

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.

Problem 1 (Social Relationships)

Elderly and young are not connected

The Future Scene states that elderly are used to living alone and do not spend quality time with children or grandchildren. As such, Mdm Lee may be too used to feeling alone, and almost annoyed at Jason, her son, for interrupting her routine. A problem that may arise is the disconnectivity between the elderly and the youths, and this may perpetuate misunderstanding and division within our society and lead to loneliness and social isolation of the elderly. Also leading to an important loss of family cohesion.

Evidence: Data by Guardian shows that there is already a increasing divide between the elderly and young in current day society leading to a larger problem in the future. Quote: "Just 5% of people living in the same neighbourhood as someone under 18 are over 65, compared with 15% in 1991".

(The Guardian (04 Sep 2017) *The generation gap is deep: Here's how we bridge it* - Retrieved from <https://www.theguardian.com/commentisfree/2017/sep/04/generation-gap-social-divisions-young-old-age-segregation>)

Problem 2 (Young > Old)

Government prefers to spend money on the young instead of elderly

The Future Scene states that the government cared more about the youths of tomorrow than the elderly folks of the past. The government wasn't taking care of pioneers as much as they used to, and this is shown since elderly products are expensive. One example the Elderwatch costing \$900 for 3 months of usage with no sign of subsidies. A problem that may arise is that elderly feel that the government is not dependable and leads to a divide between both groups, with elderly not supporting government and government feel even less need to help elderly and this may lead to lack of resources for the elderly, possibly threatening the supply of basic needs for the elderly.

Evidence: Data by Ethics of development in a global environment (EDGE) shows that the average cost for a year of stay at a long-term care facility (LTC) in California is \$47,450. Quote: "But for the many who cannot afford LTC for extended periods, they have to rely on either insurance or the government." This shows that elderly healthcare is very expensive, and that the elderly relies on the government.

Evidence: According to the article from Guardian states the reason why older people are of less concern than younger people. Quote "And if they are not part of the problem, nor are they seen as part of the solution – they are past it, in our consciousness, whiling away time, while the youth are actively engaged in change." This gives reason to why in the futuristic scenario young people are given more attention by the government than the elderly.

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Group ID: 10-37

(Ethics of development in a global environment (26 Jul 1999) *The Elderly: Where should we put them, and who should pay?* - Retrieved from

https://stanford.edu/class/e297c/poverty_prejudice/soc_sec/elderly.htm)

(The Guardian (02 Feb 2015) *Why don't we care about older people as much as children?* -

Retrieved from

<https://www.theguardian.com/global-development/2015/feb/02/older-people-elderly-children-development-goals>)

(Which? (21 June 2011) *Why isn't elderly care at home meeting basic needs?* - Retrieved from

<https://conversation.which.co.uk/health/elderly-care-at-home-not-meeting-basic-needs/>)

(The Telegraph (02 Dec 2013) *Esther Rantzen: basic needs of care home residents are not being met* - Retrieved from

<https://www.telegraph.co.uk/news/health/news/10488069/Esther-Rantzen-basic-needs-of-care-home-residents-are-not-being-met.html>) ("more than 1,000 care home residents have died of thirst or while suffering dehydration over the past decade.")

Problem 3 (Lack of Trust)

The elderly do not have faith in Government Agencies and do not want help

The Future Scene states that an agent from the Silver Generation Office had been turned away by all of Mdm Lee's neighbours despite just wanting to help them. A problem that may arise is that the elderly may not want to accept help from social workers, and this may lead to the closing of such services due to low take-up rates, possibly causing those who need it to not receive these services, and depriving future recipients of the chance to receive help

In an article by Channel NewsAsia it shows that despite needing help elderly may not want help due to feeling independent or other reasons. Quote: " "In Singapore, no money how to live?", is what Mr Ong Hock Soon says if asked why he is working long hours as a hawker's assistant at the age of 69."

But in the same breath, he'll tell you that he has turned down offers of social assistance, and would rather be self-reliant and "work until cannot move". That mentality of independence is something that crops up repeatedly among the working elderly."

