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SIT-Led Study Finds Limited Adoption of Data Analytics Among SMEs in Singapore

Findings reveal that 69% of SMEs have yet to adopt data analytics despite various support schemes from the Singapore government

06 November 2020

Assoc Prof Koh Sze Kee, Asst Prof Desi Arisandi, Asst Prof Lee Hwee Hoon and Asst Prof Arif Perdana form the research team from SIT for the Data Analytics Adoption in Singapore SMEs study.

Despite various support schemes from the Singapore government to help SMEs transform their business model into a digital one, a study jointly undertaken by the Singapore Institute of Technology, RSM Singapore and the Institute of Singapore Chartered Accountants (ISCA) found that 69% of small and medium-sized enterprises (SMEs) have yet to adopt data analytics.

A total of 575 SMEs, from businesses spanning commercial & professional services, engineering services, and food & beverage services, took part in the survey conducted between November 2018 and April 2020.

Survey results at a glance:

- **34.6%** of the SMEs have not adopted any data analytics in their organisations and have no intention to do so in the future.
- They were skeptical that data analytics would generate real monetary savings for their organisations.
- Top potential deterrents include a lack of IT infrastructure support, limited financial resources, and concern over data protection and privacy.
- **35.1%** of the SMEs surveyed are likely to embrace data analytics in the future.
- Performance expectations, effort expectancies, management support and government support are factors that would increase their intention for implementation.
- **30.3%** of respondents have already embraced data analytics in their businesses, using varied tools from basic software such as MS Excel to sophisticated software like SAS and Tableau.
- They saw business value in adopting data analytics to reduce their operating costs, enhance staff productivity, and to provide better customer service.
- **72%** of the SMEs surveyed did not have designated full-time staff to perform data analysis. More than 50% of the respondents reported to have outsourced this function to meet their organisations' IT needs.
- **45%** of the respondents did not have the intention to send staff for data analytics training, due to the cost and time required.

Said Assoc Prof Koh Sze Kee, Deputy Cluster Director, Design and Specialised Businesses, SIT, "SMEs are a vital part of the economy, contributing to about half of Singapore's GDP and two-thirds of employment. With digitalisation, it is critical for businesses to implement data analytics to place themselves in a stronger position in the market. This transformation will produce vast quantities of data that businesses can use to conduct decision-making analyses. Companies need to understand data generated and know ways to utilise advanced technologies in order to convert data into powerful business strategies."

"To realise business value brought about by data analytics, having a supporting platform to help SMEs design a data framework to ensure seamless analyses flow is necessary," said Associate Professor Koh. "To encourage more SMEs to implement data analytics, more needs to be done, such as sharing real-life examples on how data analytics can result in business success," he added.

Read the full report for Data Analytics Adoption in Singapore SMEs here.

Transforming Community Health: SIT's Bid to Extend Health Span and Person-Centric Care

Community Health Transformation is among the research programmes being set up to build SIT's translation-focused research capability

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The World Health Organisation defines health ageing as "developing and maintain functional ability that enables well-being in older age. Functional ability is determined by one's physical and mental capacities, as well as the environment.

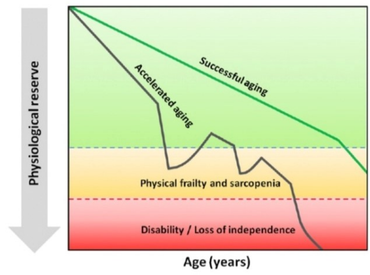
SIT has been working with public agencies, including the Ministry of Health (MOH), Ministry of National Development (MND), Urban Redevelopment Authority (URA), Enterprise Singapore, as well as the health and community care industry to develop integrated preventive and supportive care models and interventions through applied research. Aligning with the Research, Innovation and Enterprise (RIE) 2025 Masterplan, as well as MOH's "3 Beyonds" population policies — Healthcare to Health, Hospital to Community, and Quality to Value — the aim of SIT's **Community Health research programme** is to extend healthspan, and promote healthy ageing and innovation in community rehabilitation.

