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The technology tide: Has IT hit the shores of social innovation?

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The Technology Tide: Has IT Hit the Shores of Social Innovation?

By Andrew Koh

"We want a nice colour and it must look modern."

That was the feedback some villagers gave during a design-thinking exercise regarding sanitation facilities. Although this took place several years ago, as part of my previous work in the international development sector, I remember the experience vividly. It struck me that most people—village-dwellers or Singaporeans alike—have similar aspirations for a better quality of living.

It is plain to see the social impact of technological advancement on needy communities—consider how a mechanical pump allows villagers to draw water more efficiently, or the range of benefits brought about by rural electrification—but beyond the systems and contraptions themselves, how can we leverage technology for social innovation?

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CONTEXT MATTERS

Social innovation, defined as "the process of developing and deploying effective solutions to challenging and often systemic social and environmental issues in support of social progress",[1] focuses on ideas and solutions that create social value.

Technology alone is unlikely to catalyse impactful solutions—rather, it is in its appropriate *application* that a real difference can be made. Similar to the ground-up participatory spirit in design-thinking, real needs must first be identified before a solution can be designed and implemented. This involves understanding the communities (the people, their cultures and skill sets) we hope to impact, as well as examining their concerns within the context of their existing systems and infrastructures.

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If you were to recall a teacher in school who left a lasting impression on you, which aspect(s) of that experience are embedded in your memory? Would it be specifics of the content taught, or the personality of the teacher? More likely than not, what's *caught* is often more important than what's *taught*.

To gain the necessary insights that ultimately translate into innovative responses, we first need greater exposure to the communities in question. This means more ground experiences with the people, interacting with them as well as witnessing first-hand the specific issues they face. Only then can we gain heightened awareness of their needs and come up with informed design solutions.

BUSINESSES PLAY A BIG ROLE

Multinational corporations are well placed to lead social change, given their wide scale of operations and extensive geographical network. With regional offices located in close proximity to underserved communities, their reach covers areas that are exposed to poverty and lack basic infrastructure, granting the organisations both the

on-site experience of working and interacting with the local community, as well as the opportunity to use their brand platform to spearhead targeted social programmes.
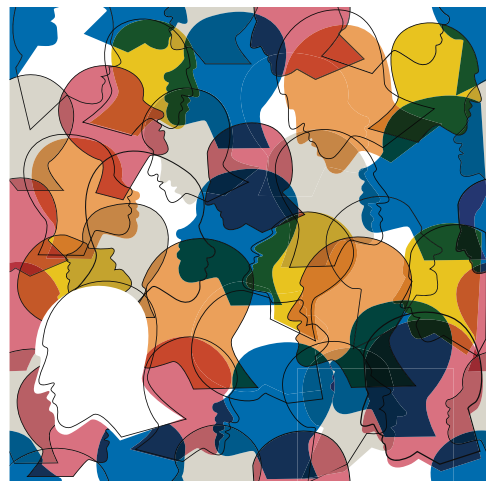
For instance, Olam International,[2] a soft commodities processor and trader, has implemented an application to empower subsistence farmers with training, enhanced farm management and banking services to increase their quality of life. In another example, Coca-Cola's 5by20 initiative[3] educates and provides livelihood opportunities to female owners of small-scale neighbourhood markets and grocery stores, and by extension, empowers the low-income communities which they belong to.

> MNCs are well placed to lead social change, given their wide scale of operations and extensive geographical network. They have the ground experience of working and interacting with the local community, and the opportunity to use their brand platform to spearhead targeted social programmes.

However, multinational corporations are not the only ones making strides with their social impact programmes. In Singapore, several social enterprises and start-ups, such as SMU-TCS iCity Lab,[4] Homage[5] and WateROAM,[6] have successfully harnessed technology to bridge the gaps between needs and solutions.

CREATING THE PERFECT STORM

So what are some ways in which technology can become a wave of disruption? Beyond buzzwords like "Artificial Intelligence", "Machine Learning" or "Big Data", we should examine some characteristics of the tech wave and which aspects make a perfect storm for social innovation.

Open Source

Open source refers to technology developed through a public collaboration and made freely available. This reduces the need for heavy licensing costs, making it possible for marginalised communities with low purchasing power to utilise technology previously out of reach to them. Business models with less dependence on expensive technology are more sustainable and hence more viable for serving these communities.

Abstraction

In recent years, higher-level programming languages have been developed to make programming a less laborious process. For instance, machine learning models can be trained and employed by using a few lines of code in open-source languages such as R or Python instead of hundreds of lines if more traditional languages such as C++ were used.

