

Future Trends Report**Based on Analysis of the Team's Chosen Community / Organisation in Mid-Term and Final Evaluation****Community / Organisation Studied: Food Service Industry in Singapore****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:

Observation: The commission rates of online delivery services is very high.

Problem: This business model is unsustainable as it reduces the profit margin greatly.

Evaluation: The Restaurant Association of Singapore (RAS), which has over 450 members, said that current commission charges range from 25 to 32 per cent for each order. "Whether it is the circuit breaker period or not, the rates are not sustainable for the businesses given F&B's razor-thin margins." Due to the prevalent pandemic, restaurants in the Food and Beverage (F&B) industry have been increasingly finding themselves turning to already established food delivery platforms to get their food to the customers - and in turn attempt to keep their business afloat. This especially applies to small F&B businesses, where they lack the financial resources to hire their own delivery drivers or to establish their own delivery system such that they can avoid high commission rates. They have no choice but to use these established food delivery platforms, and in turn take a much smaller profit from each dish they send to the customer. This not only affects the restaurants, but also the consumers, as restaurants will feel more compelled to increase their prices. Even though there have been attempts to increase the profit margins for restaurants, such as the Food Panda's partnership with Enterprise Singapore where "new vendors will not have to pay registration fees.", according to the Channel News Asia, it has done little to change the amount of money they are receiving, as it is not a permanent solution. And according to petitioners against the high commission rates of mega delivering platforms, "Nobody has ever liked the rates imposed on us, but we tolerated them because in the not-so-distant past, the money from your sales didn't form a core pillar of our revenue streams. We watched in frustration as your commission increased steadily from 20 percent to 30 percent."

Challenge #2:

Observation: Restaurants have been finding it hard to replace workers who resign due to the dangers associated with interacting with so many people, or those that they have laid off previously when the COVID'19 measures were tightened.

Problem: From our secondary research, it is evident that restaurants face manpower shortage, due to decreasing interest of jobs relating to the Food and Service (F&B) industry as a result of the volatility of such jobs.

Evaluation:

According to an article published by the Straits Times on the 13th of July 2021, food and beverage restaurants in Singapore continue to struggle with manpower shortages despite offering higher pay. According to the restaurant Association Singapore (RAS), many outlets are understaffed by 20 – 30 percent. Furthermore, the tightening of borders limiting the number of foreign workers has only made the situation worse, as much to the industry relies on workers overseas to form their team of staff. These reduce in interest for jobs relating to the F&B sector can be attributed to the new dangers of interacting with so many customers in one day, as well as many youths viewing such jobs as “unstable”. According to an article published by Chanel News Asia, when dine-in services were banned during the “circuit breaker” as part of Singapore’s effort to combat the coronavirus, many businesses found themselves forced to let go of some employees to survive. “Minor Food Singapore, for instance, had to let go of 10 per cent of its manpower, its chief executive Dellin Soh said.” Youths have realised that they could lose their jobs the moment the situation worsens, driving many to seek other jobs in other sectors that are not as volatile. Thus, when the economy reopened and dine-ins were allowed, a huge labour crunch was created. The implementation of new safe distancing measures, including scanning customer’s temperatures, sanitising tables, and checking for their vaccination status, made the manpower crunch more punishing for restaurants. According to Ms Bonnie Wong, chief operations officer of Creative Eateries, “The restaurant used to be self-service but today, we serve customers everything at their tables. So, we suddenly require a lot more manpower but that is not something we can find overnight,”

Challenge #3:

Observation: Due to the COVID'19 pandemic, restaurants have been finding it more difficult to maintain a constant supply of fresh ingredients and cooking materials.

Problem: Based on our secondary research, restaurants have been finding it harder to attain fresh ingredients or supplies that they would usually attain from international suppliers. As a matter of fact, even locally sources supplies have been disrupted, due to the emergence of new COVID'19 clusters.

