

Future Trends Report
Based on Analysis of the Future Scene in Mid-Term and Final Evaluation

STEP 1. Identify Challenges

Read the Future Scene carefully and generate ideas for challenges, concerns, and possible related problems. Choose the 5 most important challenges and write them in the space provided. Include applicable research with appropriate in-text citations.

Challenge #1:

The future scene states that healthcare costs were increasing. This could be problematic as if this persists, it would make it harder for people to afford medical expenses, leading to a higher rate of untreated patients. According to a website The Balance, if there were to be higher healthcare costs, middle-class Singaporeans risk having insufficient financial resources to maintain a normal lifestyle during their retirement years, which would result in a higher risk of bankruptcy. Also, in a report by CNBC, untimely visits to doctors and physicians or delay of clinic visits result in the increased healthcare costs and it also impacts the quality of care given.

Challenge #2:

The future scene states that Mdm Lee found no need to interact with others physically as markets and cafes were replaced with drone deliveries (FACT). This could be problematic in 2032 as more elderly might remain lonely without no one else, leading to a higher risk of illnesses like depression and dementia. According to a Channel NewsAsia Article, social isolation is the leading problem that results in mental illnesses. This isolation from the outside world feeds depression and suicidal tendencies, aggravates mental conditions, and worsens physical health.

Challenge #3:

The future scene states that government hospitals are plagued with exhausted healthcare workers despite heavy financial backing from the government. (FACT) This could be problematic in the future as with the rise of the population of elderly, there is not enough healthcare workers (WHY) to cope with the massive demand for healthcare. According to a Straits Times Article 2016, as Singapore's population ages rapidly and more suffer chronic ailments, it will need require 30,000 more healthcare workers by 2020, according to Health Minister Gan Kim Yong. Doctors who specialize in geriatric medicine and trained nurses capable of helming clinics are needed to staff more facilities, which include 6 polyclinics, 2100 public hospital beds and 9100 beds in community hospitals. This shortage of workers is due to fewer young workers to replace those who are retiring. Also, according to a ChannelNewsAsia article 2016, the health ministry has only recruited 45% of the 20,000 Healthcare Workers needed in 2020 and despite Healthcare professionals in the public sector getting salary increments in recent years, the Ministry has found convincing staff to work in hospitals a challenge. Also, Long term Healthcare is unavailable due to lack of manpower with reliance on foreign workers. Thirdly, according to ChannelNewsAsia 2017, 9,000 additional staff will be needed in the next 3 years, which include nursing, therapy and admin jobs. Nursing remains unpopular among Singaporeans; Vacancies for registered nurses were unfilled for at least 6 months. Singapore may need to look overseas for healthcare workers. Lastly, according to the World Health Organization, 40% of Healthcare workers in developed countries will leave by 2035, due to demanding jobs and low pay.

Challenge #4:

In the future scenario, many references to future technology are made, including the invention of “Mopito”, “ElderWatch” and tray-returning robots. This suggests that mankind will become more dependent on technology in their future everyday lives, which will lead to more sedentary lifestyles and the lack of ability to be independent.

In a news article from the Economic times, research director Arup Roy says is slowly but surely invading corporate workplaces as he himself is experiencing it too

Challenge #5:

The future scene states that two of Mdm Lee’s colleagues have been replaced by tray-returning robots. (FACT) This could be problematic in 2032 because that there will be fewer jobs available for the people of Singapore (WHY), leading potentially in a lower profit of Singapore and higher unemployment (LARGER CONSEQUENCE). In a news report from the Straits times, findings from a report by Oxford Economics made in 2017 is reported that Singapore’s labour supply will shrink by 1.7 percentage point in the 10 years through 2026, and by 2.5 percentage points in the following decade. In a news report from TodayOnline, they stated that as Singapore is the slowest in getting people into the workforce, it is going to face a “massive decline” in its working age population growth by 2036, “mostly because of its new immigration policy that restricts the number of foreign workers.

STEP 2. Select a Fundamental Problem

Fundamental/Underlying Problem:

Given the inference we have made that in the future, healthcare facilities are unable to cope with the increasing demand for medical assistance, how might we improve healthcare services (KVP) so as to support Singapore's ageing population (P) in the year 2050 and beyond (FSP)?

STEP 3. Produce Solution Ideas

Solution #1:

We, the Ministry of Artificial Intelligence, will have healthcare professionals open up a website where patients can ask for medical advice from a trained AI, in real time. This will ensure that it will be more convenient for the patients, especially the disabled. This will take place from the year 2050 and onwards. A government website in Australia called HealthDirect is a symptom checker website for people of all ages created in Australia to check on their medical conditions, such as cough, diarrhoea, abdominal pain etc. Another website called Techmergence compares different trained AIs which focus on checking patients' symptoms. Specifically, natural language processing is used to help diagnose a user based on the symptoms he or she provides.