(Straits Times (1 February 2018) *Forging trust by engaging those who feel it has waned* - Retrieved from

<https://www.straitstimes.com/opinion/forging-trust-by-engaging-those-who-feel-it-has-waned>)

(Asiaone (Oct 27 2014) *You need to be patient with resistant seniors* - Retrieved from

<http://www.asiaone.com/singapore/you-need-be-patient-resistant-seniors>)

(Channel Newsasia (15 May 2017) *Ploughing on: The faces and insecurities of Singapore's elderly working poor* - Retrieved from

<https://www.channelnewsasia.com/news/singapore/ploughing-on-the-faces-and-insecurities-of-singapore-s-elderly-8824490>)

Problem 4 (Lack of medical services)

Medical services cannot cope with number of patients

The Future Scene states that medical services simply cannot cope with large number of patients with lack of services such as medical beds and lack of manpower despite large investments. A problem that may arise is that many elderly and even the general public is unable to receive proper medical treatment in the case of an emergency and efficiency of treatment is also slowed, possibly depriving of patients of important services such as A&E leading to serious consequences.

Evidence: Quote: "Last winter many hospitals across the UK were forced to temporarily shut their A&E departments"

(Independent (29 September 2017) *NHS bed shortage crisis leaves hospitals struggling to cope, claims reports* - Retrieved from

<https://www.independent.co.uk/news/health/nhs-bed-shortages-hospitals-warning-report-latest-a-7973056.htm>)

Problem 5 (Psychological Health)

Elderly have nothing to do at home, causing lack of motivation

The Future Scene states that Mdm Lee knows far too many people who were cooped up at home all day. A problem that may arise is that many elderly may not have many interactive activities to interest them and they may grow bored, possibly leading to many mental health problems and the decline of cognitive functions.

Evidence: Quote: "The man was also depressed. At one stage, he told them: "If I jump down, all of you don't need to come already." Alarmed, the doctors had him brought in for psychiatric evaluation."

(Channel NewsAsia (19 May 2017) *Lonely and 'waiting to die', Singapore's elderly poor find hope in many helping hands* - Retrieved from

<https://www.channelnewsasia.com/news/cnainsider/lonely-and-waiting-to-die-singapore-s-elderly-poor-find-hope-in-8844768>)

STEP 2. Select a Fundamental Problem

Using the challenges listed in Step 1, identify a problem of major importance to the Future Scene situation. Write your Underlying Problem making sure your question clearly explains the action that will be taken and the desired results/goal of that action.

Incorporating Challenge(s) # 2,3,4,5

FUNDAMENTAL PROBLEM

Given the inference that we have made that the elderly in 2038 are likely to be socially isolated and suffer from mental health problems and lack of basic needs, how might we improve their psychological well-being of these elderly so that they may remain active, socially, psychologically and physically in Singapore in the year 2038 and beyond?

STEP 3. Produce Solution Ideas

Generate solution ideas to the Underlying Problem in Step 2. Choose the 5 most effective solutions and write the elaborated ideas in the space provided. Include applicable research with appropriate in-text citations.

Solution 1

Given that an ageing population leads to a lack of manpower and lesser people to support the elderly, we the Ministry of Manpower can welcome back the abled elderly into the workforce. The retirement age can also be increased so elderly can stay in the workforce for longer. Due to advancement in technology elderly can work from home as well. If needed, we can teach them certain skill sets such as coding or other essential skills needed in the future. This way, the government may improve the country's economy. Working also reduces the elderly's loneliness and could improve their psychological health. This is as they are able to communicate with their co-workers. The increasing of retirement age can be implemented in 2039. This is economically viable as working and being around others can help the elderly to become more psychologically and socially healthy. This in turn decreases the elderly's medical costs, thus improving the country's economy. Not only will the loss of the economy be decreased, but the elderly can also help to improve the economy of the country through working and increasing the country's manpower.