The programme studies ways to better identify a person's physical, psychological and social vulnerability to functional decline, introduce strategies to prevent or reduce these vulnerabilities, as well as provide person-centric care to those with functional impairment, such as dementia, stroke, Parkinson's Disease, etc. The following is a snapshot of these efforts:

Identifying Vulnerabilities Across Life Span

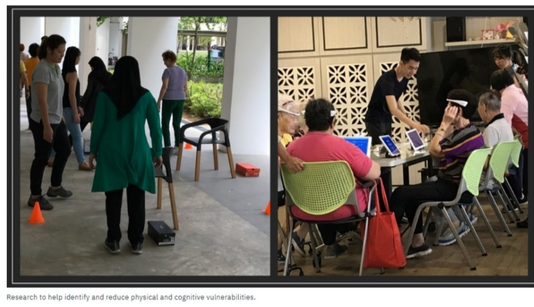
Extending health span involves identifying and reducing vulnerabilities, such as frailty, risk of falls or dementia, along with physical, mental and social activities to promote successful ageing.

Yishun Study: Various topics are being explored under a local population and community-based study to identify vulnerabilities across the lifespan.
Team: led by Assoc Prof Wee Shiou Liang, Health and Social Sciences, SIT.



Identifying, reducing and preventing vulnerabilities towards more successful ageing.

Community Cognitive Health Screening and Intervention Programme



Research to help identify and reduce physical and cognitive vulnerabilities.

Pilot of community-based dementia risk screening tool: A six-month intervention programme for 200 older adults with increased risk of dementia was implemented through neighbourhood senior centres. Results showed that the programme reaped improvement in the physical performance of participants and also highlighted areas of improvement for uptake of such interventions in the community.
Team: Assoc Prof Wee, in collaboration with industry partners.

Community-based Falls Prevention Programme: Implementation and evaluation of a community-based falls prevention project in 2020. Asst Prof Xu conducted several training workshops as a 'Stepping On' programme master trainer in Singapore, equipping more healthcare professionals to run the falls prevention programme in Singapore. 16 community sites will be approached as part of this clinical trial by early 2021.
Team: Asst Prof Tim Xu, Deputy Programme Director, SIT, in collaboration with Geriatric Education and Research Institute (GERI), National Healthcare Group (NHG) and community partners

Community-based Frailty and Malnutrition Screening and Intervention Programme: Implementation and evaluation of screening and intervention programme
Team: Assoc Prof Wee with industry partner, Empower Ageing, as well as community care partners, including Presbyterian Community Services, NTUC and SATA Community Health.

Research to help identify and reduce physical and cognitive vulnerabilities.

"Say No to Frailty" Programme: A group intervention designed for older community-living adults with signs of frailty and pre-frailty. Well-received by the participants, caregivers, and service providers, the project achieved positive outcomes in reducing the level of frailty and increasing community participation.
Team: Led by Asst Prof Xu, with support from SIT students in 2018 and 2019.

Ageing in Place – Innovation in Community Rehabilitation

To enable ageing in place, there are opportunities for cross-cluster collaborations in SIT to innovate in community rehabilitation.
Community reintegration After Stroke (CREATE) Programme: For community-living stroke survivors in Singapore. Programme has successfully helped community-living survivors regain confidence and functional mobility. It is ready for a larger-scale implementation trial.
Team: Asst Prof Xu, with support from industry partners – Wellness Kampung @ Yishun, SPD (Society for the Physically Disabled) and Stroke Support Station.

Multi-modal training programme (MOTIVATE): Targeted at the problem of physical inactivity after stroke. Project is due for completion in end of 2022 and it aims at improving access to fitness centres for stroke survivors in Singapore.
Team: Assoc Prof Kwah Li Khim and her team – in collaboration with Singapore General Hospital, Singapore National Stroke Association, SportCares (under ActiveSG, Sport Singapore), Republic Polytechnic, as well as SIT's Design and Specialised Businesses and Engineering clusters

Person-Centric Dementia and Long-Term Care

The envisioned void deck as part of FARM Architects' conceptual design. (Image credit: https://www.ura.gov.sg/Corporate/Resources/Publications/Skyline/Skyline-issue12/Rethinking-design-of-nursing-homes)

