Merging Physical and Digital: Singapore Cases (2)

The Smart Home project in Singapore

Kim de Vries [1]

The Singapore Cases

Singapore's government is doing everything in its power to make Singapore the first Smart City in the world[2]*. Singapore was first to introduce a nationwide 4G network in Southeast Asia*[3] *and it is currently developing a nation-wide free wifi network. Singapore is a great source of innovative digital concepts and new ideas on connectivity and is one of the most developed countries, especially in Southeast Asia, according to a ranking published by IESE*[4]*. To further study the developments in this innovative and developing country, local field research was carried out over the past half year. Our observations and insights on business innovation and connectivity are shared in a series of white papers: The Singapore Cases. This white paper is the second in this series.*

The people of Singapore

Like many other developed countries, one of Singapore's pressing issues is its rapidly aging population. With a population of over 5.7 million, but only a fertility rate of 1.24 and a median age of 40.5, the country seems to be greying[5]. However, employment rates are increasing, thus suggesting family members are less available to take on the care of the elderly in the family. Although, many elderly do not need constant care, they would benefit from reminders and proper alarm systems to notify family member and caretakers when they need urgent care. Therefore, Singapore is trying to find new and sustainable ways to provide its greying population with long term care, utilizing the most convenient and safest systems for caregivers.

As Singapore also aims to become the world's first smart nation, the government decided to combine both initiatives by partially automatizing elderly care utilizing smart houses. To start conducting Smart home solution trials, the government is closely collaborating with the Housing and Development Board (HDB). The field trials conducted by HDB allowed the agency to investigate the demands from citizens and identify and implement the required solutions in pre-existing homes directly with people who are already in need of such a system. Facilitating the collection of feedback directly from the customer on a large scale[6]. Especially, as almost 80% of Singapore's households live in public housing, the government has a degree of control of the condition of the houses and easy access to testing ground. Furthermore, if the product is deemed successful, this strong position in the market will allow the government to easily standardize and implement the systems required to make homes "smart".

The Smart Home project

The Smart Home project started in April 2016 and has since then expanded to include more homes and features. The houses utilized for testing were existing estate that people are already living in, to facilitate testing the reaction to the changes. The houses will contain technologies for day-to-day living in the hopes to improve the daily care the elderly need. Seventeen high-tech companies are participating in the trials, including Samsung, LG Electronics and StarHub.[7] By collaborating with world renowned companies, Singapore hopes to implement the newest technologies in the homes, to ensure the quality of care aimed for. They also hope this would improve the adoption rate of these technologies and that people would be open to the new initiatives, through smooth collaboration between the different agencies involved and elaborative communication between the agencies and the Singaporean population.

The project utilizes the Smart Elderly Monitoring and Alert System (SEMAS) that lets caretakers monitor their elderly relatives through door and motion sensors to notify them when the elderly are in trouble[8]. The system tracks the living habits of the senior citizens, creating a tailored algorithm for what is considered habitual behaviour for this specific person. When the behaviour displayed differs from that algorithm, the system sends a text or alarm to caregivers stating the irregular patterns or behaviours detected, like an unusual long period of inactivity. Hereby, when the resident falls down and cannot get up, the alarm will notice and contact caregivers, thus minimizing response times. However, utilizing a system that recognizes habits and patterns, the caregivers will not be alarmed when these activities are part of the person's routine due to for example an afternoon nap.

Moreover, the flat is equipped with strategically located panic buttons in case the resident feels distress. The panic buttons located, not only in the bathroom and in the bedroom, will also be located in the kitchen. Also, to further develop towards becoming one Smart homes, the government and its partnerships also aim to equip the smart houses with monitors to regulate the overall household energy and water consumption. These monitors, not only show the daily and weekly consumption, they also compare it with data from the previous years to show improvements or increase consumption. Furthermore, the sensors allow for remote adjustment of the heater and electricity through an app. Thus, the heater and the lights can be turned off even after having left the house. Hereby, it aims to stimulate lowering the consumption of both energy and water over time.

The customer in the innovation process

Although these technologies intend to truly help senior citizens, privacy issues have been raised. The above mentioned sensors are all installed into the private homes of these senior citizens and are not meant to be turned off. The senior citizens are constantly monitored to an extent that the system will come to know their habits and behaviour and be able to potentially anticipate on it. Also, as the systems include a sensor detecting if a person is home and in which room that person is in while making this information readily available for the caretakers, Big Brother ideas come to mind[9].

Furthermore, the system will contain sensitive private information and the dangers of hacking should be taken into consideration. Collected data should remain secure. For example, if hackers are able to find out the patterns of senior citizen's presence in their houses, this could be valuable for potential robbery plans. Appropriate protection software and systems are prerequisite to implementing the

initiative nationwide. Additionally collected data should remain secure. There seems to be a thin line between doing what is necessary for protection and safety of the population and the invasion of privacy. Singapore is still trying to find the ideal balance between the two, to truly become a smart nation while being able to provide long term care of its greying population.

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[1] Kim de Vries is research assistant at MPCN Action Learning & Business Coaching and carried out the field research while being located in Singapore on behalf of our Beyond Competition Research Foundation.
[2] https://www.smartnation.sg/initiatives/
[3] https://www.techinasia.com/state-of-4g-southeast-asia-2013
[4] http://www.ieseinsight.com/doc.aspx?id=1679
[5] http://www.worldometers.info/world-population/singapore-population/
[6] https://www.smartnation.sg/initiatives/Living/smart-homes--tech-enabled-solutions-for-homes-in-singapore-1
[7] http://www.channelnewsasia.com/news/singapore/public-housing-estates-to-try-out-solutions-for-smart-living-8241050
[8] http://www.straitstimes.com/singapore/housing/hdb-elderly-alert-system-well-received-in-test-bed
[9] http://www.straitstimes.com/opinion/smart-and-sustainable-singapore-two-sides-of-the-same-coin