Evaluation: According to an article by Business Times Singapore, at least nine fast-food chains and restaurant companies surveyed by Reuters said some of their locations have been grappling with changing lists of brief shortages of key ingredients and products, as supply bottlenecks plague eateries. In the context of Singapore, restaurant operators have also been finding trouble keeping their supply line open with the new restrictions, with restaurants encountering problems with importing fresh ingredients like seafood into the country for consumers to enjoy. This only means that they either have to look for other suppliers from different countries that are allowed to import goods into Singapore or turn to locally produced alternatives that would eliminate the need of any importing at all. Recently, the temporary closure of the Jurong Fishery Port has resulted in a major disruption for the fish market in Singapore, and according to an article by the Straits Times published on the 20th of July 2021, have left businesses large and small scrambling for alternative arrangements for their fresh fish supply. The port, according to the Singapore Food Agency, handles up to 30 percent Singapore's imported seafood. This is a good example of the pandemic's impact of restaurants supply lines. The unpredictability of the COVID'19 virus makes relying on a single supply line, regardless of whether it is locally sourced or internationally imported, unfeasible if not impossible for restaurant operators.

Challenge #4:

Observation: Based on our secondary research, the rise of food delivery has resulted in an exponential increase in the use of plastic packaging

Problem: There are many adverse effects plastic has on the environment, and such an increase in its use would fill up Singapore's landfills faster than waste can biodegrade, posing a legitimate environmental concern in the near future.

Evaluation: Since the pandemic, it has become common that people order their meals via food delivery apps. Deliveries and takeaways make use of one-time use plastic packaging and utensils for everything, due to its inexpensiveness and convenience for most vendors. This increased use of plastic leads to more plastic waste which is harmful to the environment. According to a research done by 6 alumni students from the National University of Singapore's Master of Science (Environmental Management) programme, it was revealed that Singaporean households produced an additional 1,334 tonnes of plastic waste during the circuit breaker. Furthermore, PeluCase of the United States of America claims that plastic waste requires 450 years to decompose. They stay years on end, harming the environment by releasing toxins. They also contribute to global warming. With the pandemic and lockdowns, restaurants have turned to food delivery and takeaways in order to keep their business afloat. Since plastic is the most convenient and cheapest material for packaging, this led to more plastic being used, disposed of, and ending up in landfills. The sudden increase in disposable plastic is a major setback in the fight against plastic pollution, which was projected to increase by 40% in the next decade, based on a report from the World Wildlife Fund. Left unchecked, the impact of this increased plastic use could be devastating, from air pollution to increased global temperatures, business owners need to put in effort to utilize more environmentally friendly alternatives. While our group acknowledges the disadvantages that come with using biodegradable food packaging, the implications of not using them greatly outweigh any disadvantages that come with it. Furthermore, we are confident that we can come up with solutions to make biodegradable food packaging more attractive to restaurant operators.

Challenge #5:

Observation: With the pandemic and lockdown, people are more afraid of dining in, and most have grown accustomed to food delivery. This results in less customers and a reduce in revenue for restaurants.

Problem: Those businesses that relied on dine in customers will not receive any sales.

Evaluation: Dine-in customers are predicted to decline rapidly even after the pandemic. People are not only becoming more afraid of dining out but are also getting more accustomed to food delivery. Existing restaurants have been increasingly faced with the need to adapt, by mixing full-service, fast-casual, and quick-serve styles, for optimum carryout and delivery convenience. Based on a study presented at the conference by financial services company Cowen & Co, mid-July 2020 was when, 52% of consumers surveyed said they would carry on avoiding dining in once restaurants fully reopen, up from 36% in mid-April. Andrew Charles, analyst with Cowen, said "The longer we're in this pandemic, the more pronounced permanent changes are going to be," Before the pandemic, only 69% of customers ordered food delivery, but this number has since rapidly increased to 88% during the pandemic. Even if customers are not ready to dine-in, 82% of them will continue utilizing delivery or ordering takeout from a restaurant. Thus, it is apparent that restaurant need to do more to be more attractive to customers, assuring them that dining in would be safe for them.