Nursing homes adopting a home-like model: Built to cater for Singapore's ageing population, two new nursing homes are currently being built in West Coast and MacPherson with person-centric design.
Team: Assoc Prof Wee, with the National University of Singapore, industry partners and seven community partners

Ascertain the value of rehabilitation for nursing home residents: Findings confirmed that the number and types of physiotherapy sessions are significant factors influencing important improvement in their physical functions.
Team: Prof Alan Wong, Cluster Director, and Assoc Prof Ong Peck Hoon, Health and Social Sciences, with NTUC Health

Young Engineers Pursue Flights of Passion Through UAVs

The Aerospace Systems Engineers behind startup Nimbus UAV share how they became fierce competitors in the drone industry and their plans to support innovation at SIT

06 November 2020

From left to right: Tai Yi Long, Chandruth Jayasiriwardena, Fabian Chew (seated), Samuel Gan and Damian Cheng, together with some of their past and current UAV creations.

Most startups usually follow a structured path – Start up, get funding, produce a product, get more funding, then sell the company for a profit. But for the guys at Nimbus UAV, the plan is to keep what they describe as a "passion job" running and self-funded for as long as they can. The brainchild of Chandruth Jayasiriwardena, Damian Cheng, Elvin Ong and Tai Yi Long, Nimbus UAV specialises in drone or UAV (Unmanned Aerial Vehicle) customisation for industrial applications, which could include anything from scanning for data underground to delivering food and medicine to needy countries. The four were later joined by Fabian Chew and Samuel Gan. All of them had graduated from the Aerospace Systems joint-degree programme by SIT and the University of Glasgow (UofG), in 2018 and 2019.

Meeting as coursemates, they bonded over their mutual hobbies and passion for aviation and eventually decided to form a startup together. They were especially inspired by their Final Year Projects (FYP), in which they proposed and funded project ideas from their own savings. "Actually, crafting machines with parts is not necessary to get good results. But to us results were secondary," Chandruth explains. "We wanted to do something worthwhile and learn through the process. Even though it cost us a bomb, to us it was worth it." Chandruth's FYP project eventually became one of Nimbus UAV's very first platforms, the Nimbus Sprayer. This agricultural sprayer can be used as a farming aid, efficiently crop-dusting necessary vitamins, pesticides, and antibodies in a short amount of time at low cost and even be used for Grandular Spreading and Speed Spraying.

Fabian Chew working on designs of various drones and platforms, which Nimbus UAV manufactures to fit their clients' needs.

Their FYP experience triggered the start of a small business, when they began supplying craft parts to their juniors, even going as far as providing parts for free. "We were in their shoes back then, so we know that money wasted on expensive parts could be put to much better use," said Damien. "For students to be able to do something really innovative, funding and hands-on experience is important." It was through supporting their fellow SITizens that the team managed to find the capital for their future company. Nimbus UAV was officially established in 2018.

Still, as young engineers in their 20s and fresh out of university, they have faced their fair share of challenges, and not just financially. As Damien puts it, "In the early stages, a lot of people looked down on us, especially when they see our young faces. We were told that we're too young to start up, or that we needed someone with an older face at the front. To us, some things are just a simple fix, but clients have been told by other companies that it couldn't be done. As a startup, it took quite some effort to convince people to trust us."

The company has since taken on various key projects, including filming aerial footage for MediaCorp drama C.L.I.F 5 and helping Neo Aeronautics to build the Crimson S8 flying. Chandruth shares that most recently, the team won a large UAV tender in Singapore after competing with other established drone companies, giving them the chance to work with one of the ministries. "I think one of the things that we're proud of is that although we are a small company, we can actually compete and win. We can design and manufacture stuff on our own, and some companies are actually buying parts from us as well," says Damian.

What's next for Nimbus UAV? The team's ultimate aspiration is to become the leading provider for UAV industrial platforms worldwide. In future, they also hope to fund a scholarship at SIT in support of fellow SITizens. "When we were in university, we realised there are a lot of like-minded individuals around who may lack the capabilities or the funding to do what they want to do," says Chandruth. "A lot of students have creative ideas that cannot be put into motion without some form of funding. So we're setting aside an amount of money for a day when we have enough to support students to either develop a product together or maybe even learn some skillsets."

