direction and governance. She presented the paradoxes associated with the work of boundary spanning as custodians of an innovation lab who alongside a team of champions work towards meaningful change through collaboration across diverse sectors in university, industry and research organisations.

She presented a set of tensions for further consideration to understand the work of change agents and the challenges of boundary spanning across diverse organisations in a global context, based on the mapping conducted in the Design Factory Global Network (Oinonen et al, 2020):

Oinonen, P and (DFGN strategic team et al); DFGN 2020 Development Session Index, IDFF.

By Prof. Anita Kocsis

December 2020

Tension 1:
Autonomy vs governance

Tension 2:
Risk taking and experimentation vs fulfilling expectations

Tension 3:
Autonomy vs accountability

Tension 4:
Community vs virtual

Tension 5:
Evolutionary Purpose vs Strategy

Tension 6:
Growth vs Familiarity

Tension 7:
Uniqueness and Diversity vs selection criteria

Tension 8:
Peer Support vs Focus of Resources

Tension 9:
Clustering vs event participation

Mapping Divergent Ingredients of Innovation Ecosystems

In her presentation, DFM Coach Pauliina Mattila talked about mapping different ingredients of innovation ecosystems. The rationale for her work stems from the identified challenge that one of the main blockers of innovation ecosystem research is the conceptual ambiguity. Yet, there's a drastic need for finding empirical evidence to assist innovation ecosystem development in practice. In the presentation, she introduced a tool to map a particular innovation ecosystem, which works as a planning, analysis and development tool. The tool aims to give a comprehensive and detailed understanding of the ingredients of innovation ecosystems, through identifying different actors and their involvement with each other, various activities taking place within the systems, value creation from the activities and resources put into the system.

In the planning phase, the tool is useful for identifying elements that already exist in an innovation ecosystem so that it can be built from the ground up. In addition, one can spot areas for further development or to strengthen a narrative of the innovation ecosystem. For example, if a region is strong in a particular industry field, the innovation ecosystem can be developed or focus around that field. If multiple mappings are made from different locations, one can compare and be inspired by different elements between those locations.

No ecosystem is the same and contextual factors have a major impact on the development. Hence, there is no right set of ingredients or elements to make an innovation ecosystem thrive. However, this tool is a visual aid to drive the discussion about the possible factors that make a system successful.

By Pauliina Mattila

December 2020

WITH:
ARENA 2036

*Re-imagining the future of the automotive industry.*
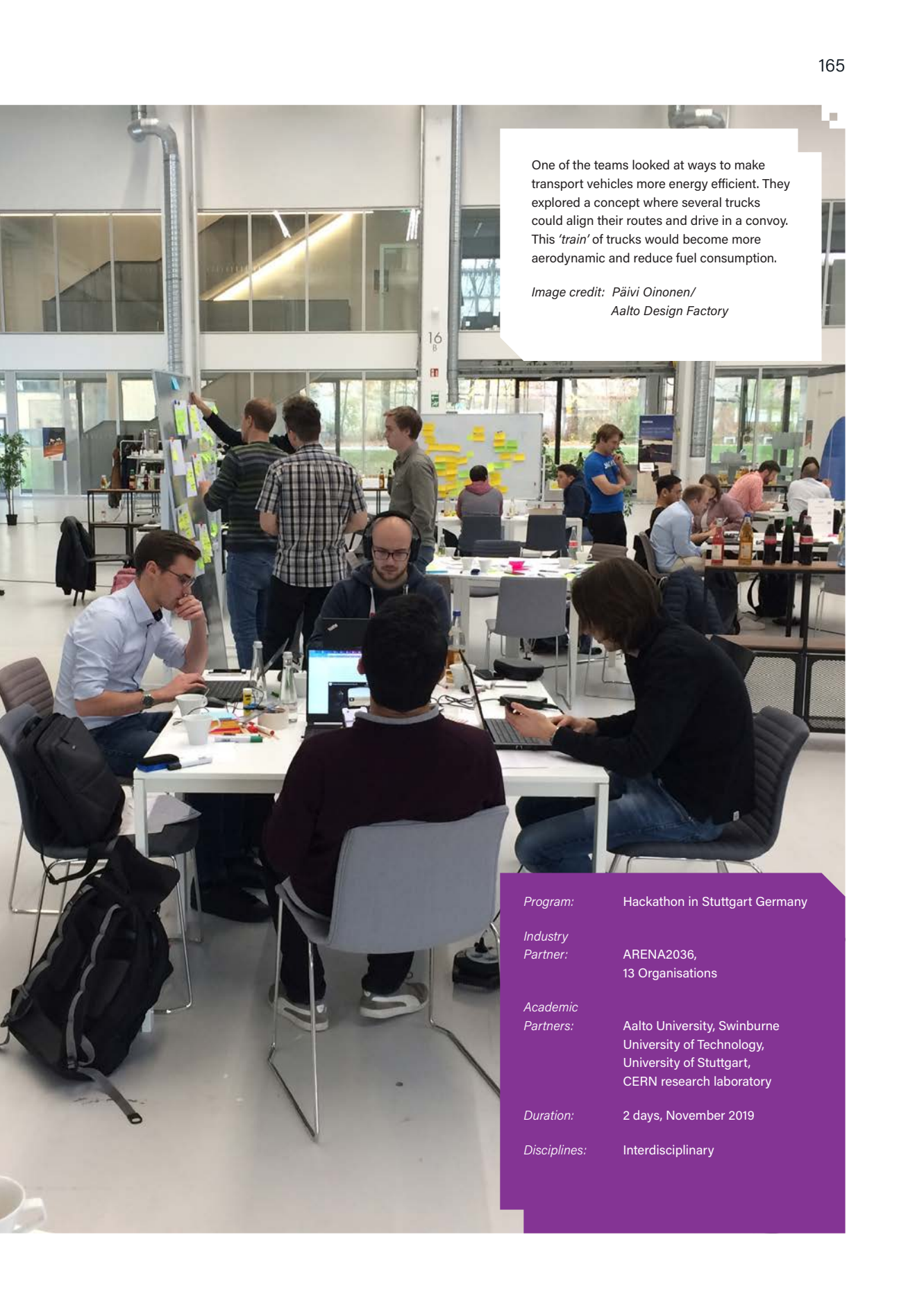
Partner