STEP 2. Craft the Underlying Problem

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

Underlying Problem:

Given that the pandemic has impacted the foodservice industry such that their sales have been greatly decreased and that running a business now incur more costs (condition), how might we implement policies and measures to the Food Service Industry (key verb phrase) to allow our local restaurants to flourish financially even under the shadow of the pandemic (purpose) for the next 5 years and beyond?

Incorporating Challenge(s) # 1, 2 and 5

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:**Reducing the costs of food deliveries**

We, the Organisation for the Welfare of the Food Service Industry, **(Who)** will work with the food delivery companies and the government in Singapore **(Where)** to implement policies to reduce the commission rates food delivery platforms receive in order to increase the profit margins for the restaurants. **(What)** Our group will try to convince the Food Delivery companies that a reduction of commission rates would benefit them, **(How)** as more companies will feel more compelled to subscribe to their delivery services if they realise that they can still make a sizeable profit from it. **(Why)** Even if commission rates cannot be abolished completely, as the food delivery drivers still need to get paid and the companies still need to make a profit, it can be reduced. Furthermore, we will work with the Government to implement monetary rebates that would help small restaurant businesses pay off some of the commission rates from food delivery companies. **(How)** Especially because of the pandemic, many small-scale restaurants are struggling to stay afloat, thus such a policy would no doubt be a lifesaver to many, reducing the financial strain that small restaurants may face. **(Why)** That said, since this is not economically feasible for the government to carry it out in a large scale continuously, it is only a short-term solution. Our last, longer-term solution this problem would be for the government to encourage restaurants who have the necessary resources to establish their own delivery network. Then, the government can encourage smaller restaurants to all be part of the same delivery network set up by restaurants for restaurants. Considering that a delivery network would be too high of a cost for a single restaurant to operate, restaurants can band together and create a food delivery platform with low commission costs that multiple restaurants can use. Each restaurant will contribute a small cost to maintain delivery network instead of one restaurant operating it on their own. By leveraging on the economy of scale, they can reduce the costs of operation for each restaurant and hence increase their revenue. This allows small restaurants to implement this solution. Through this, restaurants can bypass the high commission rates set by existing delivery platforms, and since little government involvement is needed, this would be a feasible solution in the long run. For this to have any impact at all, it must be accomplished as soon as possible. Our group is confident that through collaborating with the Food and Service industry and by convincing restaurants to work towards the common goal of increasing revenue for all, we can achieve our goal by end 2023. **(When)**

Our Research:

Many stall owners demanded that the platform fees be reduced by at least 15%, because in the current COVID-19 situation, food delivery is basically the only way to sell food, and with the high commission rates it is difficult to make a profit. Even though most companies try to increase restaurants' profit margins through the waiver of some of the cost onboarding fees of up to \$360, it is far from being a permanent solution as after some time, the restaurants would still have to pay the full amount the company requires as commission in the end. (Onboarding costs are all expenses or other costs associated with bringing new employees into the company) Another solution that we have considered is the financial assistance from the government to help pay off some of these fees. According to Channel News Asia, the government has already implemented this to a certain extent, with Enterprise Singapore helping to fund 5% of the commission cost charged by Deliveroo, Food Panda and Grab Food in the earlier parts of 2021. This proves that such policies are indeed feasible, and our group thinks that the government should increase their support, this time focusing on small outlets that do not make much profit and are struggling to stay afloat. This would allow for the government to focus their resources more on those who need it the most, allowing them to survive the financial impacts of the pandemic. Regarding the last solution, during our interview with The Soup Spoon, Mr Chan claimed that they have established their own delivery network to attempt to reduce costs. It has also been proven by Mr. Cedric Tang. He is the owner of the Ka-Soh traditional fish soup restaurant and he had asked his brother to create an ordering platform and hire a few delivery drivers consisting of 3 taxi drivers and private drivers with great success. However, for this to work on a large scale, many restaurants need to participate in the same delivery platform in order to lower the cost of operation for each restaurant.