Sweet Surprise for Graduation

Receiving The Ngee Ann Kongsi Gold Medal (for the Most Outstanding Graduating Student) is spurring Chong Jun Hao on to chase his dreams

06 November 2020

Chong Jun Hao during his National Youth Council ASEAN-India Student Exchange Programme in India.

"Overwhelmed" was the word Mr Chong Jun Hao used to describe how he felt when he received news that he had won The Ngee Ann Kongsi Gold Medal (for the Most Outstanding Graduating Student). For the Sustainable Infrastructure Engineering (Building Services) graduate, it was "the perfect way to graduate, having worked so hard for the past three years".

Jun Hao, who excelled in his studies, has also made an impact outside the classroom: He was elected President of the Sustainable Infrastructure Engineering Student Management Committee, and appointed an SIT Student Ambassador and representing Singapore at the National Youth Council ASEAN-India Student Exchange Programme in 2018.

Despite graduating during a pandemic, Jun Hao remains optimistic about his future. He is currently working as a Mechanical Engineer, even as he pursues a part-time Master's degree at SIT. "I always like to see the glass as half full rather than half empty. The COVID-19 pandemic has accelerated digital adoption and being a millennial, I am more familiar with the technology and able to position myself to help my company shift into the digital age," he said. "After I graduate from my Master's degree programme, I hope to start a business in the construction industry."

Made possible by The Ngee Ann Kongsi in 2017, The Ngee Ann Kongsi Gold Medal (for the Most Outstanding Graduating Student) at SIT is awarded to the graduating student who has not only achieved outstanding academic results but also demonstrated leadership qualities and made significant contributions beyond academic studies to SIT or the community.

In addition to the Gold Medal, the Kongsi has also made possible at SIT The Ngee Ann Kongsi Scholarship to nurture academically gifted students throughout their entire course of study, as well as The Ngee Ann Kongsi Emergency Relief Fund, which has been established to support students facing unexpected financial hardship due to COVID-19.

"We are very happy to be supporting student excellence at SIT, through The Ngee Ann Kongsi Gold Medal as well as The Ngee Ann Kongsi Scholarship. In both the Gold Medal and the Scholarship, we hope to nurture budding young leaders who are not just academically talented, but who are also passionate about serving the community – as The Ngee Ann Kongsi has always believed in building on what the predecessors have achieved to bring forth more contributions to the society," said Mr Richard Lee, Vice President of The Ngee Ann Kongsi and Chairman of its Donation & Charity Sub-Committee.

From Imagination to Creation

Winning entries of the inaugural Sticker-Patch Design Competition organised by the Advancement & Alumni Division will be included in the New Alumni Welcome Pack for graduating students

06 November 2020

The Advancement & Alumni Division launched its first-ever Sticker-Patch Design Competition to engage SITizens in coming up with creations that best represented their experience as students at SIT.

Open to both alumni and students, the competition ran from 17 September to 15 October 2020 and received a total of 16 entries.

Designs by Ms Fan Sau Ching, Mr Fong Jun Hao and Ms Kalyani Alagappan would be featured in the New Alumni Welcome Pack as fabric patches

The winners each received $50 worth of Grab vouchers. The four winning designs will be fabricated into fabric patches and stickers, and they will be part of the New Alumni Welcome Pack distributed to the graduating Class of 2020, to spread some good cheer in the absence of the New Alumni Welcome Party celebration which is not possible this year due to the pandemic.

Alumnus Ms Fan Sau Ching chanced upon the competition and felt it will be a great way to reminisce about her time at SIT. She took four hours to come up with her design which likened how the exciting journey of a student at SIT is to an astronaut going on an adventure.

Systems Engineering (ElectroMechanical Systems) undergraduate Ms Kalyani Alagappan, shared her inspiration behind her designs, “Every time I enter our SIT campus I feel very enthusiastic and energetic and so I decided to create a rocket that symbolises how we start our day at SIT with a great blast for the first design. Also, the campus at Punggol is the dream campus that we are all waiting for, hence my second design symbolises our upcoming campus.”

Software Engineering alum Mr Fong Jun Hao was excited and grateful that his design was chosen. “Having alumni contribute in this way is definitely very meaningful and hopefully there can be more of such activities in the future,” he said.