Solution #2:

We, the Singapore Ministry of Health, will make a programme where mobile clinics with doctors come visit residents at areas where there are less clinics and where the people there receive less medical help. This policy will take place island-wide from the year 2050 and onwards. In an article posted by MST group, a business house, they said that having mobile clinics is very effective and critical as it increases accessibility for those like the disabled, and it also has a very patient-centric approach as it focuses more on the patient's state of mind.

Solution #3:

We, the Singapore Ministry of Health, will have a renovation of the hospital that has a conveyor from the check up room which will send patients who has requested for help to a room of staff for assistance. This invention will increase efficiency as it reduces time taken to move and also increases the number of patients that can be serviced. This change will take place island-wide from the year 2050 and onwards. In a forum ResearchGate, most people think that efficiency of doctors and nurses will increase patient satisfaction, which ultimately increases the patient's' psychological health and help to speed up their recovery process.

Solution #4:

We, the Ministry of Health, will have a renovation of hospitals where beds will now be "stackable". This will increase efficiency as nurses and doctors now need not spend time travelling from ward to ward to see patients. This change will take place island-wide from the year 2050 and onwards. In an article by Mary Rehtonis, Often, efficiency fills healthcare professionals with a sense of dread and worry. While some may associate efficiency with worse patient outcomes, Mr Gallup, a doctor said efficiency entails quite the opposite as efficiency will drive the optimal patient experience.

Solution #5:

We, the Ministry of Technology, will work with the Ministry of Health to install robot assistants in hospitals to help nurses or doctors with any jobs, especially non medical related jobs. This will increase efficiency as doctors and nurses can now focus on jobs that actually need medical experience while the robots do administrative or other jobs. This change will take place island-wide from the year 2050 and onwards. According to a case study by TradeArabia, Panasonic System Solutions Asia Pacific and Changi General Hospital are implementing assistive robotics technology, such as *Hospit* to improve operational efficiency of hospitals in Singapore. *Hospit* are able to deliver fragile and bulky medicine, medical specimens and patients' case notes 24/7, easing manpower constraints. In the World Economic Forum, Robotist De Momi thinks that robot assistants will not steal jobs, but help to decrease workload and it can also achieve better results in medical-related tasks.

STEP 4a. Select Criteria

Generate criteria to determine which solution idea does the best job of solving your Underlying Problem and/or addressing the Future Scene situation. Select the 3 most important criteria for measuring solution ideas and write them in the spaces provided.

Criterion #1:

Which solution will be the cost-efficient for Singapore so that it can be done without spending too much of the budget?

Criterion #2:

Which solution is the most practical for all in Singapore so that it will benefit many?

Criterion #3:

Which solution is the fastest to implement so that the problem with healthcare services can be improved as soon as possible?

STEP 4b. Apply Criteria

List the solution ideas from Step 3 on the grid. Use each criterion to rank the solutions on a scale from 1 (poorest) to 5 (best). The weighting for one important criterion may be doubled if necessary.

Sol'n #	Solution Idea	Criteria			Total
		1	2	3	
#1	Website with medically trained AI	4	5	3	12/15
#2	More Mobile Clinics	4	3	4	11/15
#3	Conveyor Belt	3	4	4	11/15
#4	Stackable Beds	3	3	4	10/15
#5	Robot Assistants	4	4	3	11/15

STEP 5. Develop an Action Plan and Evaluate its Feasibility

Develop your top-scoring solution idea into an Action Plan. Thoroughly explain how the Underlying Problem is solved, how the plan will be implemented, and how the Future Scene will be affected. Explain how this Action Plan is feasible with research consulted.

Writing on the reverse side or in margins will not be scored.

Action Plan derived from Solution #1:

The Singapore Ministry of Artificial Intelligence (MAI) will ask its programmers to establish a holographic website with AI that have been programmed to answer the medical enquiries of patients and can capable of giving diagnoses. It will be free for the elderlies. This plan will help to improve healthcare services as it will enable healthcare services to reach out to more people and benefit more people. This plan will enable us to support the ageing population as healthcare will increase as the ageing population increases, thus all elderlies can get sufficient healthcare and not suffer alone. It will be established in 2040, with the regular check-up function in 2043, ability to contact ambulances in 2046 and automated ambulances by latest 2050. A lack of money might be a problem we can face, as well as shrinking manpower will make it harder. My team and I will gather sponsors to fund our operation, while we will employ more foreign workers so as to not further drain Singapore's manpower. The resistors will be companies in the same industry as competition with AIs will not be welcome. Banks might also resist us if the money we need to set it up is too much. The assistors will be the elderlies and elderly-related organisations as well as the government. This plan is humane as it does not bring any harm or inconvenience to the elderlies. This Action Plan will allow elderlies to receive better healthcare which will allow us to instead benefit from the ageing population and care for all the elderlies of Singap

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Cite the resources you consulted using the APA format.

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