Solution #2:

Assisting restaurants to find alternatives to the shortage of manpower needed to keep up with Singapore's COVID'19 regulations.

We, the Organisation for the Welfare of the Food Service Industry, **(who)** will work with the restaurants in Singapore **(where)** to automate the process of seating customers and keeping up with the COVID'19 regulations. **(what)** This could be as simple as installing an Artificial Intelligence powered machine to mark down customers body temperature, instead of relying on staff members to use a thermometer to physically check customer's temperatures. Other alternatives to counteract the lack of manpower also include enlisting the help of a robot to serve and wait customers. **(how)** Especially considering that customers now hope to reduce their interaction with another human beings, having robots to serve and provide consumers with good food would make their business safer and reduce the labour crunch as a result of the increasing lack of manpower. **(why)** However, such AI powered machines would undoubtedly cost a foot and a leg for restaurant operators, thus it might not be feasible for all. Hence, we will also work with the Singaporean Government to provide restaurants with the financial support to attain such technology to reduce the labour crunch. The Singaporean Government can rent such technology to restaurants at a lower price, allowing smaller businesses to be able to afford them. **(how)** Our group feels that even though implementing such technology would be very expensive, it is worth it as in the long term, restaurants can save more money by hiring less staff. To allow this solution to be better implemented by the restaurants, our group will work together with the government to establish a counselling task force to provide consultancy to businesses in setting up the automation to run their businesses. Furthermore, we will also plan out a training programme that restaurants can send their staff to attend, training the staff on how to use the technology provided. It is evident that this solution is future-proof and feasible in the long run, and hence our group will strongly push for the government to implement policies as soon as possible, hopefully by the start of 2023, giving time for any bureaucracy needed in implementing such a policy. **(when)**.

Our Research:

According to an article by the Forbes published on the 3rd of February, the global robotics market is expected to attain a value of USD 147.26 billion with a Compound Annual Growth Rate (CAGR) of 17.24% at the end of the forecasted period from 2017-2025. Organizations worldwide have realized the potential and are investing heavily in robotics. Thus, robots are now not restricted to major industries but are making inroads into other businesses such as restaurants, replacing the jobs of humans and reducing the manpower strain on restaurant operators. An example of an implementation of robotics in the F&B industry in Singapore is "Ella", Singapore's first automated barista. According to a Straits Times article published on the 2nd of October 2020, Crown Coffee, the Food and Beverage arm of Crown Group, said the outlet was launched in an effort to push automation and reduce physical interaction in the light of the coronavirus pandemic. "It is able to make up to 200 cups of coffee an hour. It joins a host of new innovations spurred on by Covid-19 such as cleaning robots." This just goes to show that implementing robotics into one's restaurant business is indeed feasible and can bring many benefits if executed properly.

Solution #3:**Assisting restaurant operators' source for more stable supply lines for fresh ingredients.**

We, the Organisation for the Welfare of the Food Service Industry, (who) will work with the restaurant operators in Singapore (where) to diversify their supply chain and be pragmatic when sourcing for ingredients in order (what) to ensure that the pandemic cannot cut off their supplies from suppliers (why). One of the ways restaurant operators can plan for the disruption of supplies is through scenario planning. Restaurant owners need to assess the current situation and predict any future challenges that could potentially cut off their supply line. They then have to work to create solutions to these challenges before they actually happen, evaluating if sourcing internationally or locally is a better idea, or if they should be producing their own cooking materials to reduce reliance on the disrupted supply lines. (how) This method of scenario planning has been of great help to many restaurants, and since it is a proven method, it should be something all restaurants do in order to mitigate a supply chain crisis. (why) Restaurants can also change their source of supplies and business model depending on the conditions at that point of time. (how) For example, Straits Times published an article on 15th June 2020, stating that Sin Mui Heng (SMH) Food Industries, which makes chilled and frozen dim sum, has had problems with their supply chain. They tried sourcing for raw materials from overseas, such as packaging materials and personal protective equipment, but that proved to be too great of a challenge. To get around the roadblocks, SMH decided to produce more machine-made products mainly for retail sale instead. "This meant cutting down on labour-intensive lines which produce handmade items that are for hotels and restaurants," said the Director of Operations Johnson Tay. For restaurants to change their business model to better adapt to the changes the pandemic brings, they will need proper advice from qualified professionals, thus our group hopes to roll out a seminar with the necessary experts qualified to provide advice on this matter. For additional support, we will convince the government to establish a consultancy service, where restaurants can come and seek advice from qualified professionals at a small price. Since diversifying their supply chain and changing their business model to be more flexible allows the restaurant to be better prepared for any future catastrophe, it is also beneficial to the restaurants in the long run. For this seminar to be of any help to the restaurants to reduce the impact of COVID'19, we should roll it out by the middle of 2022, giving us plenty of time to gather the necessary resources needed. (when)