Evidence: According to Human Resources Director Asia, Singapore's Parliament has been proposing to raise the re-employment age. Quote: (Minister Sam Tan) *"With extended lifespans and improved health amongst seniors, there will be a scope to raise the age of re-employment again over time."*

Evidence: According to the Royal College of Psychiatrists in the United Kingdom, working is good for your mental health. Quote: *"Studies show that work is generally good for health. As well as a financial reward, it gives many of us self-esteem, companionship and status. Some studies go so far as to conclude that the risk to health of being out of work, in the longer term, is greater than the risk of other killer diseases such as heart disease."*

(Ministry of Social and Family Development, Singapore (28 Dec 2016) *Services and Programmes for Elderly* - Retrieved from

<https://www.msf.gov.sg/policies/Helping-the-Needy-and-Vulnerable/Supporting-Vulnerable-Elderly/Pages/Services-and-Programmes-for-Elderly.aspx>)

(Ministry of Communications and Information, Singapore (07 Mar 2016) *Today Online - Targeted jobs portals aim to help senior citizens mums and students* - Retrieved from

<https://www.gov.sg/news/content/today-online-targeted-jobs-portals-aim-to-help-senior-citizens-mums-and-students>)

(Human Resources Director Asia (07 Feb 2018) *Parliament proposes a raise in retirement age* - Retrieved from

<https://www.hrdmag.com.sg/news/parliament-proposes-a-raise-in-retirement-age-246379.aspx>)

(The Business Times (09 Jan 2017) *Parliament: Singapore to raise re-employment age to 67 from Jul 1, 2017* - Retrieved from

<https://www.businesstimes.com.sg/government-economy/parliament-singapore-to-raise-re-employment-age-to-67-from-jul-1-2017>)

(Royal College of Psychiatrists (2008) *Is work good for your mental health?* - Retrieved from

<https://www.rcpsych.ac.uk/usefulresources/workandmentalhealth/worker/isworkgoodforyou.aspx>)

Solution 2

Given that the elderly do not seem to have a productive way to pass time, we the Ministry of Health will work together with the Ministry of Technology to create an app "Health to Wealth" to encourage the elderly to exercise. We will use advanced technology available to us to develop a futuristic app that will be automatically installed into the devices such as smartphones of elderly nationwide, tracking the amount of exercise the elderly has done.

According to variables like the amount of calories burnt, the app will also give subsidies to elderly using elderly-friendly services such as the mopito mop and the Elderwatch tv. This app can be implemented in 2041 after algorithms are put into place so elderly can be successfully encouraged to exercise even in the comfort of their homes. The app is also able to alert the elderly's friends when the elderly goes out for the walk, and this will encourage his friends to go out for a walk with him, thus allowing all of them to not only grow fitter together, but also be able to have each other's companionship while exercising. This is extremely convenient for the elderly as the app is self-working and they will not have to do anything to it. They will not even have to install it, as it will be automatically installed into all the elderly's devices. Also, the elderly can exercise anytime they want to. Adding on the fact that many exercising areas can be found around the elderly's homes, this solution is extremely convenient for the elderly.

Evidence: According to Fast Company, exercising can release endorphins, which will allow the elderly to lead happier and more fulfilling lives. Quote: "That's the thing with the endorphins, that makes you feel good and why we should exercise and stuff, right?"

Evidence: According to Helpguide, exercising improves your mental well being. Quote: "People who exercise regularly tend to do so because it gives them an enormous sense of well-being. They feel more energetic throughout the day, sleep better at night, have sharper memories, and feel more relaxed and positive about themselves and their lives. And it's also powerful medicine for many common mental health challenges."