The use of commodity hardware to store, manage and analyse large volumes of data is another form of abstraction. In the past, specialised hardware and programming complexity were needed for handling huge volumes of data. This was until 2006, when a framework called Hadoop was developed to handle such data using commodity hardware, which lowers costs and complexity.
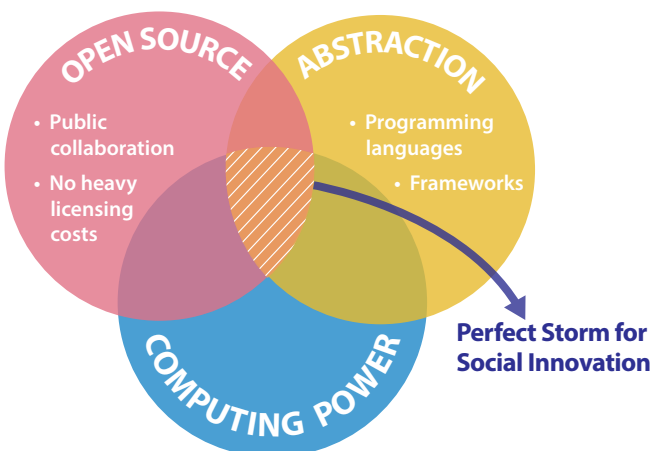
Computing Power

When you hear of deep learning today, it is based on neural networks that have existed since the 1950s. However, the way it has penetrated our daily lives (think of Amazon Echo or face recognition in Google Photos) is due to computing power leaps that allow its capabilities to be delivered in near real time for widespread usage.

Simply put, the barriers to the adoption of technology have been lowered. Platforms and services today make these advanced capabilities available to the wider audience, not only to large corporations with deep pockets. For instance, NPO Trampolene[7] has built an app (the SmartBFA) that leverages crowdsourced data to provide obstacle- and barrier-free routes for wheelchair users in Singapore.

SHARED SOCIAL RESPONSIBILITY

"With great power comes great responsibility." So said Uncle Ben to Spider-Man's Peter Parker, although this principle has also been attributed to Winston Churchill and Franklin D. Roosevelt.[8]

By and large, people look to the Internet for information and to share it with others. However, the world wide web has also become a space where

OPEN SOURCE
- Public collaboration
- No heavy licensing costs

ABSTRACTION
- Programming languages
- Frameworks

COMPUTING POWER

Perfect Storm for Social Innovation

While technology itself is known for its speed and efficiency, its application for positive social outcomes will not yield overnight results.

enterprises offer good training grounds for an emerging generation of tech-proficient changemakers seeking a higher purpose in their professional as well as personal endeavours.

one can be susceptible to cyber bullying, phishing scams, "fake news", and data and privacy infringements. The recent data breach incident involving Cambridge Analytica—in which about 50 million Facebook users' information was used for political purposes —is an example of how technology can be misused.[9]

Therefore, for technology to be a responsible disruptor of change,

there first needs to be oversight and safeguards in place to ensure cyber safety to tech users the world over, especially those from vulnerable communities.

CONCLUSION

As the barriers to the adoption of advanced technology are lowered, we are seeing a rise in the application of "social tech", or technology for social impact. Universities and social

However, while technology itself is known for its speed and efficiency, its application for positive social outcomes will not yield overnight results. The process requires a team of multi-disciplinary thought leaders and changemakers who understand both the context and culture of the underserved communities, and who can explore relevant ways in which technology can be the essential bridge.

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Notes

1 Centre for Social Innovation, "Defining Social Innovation", at https://www.gsb.stanford.edu/faculty-research/centers-initiatives/csi/defining-social-innovation

2 Olam International, "OLAM Farmer Information System (OFIS)", at http://olamgroup.com/sustainability/ofis

3 Beth Jenkins, Kara Valikai and Piya Baptista, *The Coca-Cola Company's 5by20 Initiative Empowering Women Entrepreneurs across the Value Chain* (Cambridge, MA: CSR Initiative at the Harvard Kennedy School and Business Fights Poverty, 2013).

4 The SMU-TCS iCity lab is a joint initiative between Singapore Management University and Tata Consultancy Services (TCS) with the vision of building intelligent, inclusive and integrative societies through multidisciplinary research and development efforts. Its SHINESeniors project aims to create sensor-enabled homes to enable independent living in the community instead of hospitals or nursing homes. This is in line with the Ministry of Health Singapore's strategic direction towards ageing-in-place. Visit https://icity.smu.edu.sg for more information.

5 Homage is a Singapore-based start-up that provides on-demand caregiving services by connecting the elderly and their families with trained homecare experts via its technology platform. Through Homage, seniors receive assistance with their Activities of Daily Living (ADL), which covers medication care and personal care. Visit https://www.homage.sg for more information.

6 WateROAM is a water innovation enterprise that develops water filtration solutions to bring quickest access to clean drinking water at disaster-hit locations, and to promote social change in rural development areas. Founded in Singapore in 2014, its water filters are highly simple, portable, durable and affordable, thereby improving the access to clean drinking water significantly. Visit http://www.wateroam.com for more information.

7 Wendy Wong, "App Identifying Barrier-Free Routes for Wheelchair Users in the Works", *Channel NewsAsia*, 10 February 2018, at https://www.channelnewsasia.com/news/singapore/app-identifying-barrier-free-routes-for-wheelchair-users-in-the-9947668

8 Quora, "What Is the Original Source of the Phrase 'With Great Power Comes Great Responsibility'?", at https://www.quora.com/What-is-the-original-source-of-the-phrase-With-great-power-comes-great-responsibility

9 Patrick Greenfield, "The Cambridge Analytica Files: The Story So Far", *The Guardian*, 26 March 2018, at https://www.theguardian.com/news/2018/mar/26/the-cambridge-analytica-files-the-story-so-far