Our research:

According to an article published by Fortune on 21st July 2020, Mary Long, the managing director of the Global Supply Chain Institute's Supply Chain Forum at the University of Tennessee, have both weathered their fair share of supply-chain challenges. "In the five years that I led my supply-chain team at Domino's [Pizza], we never shut down a store for lack of food." she said. "Scenario planning really helps a lot to set up: What are the plausible best-case scenarios and plausible worst-case scenarios?" Long claims that the challenge is to think through how well-positioned the business is for "taking advantage of a best-case scenario or mitigating a worst-case scenario, and being really honest about that so you have a clear picture of opportunities and risk,"

Solution #4:**Assisting restaurants in reducing their use of plastic**

We, the Organisation for the Welfare of the Food Service Industry (**Who**), will work with the Singaporean (**Where**) Government to implement incentives for restaurants to use biodegradable food packaging, such as paper boxes and utensils. Furthermore, the Government can work with food delivery apps to allow customers to choose between biodegradable food packaging and plastic ones. (**What**) This can be through the following: 1. Reimbursement, where the government repays restaurants for the increased amount of money restaurants spend on more expensive biodegradable food packaging. 2. Implement laws to limit the use of plastic. (**How**) In addition to this, to reduce food packaging prices, restaurants can also make deals with food packaging manufactures. Considering the higher price of biodegradable food packaging, restaurants can agree to buy biodegradable packaging in bulk from these factories, reducing costs drastically. Another option for restaurants would be to pass some of the cost to the consumers, and even if it might be an unpopular decision, long-term ramifications of not using them – including environmental pollution and massive landfill crowding, help put this increased cost into perspective. And for this to work, the government needs to ensure that all restaurants in Singapore use biodegradable materials, and that all pass the cost on to the customers. This will leave customers with no choice but to take on this extra cost, and restaurants will find less disadvantages in rolling out biodegradable items since their competition would also be using them. (**Why**) However, if restaurants are not comfortable with passing the cost to consumers, they can also encourage them to bring their own reusable containers when dining in through promotions and discounts. (**how**) For it to have an impact on our total plastic usage, these policies can be implemented by 2023 (**when**), and even after the pandemic, as people come to realise the convenience of food deliveries, these policies would no doubt reduce our plastic usage drastically in the long term.

Our Research:

The surge in single-use plastic is a major blow to the fight against plastic pollution, which is projected to increase by 40% in the next decade, according to a report from World Wildlife Fund. If the government implements this, it can negate quite a fair bit of single-use plastic utensils impact on the environment. And according to National Environment Agency Singapore, our own landfill, the Semakau Landfill, is losing its lifespan by the minute. “At our current rate of waste generation, Semakau Landfill (SL) is expected to be fully filled by 2035.”. If nothing is done to reduce the plastic usage in Singapore, we will have to suffer from adverse consequences as our landfill fills up and plastic starts getting littered all around our roads and streets, harming our environment.