(Fast Company (02 Apr 2014) *What happens to our brains when we exercise and how it makes us happier* - Retrieved from

<https://www.fastcompany.com/3025957/what-happens-to-our-brains-when-we-exercise-and-how-it-makes-us-happier>)

(Helpguide (March 2018) *The Mental Health Benefits of Exercise* - Retrieved from

<https://www.helpguide.org/articles/healthy-living/the-mental-health-benefits-of-exercise.htm>)

Solution 3

Given that there is a social gap between the young and old even in families, we, the Ministry of Manpower and Ministry of Education can encourage bonding between the young and the elderly by giving workers and students a special day off just to spend time with their parents and grandparents, increasing family cohesiveness. Knowing that there may be some initial uncertainty, the government will use an algorithm that utilises the internet activity of all family members to plan a customized family outing involving everybody's interest for the first few days off. This

family day off will take effect immediately, taking place 4 times a year. Families can choose to go wherever they want after the first few planned outings. The elderly will be very willing to accept this, as they can get to bond with their families, which is something that they rarely get to do nowadays. Going out and bonding with their family members will also help the elderly to become more socially and psychologically healthy. There is even the possibility of the elderly becoming more physically healthy as well, if their families choose to have exercise-related activities. For example, if the elderly's families choose to go for walks, this can help to improve the elderly's physical health slightly.

Evidence: According to the Ministry of Health, "Our senior population above 65 years old will grow to more than 900,000 by 2030, enough to fill nine Toa Payoh towns today."

Evidence: Dr. Vidya Sagar, the then superintendent of Amritsar Mental Hospital, involved the family members of the mentally ill in the management, by allowing them to stay with their patients in open tents pitched in the hospital campus. He showed that the patients recovered fast and were taken back home.

(Ministry of Health, Singapore (28 Sep 2012) *More facilities to help seniors age-in-place* - Retrieved from https://www.moh.gov.sg/content/moh_web/home/pressRoom/pressRoomItemRelease/2012/more-facilities-to-help-seniors-age-in-place.html)

(Indian Journal of Psychiatry (Apr 2010) *Preserve and Strengthen Family to Promote Mental Health*, Ajit Avasthi - Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2927880/>)

Solution 4

Given that an ageing population leads to a lack of resources for the elderly and social isolation among elderly, we, the Ministry of Welfare, will develop an Artificial Intelligence that will communicate with the elderly, as well as virtual reality calls for elderly to connect with one another on a more personal level. This AI can be downloaded onto any device for the elderly, and can help to minimise social isolation. It can also help to alleviate the problem of elderly not having anything to do at home. The AI is tailored to the elderly personal interests as algorithms are put in place such that elderly can talk about their interests. Virtual Reality calls using Virtual Reality technology facilitates more realistic and personal interaction in the comfort of one's home this is especially useful if there are elderly who are unable to travel due to complications. The AI will allow the elderly to always have someone to talk to and will not be bored at home. The elderly can also more easily talk to their friends. This can all be done by 2043. This will be quite accessible to the elderly, as the AI is available to everyone.

Evidence: Quote Hazelden Publishing "Effective communication serves as preventive maintenance, reassuring family members that they care about each other and appreciate each other's efforts"

(Hazelden Publishing.(15 August 2018)*Effective Communication | Behavioral Health Evolution* - Retrieved from http://www.bhevolution.org/public/effective_communication.page)

(Moon, M. (14 April 2018). *Google AI experiment has you talking to books* - Retrieved from <https://www.engadget.com/2018/04/14/google-ai-experiment-talk-to-books/>)

(Deakin University(May 11, 2016) *Effective communication - having the conversation.* - Retrieved from <http://www.deakin.edu.au/students/health-and-wellbeing/occupational-health-and-safety/health-and-wellbeing/effect>

(The Straits Times (18 Feb 2015) *PM Lee asks families to bond with a little help from government* - Retrieved from <https://www.straitstimes.com/singapore/pm-lee-asks-families-to-bond-with-a-little-help-from-government>)
(Ministry of Communications and Information (30 Aug 2017) *Here's more reason to place MY FAMILY first this WEEKEND!* - Retrieved from <https://www.gov.sg/news/content/heres-more-reason-to-place-my-family-first-this-weekend>)

