Keepsakes of Likeness and Legacy

It all began at the end of 2015, when he was attending a technology fair in Hong Kong. There, Bernard Lim, then 32 years of age, came upon a sophisticated 3D (three-dimensional) printer, and was immediately captivated by its immense possibilities. After all, 3D technology was still in its infancy then, and in Singapore, its applications were largely limited to industrial use. "The man-in-the-street doesn't get a chance to interact with 3D technology at all," he said. That sparked his determination to bridge the gap and convert the "culture" of 3D technology into a "people's business".

When he returned to Singapore after that pivotal Hong Kong trip, he got down to serious planning – seeking partners with precision engineering skills as well as investors; researching regulations governing personal data collection, and developing business strategies – and 3.Arts Concept was born.

"Mini me" mementoes

I hear and I forget. I see and I remember. I do and I learn. This truism guided the Founder/Director's first steps into his new venture. He recognised that to create awareness of 3D technology, he needed something people could grasp and understand, and what better way to do this than through hands-on experience? "We built our own made-in-Singapore 3D printer – which are also being sold in Thailand, Vietnam, Taiwan – and 3D technology services became our business platform," he shared. The printer stood a head above the competition. In fact, in the retail space, "there was no competition", said Bernard. The 3D Scanner was the first of its kind in Singapore, with the ability and mobility to scan a person or object of up to two metres, in real time, in a matter of minutes. Within six months of the company's establishment, it was regaling people at exhibitions and events.

The consummate businessman had sensed a "local market for figurines" but also pondered over the depth of cultural norms. In Asia, for example, it is considered "taboo" to idolise oneself, so people may hesitate to create models in their own likeness. As it turned out, people *did* want collectibles of themselves – mostly to commemorate significant achievements or immortalise meaningful moments, and sometimes, just because it's something novel. Bernard has scanned and printed miniatures of families, cosplayers in all their finery as well as ordinary people. However, he draws the line at superimposing someone's head onto another's body as he considers it unethical. He is also averse to infringing on copyrights, so you won't catch him selling a 3D-printed Marvel or DC comic superhero or Disney character, even though it can be done.

Leveraging technology as the business platform, 3.Arts Concept has brought the appeal of 3D technology services to corporate companies. Today, it creates customised statuettes as awards, such as long-service awards, and trophies, so recipients bring home a sculpture of himself or herself, elegantly mounted on a stand, with inscriptions to mark the occasion. "It's personalised and much more meaningful, isn't it?" he asked, rhetorically. The service has also gained favour among couples tying the knot. He works with third parties offering wedding packages and with wedding venues, creating bride-and-groom figurines which would eventually be encased in an elegant, acrylic display case as a precious memento.

Lest you think his custom-made models are costly, he breaks down the numbers. A tech company would typically charge around $250 for a 3D scan, and $4,000 to $5,000 to print a 20-centimetre 3D figurine. For personal collectibles, his prices range between $80 and $600 for a figurine. Understandably, there is a different price list for corporate projects.
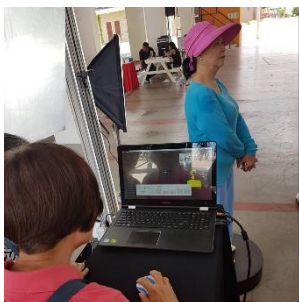
The "people's business"
3.Arts Concept has been bringing technology to companies and the community, conducting programming, robotics, and 3D application courses through Infocomm Media Development Authority and People's Association (PA). To dispel the notion that technology is complicated and therefore, out of reach of the general public, especially the elderly, he shared that in a PA course for the silver generation, his participants were able to use their own touchscreen applications to complete the five-step 3D-scanning process. His most senior participant is 78 years of age, while the youngest is nine. "I am happy to do my part to forward Singapore's Smart Nation vision. After all, we are in the people's business," he added.

In 2017, after obtaining the instructor's certificate from the Ministry of Education, Bernard made his first foray into the schools with Pathlight School's STEM (Science, Technology, Engineering and Mathematics) Club. The students would go on to take part in the 6th Singapore International 3D Printing Competition organised by Nanyang Technological University, and come away with the top prize in the Singapore School Category (Mobility Devices for Elderly). They also participated in IRAP, the Industrial Research and Attachment Programme organised by the School of

Science and Technology, an independent school in Singapore. Through IRAP, the students were introduced to applications such as machine assembly, 3D printing and programming during their school holidays. "I am honoured to have played a part in their achievement," said Bernard.

Being a people's business also means doing his part when his services are required. As a case in point, when the Covid-19 pandemic hit Singapore, he was quick to step up. Instead of using technology as a business platform, Bernard used technology as a force for good. He activated the company's 25 printers to produce medical kits. "3D printing does not require moulds; we can go into

production immediately," he explained. The printers were kept running 24/7 for three-and-a-half weeks.

The company's 3D Ear-Guard, which goes across the back of the head, is designed to lift the elastic bands of the surgical masks away from the skin, without compromising the wearer's safety. The ear-guard prevents the blisters that some frontline workers developed behind their ears, after wearing masks for long periods during their work shift. The Founder/Director gave away 2,000 pieces via the company's social media platform to support frontline medical workers. He brought another 200 pieces with him when he reported for reservist duty as part of the medical unit stationed at the Singapore Expo, which was then a designated community care facility for Covid-19 patients. The other two items the company produced were a facial shield which could act as the "first line of defence against droplets", and mask clips. The mask clips were intended for very basic, temporary, homemade facial-prevention masks; they fulfilled a need at a time when surgical masks were in short supply, or exorbitantly priced.
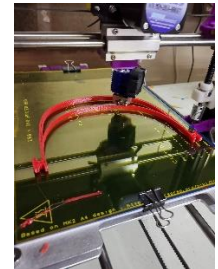

3D Ear-Guards

Masks Clips

Face Shields

Printing 3D Face Shields

Being your own boss

Being an entrepreneur is the "worst job out there", he declared. "You only become an entrepreneur if you probably cannot find a job. There is no pay, you must do everything yourself, and you have to start from ground zero." That is not to say that he opposes entrepreneurship or creativity. While he admires the enthusiasm, gung-ho attitude, resourcefulness and original ideas of young people, he has seen start-ups fail because the business owners "indulge in luxury" too early, such as setting up nice offices or hiring a big team. "Do the math; think about the business you are in. Are you spending or are you doing business?"

He leans towards learning the ropes as an employee with a "student mentality" before becoming an employer. "Build your network, get your experience. Learn how to sell something or provide a service." His advice is directed particularly at graduating students. Then after five years, "you can start thinking about hiring instead of being hired". It's all about building the business eco-system.