Solution #5:**Assisting restaurants overcome the lack of customers**

We, the Organisation for the Welfare of the Food Service Industry, **(who)** will work with the restaurants in Singapore to overcome the lack of customers and attempt to increase their revenue in the midst of a pandemic. **(what)** Maintaining and running a business in the food service industry is a great task to undertake, as there are seemingly never-ending tasks to complete. Most operators would likely detest the idea of including more work into their list, but more needs to be done to adapt to the changes brought about by the pandemic. One way they can adapt to this problem is through increased marketing. Restaurants can capitalise on the popularity of social media platforms such as Instagram to reach out to the youth in Singapore. Furthermore, they can make use of email marketing to reach out to the older generations who are not familiar with social media. **(how)** Online publicity is crucial for businesses as they decide whether customers will know about the restaurant and visit the store or not. By including a site for people to book reservations, and letting customers know about the opening hours and other details of the restaurant, it makes it more welcoming for customers. Social media is also a good place to collect feedback and comments from other guests, which also builds more trust in new customers. **(why)** Restaurants can also digitise online reservation, allowing for less wait times and better preparation by the restaurant as a whole. **(how)** With a digitised online reservation system, restaurant employees can easily see who will be coming at what times, allowing them to serve their meals faster and allowing them to spend less time waiting. This means that more customers can dine in in one day, reducing the impact of lower operational capacity enforced by the new regulations. **(why)** Lastly, restaurants can train their employees to better deal with customers. **(how)** It is an undisputed fact that excellent customer service is a must for any restaurant and without it restaurants will lose out on valuable customers. By ensuring all of the staff members undergoes the required training and is aware of the expectations, restaurants can seem more welcoming to passers-by and thus increase customers. **(why)** Moreover, a better trained employee can also keep up to the cleanliness standards, which we have realised plays a huge role in customers decision when choosing which restaurant to eat in. Especially since an online reservation system and better training can benefit the restaurant in the long run even after the pandemic ends as it allows for greater efficiency, it is thus future proof and is a solution that most restaurants can benefit from. Our group can establish a website to provide the above advice to restaurants, with it including tutorials on how to establish a social media account and use email marketing efficiently. Furthermore, we will plan a training programme, where we will help train staff to be better equipped to adapt to the pandemic, as well as to train restaurant operators on how to use a digitised online reservation system efficiently. We can then enlist the help of the government to promote the website and the training programme to reach out to as many restaurant operators as possible. For this to help the restaurants, the website should be ready by the middle of 2022, with the training programme ready by the start of 2023. **(when)**

Research

A study done by Bright Local found that 84% of customers trust the online reviews just on the same level as personal recommendations. Furthermore, according to Shamit Ajmani, owner of the Storm Bar & Grill, he claims that "Sometimes our customers book the table and order online in advance. By the time they reach the restaurant, the food is already served on the plate. It is quicker for both them and us. All thanks to Online Restaurant Reservation apps. And according to an article published by Think with Google in April 2020, search interest for "is food delivery safe" has also increased 650% across the U.S. since the beginning of March 2020. This is relevant in Singapore as it shows that customers are more concerned than ever of restaurant cleanliness.

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 5 most important criteria for measuring solution ideas and write them in the spaces provided.

Criterion #1:

Can we/ the government implement this such that we only need to spend minimal resources, time, and effort to accomplish the desired outcome?

Criterion #2:

Will this solution be the fastest to implement by the Food and Service industry such that they can receive help as soon as possible to minimise losses?

Criterion #3:

Will this solution be the most effective in helping the Food and Service industry adapt to the impacts brought by the pandemic?

Criterion #4:

Will this solution be useful to the Food and Service industry even in 5 years' time? (Is this solution future proof?)

Criterion #5:

Is this solution easy for restaurant operators to adapt into their business model such that they would not need to make a large change? (Is this solution easy for restaurant operators to implement)

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	4	5	
#1	Reducing cost of food delivery	2	3	4	4	5	18
#2	Finding alternatives to address the shortage of manpower	2	4	5	5	4	20
#3	Assisting restaurant operators' source for more stable supply lines for fresh ingredients.	5	3	4	2	3	17
#4	Assisting restaurants in reducing their use of plastic	3	2	3	5	2	15
#5	Assisting restaurants overcome the lack of customers	4	2	5	4	3	18

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 community / organisation will be affected. Explain how this Action Plan is feasible with secondary research consulted, preferably also with primary research (feedback from chosen community / organization)

Action Plan derived from Solution #2:

How does our plan assist the restaurants in overcoming the impacts of COVID'19?