Solution 5

Given that the elderly may have nothing to do at home, or that they lack the knowledge and skills to perform certain tasks, we, the Ministry of Welfare, will work with the Ministry of Education to build upon existing works of SkillsFuture. Improvements such as online AI teachers can be made. Additionally, anything that the elderly wants can be taught anytime. They can then pick up interesting skills and perhaps find a hobby for themselves. This will make their lives more fulfilling. These courses will be available island-wide and will be held in community centres for group activities convenient to the elderly and the rest would be held in the elderly's home. The elderly will also be able to socialise with their fellow classmates. These courses will be started by the year 2042. This is very relatable to the elderly, as they will want to pick up new skills to keep themselves occupied. Not only will the courses keep the elderly occupied, but the skills that they learn can also keep the elderly occupied. The elderly can spend time practicing or using their skills, giving themselves something to do. They will also learn skills necessary to perform certain tasks, helping them to become more independent. This would be very welcome by the elderly. Learning new skills and using them can help the elderly become more psychologically healthy, and possibly even socially and physically healthier as well.

Evidence: In a Straits Times it shows that some elderly are interested in attending these courses. Quote: *"More than 1,300 seniors have signed up for courses at the Institutes of Technical Education, polytechnics, universities and voluntary welfare organisations (VWOs) under an initiative launched last month."* This shows that this idea may be feasible.

(National Silver Academy (3 July 2018) *National Silver Academy Short Courses* - Retrieved from <http://www.nsa.org.sg/allcourses.php>)
(Straits Times(28 June 2016) *1300 seniors sign up to go back to school* - Retrieved from <https://www.straitstimes.com/singapore/education/1300-seniors-sign-up-to-go-back-to-school>)

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.

Criteria 1:

Relatability

Which solution will be the most readily accepted by the elderly so that more elderly will participate to remain active

Criteria 2:

Economic viability

Which solution will be most economically viable for the government so that the government spend funds on the elderly more efficiently.

Criteria 3:

Accessibility

Which solution will be the most available for the elderly so that they keep themselves occupied whenever they want.

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.

Step 3 Sol'n #	Solution Idea	Criteria			Total
		1	2	3	
#1	Workforce	3	5	2	10
#2	Exercise	4	4	5	13
#3	Family Bonding	2	1	1	4
#4	AI	1	2	3	6
#5	New Skills	5	3	4	12

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 #2**Actual Action Plan:**

We, the ministry of Health, working together with the Ministry of Technology, will develop a health wristband, "Elderband", which will help the elderly. It will contain an app "Health to Wealth" which will encourage the elderly to exercise by offering incentives such as small financial subsidies for elderly-friendly products according to factors such as the amount of calories burnt or the number of steps taken in a day. We will develop this app for the Elderband by 2041. There will be bonus monetary rewards for those who exercise with their friends and family. This will help create a community of elderly who regularly exercise. The Elderband will also call emergency services, as well as their emergency contacts, when it detects a fall it will also do a body scan similar to X-Ray to locate where and what is the the injury as information for medical personnel. It also has a holographic interactive screen when needed. It shows the time, allows the user to make calls, shows a map to allow the user to find his way around and many other features, such as a holographic map that gives suggested routes with points of interest along the route. These routes are calculated using an algorithm that uses the elderly's internet activity, previous routes they have gone. After each day the elderly rates the given route and this helps with the calculation of routes. The wristband also measures heart rate, which it also uses to calculate the amount of calories burnt. The wristband can also be programmed to prompt the senior to go out and exercise at a certain time. On top of that "Elderband" also has graphene touch screen strap that senses when user takes it off by hand by sensing the user removing the hand strap and automatically switch off preventing any false alarms lest the watch falls onto the ground and save battery as well. We will use advanced technology to manufacture this wristband for the elderly at a low price by 2043.

These two products will greatly encourage and incentivise the elderly to go out and exercise, especially with their friends and family, which will help them remain active physically through exercise, socially through the bonding with their family and friends, and psychologically as there are many chemicals affecting their brain produced during exercise such as endorphins. Exercise also helps the elderly fight depression and anxiety, greatly reduces stress, and helps keep them more sensitive to insulin. This will all help maintain their psychological well-being at a healthy level, where the elderly are more often happy than depressed.

There will be many obstacles. Some of them are: the wristband may run out of battery, some elderly may not be persuaded to exercise by the incentives, the app may crash, and Elderband may wrongly alert the elderly and the elderly may not react fast enough, accidentally alerting the authorities.