ARENA2036 (Active Research Environment for the Next Generation of Automobiles in 2036) is a research campus and innovation platform for cooperation between science and industry with a main focus on future mobility. Based in Stuttgart, Germany, ARENA2036 wants to make its contribution to the active shaping of work, mobility and production of the future in the context of digitisation. The focus is set on automobile and production, therefore the year 2036 – the 150th anniversary of the automobile – is being looked at.

Background

Automotive industry, like many other industries, is facing drastic changes. Many reasons, including self-driving cars disrupting the current business models and push to renewable energy sources are forcing manufacturers to push the boundaries of *'what's next'* for automobiles. ARENA2036 wanted to explore the future of cars through a hackathon that would bring together the smarts of research and industry and tackle some the wicked challenges the industry will face in the near future.

8 teams of students and industry specialists worked over 2 days on pre-selected challenges. The teams were supported and coached by international experts from Design Factory Global Network including Design Factory Melbourne, Aalto Design Factory and CERN.
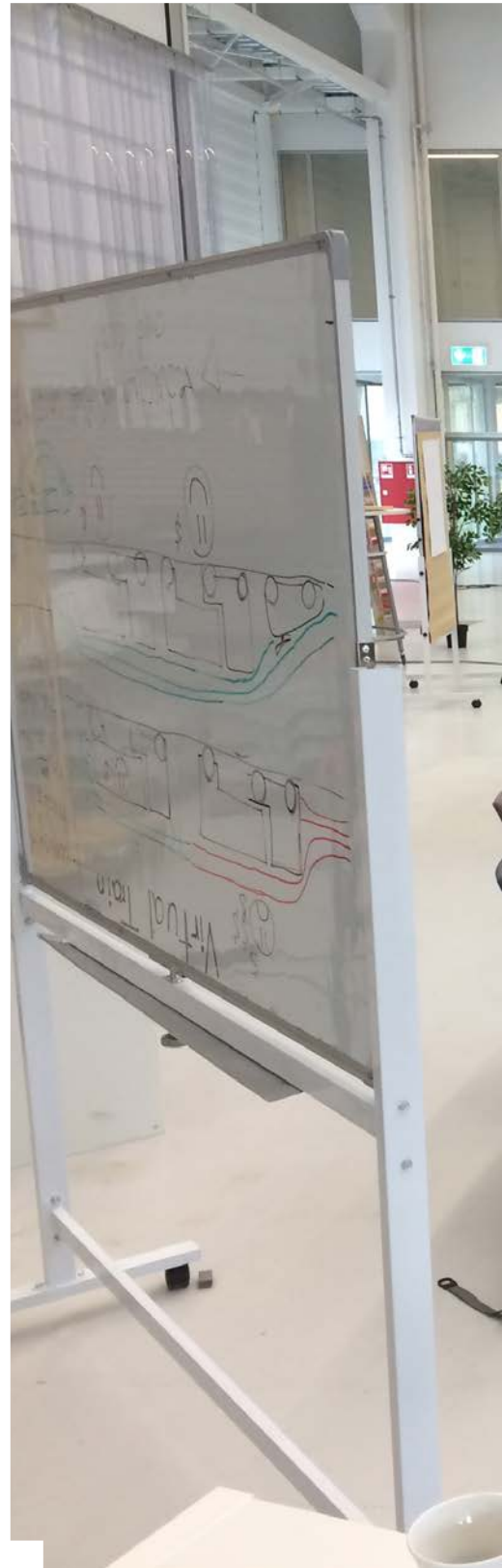
One of the teams looked at ways to make transport vehicles more energy efficient. They explored a concept where several trucks could align their routes and drive in a convoy. This *'train'* of trucks would become more aerodynamic and reduce fuel consumption.