However, the problems and obstacles mentioned above can be solved, though some more difficult than others. Next, we can install solar panels on the wristbands so they do not run out of battery. We believe that if we incorporate features regarding friends and something like a ranking list will persuade the more resistant seniors to exercise due to peer pressure. Regarding the app crashing, we can have a backup and we can have coders help fix the crash as quickly as possible; however, crashes are still inevitable. Next, we can educate the elderly on how to accurately cancel the false alarms. Also Elderband will only alert the authorities after scanning through the senior's body and assessing the damage caused by the injury.

So how would our plan affect the future scene?

The elderly in the future scene will no longer be "cooped up at home", instead they would be actively going out to exercise. The elderly would not be so distant from their family and neighbours, as they would be exercising together. The workload of the medical sector will also be lessened, which we're sure the medical sector will greatly appreciate, as can be seen from one of the ads on Elderwatch TV, "E-Health". John also need not pay for Elderwatch anymore as this wristband is much better and cheaper. Regular exercise also reduces the risk of falling down, so Mdm Lee may not have injured herself and lost her job. On top of that "Elderband" is available for the elderly whenever they want, making it extremely accesible for the elderly

<http://home.bt.com/lifestyle/health/wellness/7-benefits-of-exercise-for-the-elderly-1364144390476>

What are the advantages of this plan?

There are many advantages of this ingenious plan. The Health Wristband will always be on the elderly, making sure they will never lose their way. This will help boost the confidence of seniors who want to go out to go out as they no longer need to worry about getting lost or nobody helping them when they fall or get injured. Exercise is also one of the best ways to solve many problems for the elderly. Regular exercise helps to improve their memory and thinking skills, which will help to mitigate many seniors' problems of dementia and reduced mental capacity. Exercise is also just so normal and attractive to many elderly as it is something so easy to do and everyone likes as it induces happiness. Also, with their neighbours all doing exercise, no senior would want to just stay at home as it would just cause them to appear lazy and because of their sense of pride, they will go out and exercise as it is such an easy thing.

What are the limitations of this plan?

There will obviously be limitations and drawbacks to this plan as nothing is perfect. We recognise that this might further burden the economy as there will need to be much funding for this plan. Also, this plan only helps the able-bodied elderly, as they are the only ones who can exercise. We also recognise that this plan, despite all our techniques and support, may not be followed by all the elderly as ultimately, we can't control them or force them to do this. We also have no way to know the far-reaching effects of this plan for all of time or exactly everything that will change due to it.

Is the plan feasible?

Firstly, regarding the heartbeat sensor to accurately calculate calories burnt, there is a formula, which is as follows - $((-55.0969 + (0.6309 \times \text{Heart Rate (bpm)}) + (0.1988 \times \text{Weight (Kg)}) + (0.2017 \times \text{Age}))/4.184) \times 60 \times \text{Exercise Duration Time (h)}$. However, as this is fully automated, the elderly will not have to do these calculations him/herself, and the calories burnt will be shown automatically, along with any other things the elderly wants to know. Heart rate sensors are also currently common in our world, but with future technology, it will allow us to have more accurate measurements of our heart rate.

Secondly, regarding holographic screens, currently “real floating holograms” have been developed by a team of scientist from Brigham Young University. Using a tiny cellulose particle in a laser beam can act as a “canvas” to create the holograms using high speed lasers. This technology is at a nascent stage but however in the future this technology may be developed enough to be used as a device screen in the future.

Thirdly, regarding small scanners small enough to fit on a wristband, a collaborative project by scientists from Sandia National Laboratories, Rice University, and the Tokyo Institute of Technology are working together to create a technology based on terahertz radiation. This technique also can operate at room temperature, and also uses less power.

Lastly, regarding sensing when user removes watch. Using graphite touch screens that are cheaper than the usual materials used for touchscreens, and yet as sensitive as them, using the same fingerprinting scanning technology, the watch will also be able to detect when it has been removed.

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Cite the resources you consulted using the APA format.

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