Image credit: Päivi Oinonen/
Aalto Design Factory

Program:	Hackathon in Stuttgart Germany
Industry Partner:	ARENA2036, 13 Organisations
Academic Partners:	Aalto University, Swinburne University of Technology, University of Stuttgart, CERN research laboratory
Duration:	2 days, November 2019
Disciplines:	Interdisciplinary

Outcomes

Outcomes of the event were multifaceted.

Teams presented 8 different concepts, which were mostly digital with the emphasis on concept and business model development. Concepts ranged from platooning as a service for trucks, digital twins for insurance providers, intelligent intersections and a new version of a roof box for cars.

In addition, the event heightened visibility with ARENA2036 partners. It created project ideas that could be further explored, allowed students to become more involved in the research campus and it created perspectives beyond the every-day routines of the on-site staff.

All in all, the hackathon was a kickstart for deeper collaboration with the ARENA2036 industry partners and University of Stuttgart and it strengthened the ARENA2036's position as a go-to ideation and innovation hub.
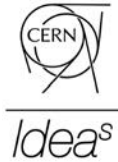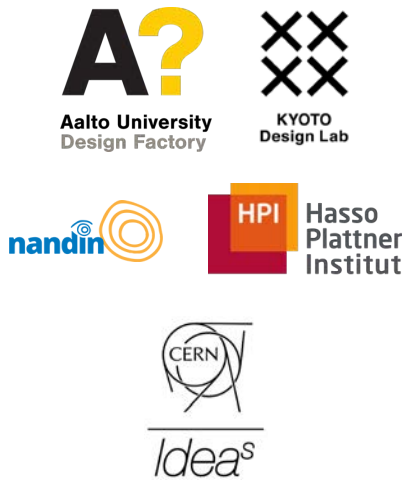
DFM COLLABORATION SNAPSHOT IN 2020

The past year saw a diverse group of organisations collaborating with DFM through various programs and projects. We look forward to continuing our mission to create the conditions for innovation together with our community.

Industry partners within our student programs

Partner institutions within our student programs

Within Swinburne, we have collaborated with:

- Innovation Precinct
- Swinburne Accelerator Program
- Customer Experience and Insights Group (CXI)
- Digital Literacies Hub
- Swinburne Professional
- Swinburne International Recruitment
- Work-Integrated Learning
- Research Institutes
- Factory of the Future

Students showcased their design outcomes in public arenas:

- SUGAR Winter presentation
- SUGAR Fall presentation
- SUGAR EXPO
- GradX 1.5 Degrees
- CBI A³ Showcase
- PDP Gala

VICE CHANCELLOR'S AWARDS

WINNER for "*Co-creating with enterprise to drive a global innovation community*" for the Vice-Chancellor's Engagement Award – Industry Engagement.

We would like to thank the passionate individuals who were part of DFM and contributed to DFM's activities on a daily basis in 2020:

Zoe Aloisio

Ravi Bessabava

Jon Callander

Melanie Calleja

Lucia Corbel

Aaron Down

Clare Dyson

Colin Giang

Alex Graham

Nicholas Hall

Elliot Henkel

Amelia Iverson

Anita Kocsis

Thom Luke

Floris van der Marel

Victoria Marszalkowski

Pauliina Mattila

David Mesa

Jessica Newnham

Anne Prince

Angela Pye

Damien Rogers

Nicole Symington

Linus Tan

Christine Thong

Clementine Thurgood

Paris Triantis

Tiina Tuulos

Esther Wilding

BRING ABOUT UNLIKELY CONNECTIONS

Design Factory Melbourne

SKATE TO WHERE THE PUCK IS GOING TO BE, NOT TO WHERE IT HAS BEEN.

Steve Jobs quoting Wayne Gretzky

DESIGN
FACTORY
MELBOURNE
www.dfm.org.au

BUILD TO THINK

DESIGN
FACTORY
MELBOURNE
www.dfm.org.au

ITS NOT JUST LOOKING AT A PROBLEM FROM KNOWN BASE, ITS ABOUT THOSE LEFT FIELD IDEAS

George Collins

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YEAH LET'S TRY IT, LET'S DO IT, LET'S TAKE THE RISK FOR SOMETHING DIFFERENT

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NEW USERS ARE NOT THE SAME OVER TIME

Scott Belsky

BRING ABOUT UNLIKELY CONNECTIONS

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YEAH LET'S TRY IT, LET'S DO IT, LET'S TAKE THE RISK FOR SOMETHING DIFFERENT

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BRING ABOUT UNLIKELY CONNECTIONS

ITS ALL ABOUT THE PEOPLE

Aaalto Design Factory

Building Resilience.

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