Our plan consists of convincing the government to sell technology at a reduced price for restaurants in Singapore to reduce the need of manpower by tapping on the country's funds. This will not only alleviate the labour crunch faced by restaurant's due to the pandemic but also to future proof this industry, making it less volatile to future pandemics. The new technology would include automated temperature scanners, robotic waiters, cleaners and even chefs. Furthermore, to convince the restaurant operators that such technology will be beneficial to their business, we will introduce an online seminar that business owners in the food service industry can attend. This seminar will educate the leaders of restaurant brands about the benefits, disadvantages and the steps to ensure that the implementation of such technology is executed properly. We will also work with the government to establish a consultancy service, where they will provide valuable assistance to businesses in setting up the automation. Lastly, we will also push out a training programme, where we will train the staff how to use the new technology provided. Through the seminar, government subsidies, consultancy services and the training program, we are confident that restaurants will welcome this technology with open arms, as it basically solves all their manpower troubles.

How does our plan address the underlying problem's purpose?

Even though robots will definitely not replace the need for humans entirely, as they are only able to carry out the most basic tasks (cleaning tables, delivering food to tables, or preparing simple dishes for example), it can definitely reduce the strain for the much-needed manpower by the Food and Beverage Industry. Furthermore, it reduces the need for restaurants to hire that many staff, reducing their operational costs. With government subsidies, online seminars and consultancy services assisting restaurant operators making this technology very attractive to implement, we can ensure that the restaurant in Singapore can use it to adapt to the changes brought by the pandemic, allowing the industry to flourish financially during the pandemic and beyond.

What is our timeline for our implementation?

By the middle of 2022, resources to introduce a seminar will be attained by our group. We will invite possible individuals to come and share their knowledge in the seminar.

By the end of 2022, the seminar should be ready to be introduced to the restaurant operators.

We will then collate feedback from them to improve our second round of seminars, which will happen early 2023.

By the end of 2022, our group should have prepared any necessary resources to roll out the training programme to restaurant staff, with the training programme itself hopefully happening early 2023

In addition, by the start of 2023, we hope that the government would have already completed any necessary bureaucracy needed to implement the new subsidies that reduce the cost of robots for restaurant operators. Furthermore, by mid-2023, the consultancy services should be ready for the restaurant operators.

If all goes to plan, restaurants should be able to properly implement new technology and automation to help assist their business by the end of 2023.

Who will oppose/ support our plan?

Some restaurant operators might oppose our plan as they might see that such technology will not be useful to them. However, our group expects most operators will realise the potential of robotics in the F&B industry and accept it with open arms. To address those who do not believe in such technology, the government can launch campaigns to raise awareness of their potential to restaurant operators and encourage them to would also support this idea.

What are some obstacles that may be encountered?

Firstly, in order to bring in experienced personnel to share their suggestions and thoughts on the implementation of robotics into their business model, some costs might be incurred to hire them for the duration of the seminar. Furthermore, our group expects that the training programme will require restaurant operators to pay a small sum of money. This might result in the price of joining the seminar and the training programme to be too high for some restaurant operators. Secondly, it might be troublesome for us initially to convince the Singaporean Government to support our idea and implement the necessary subsidies to reduce the cost of the technology.

How do we solve these obstacles?

Regarding the first obstacle, we hope that our seminar and the training programme will come under the Workforce Singapore training grant such that the government funds the cost for the restaurant operators and staff. Through partnerships with government organisations, we can hopefully have experts volunteering to give advice to the business owners on how to efficiently implement robotics into their restaurants. Whereas for the second obstacle, our group is confident that the Singaporean government would ultimately see the potential for robotics in the F&B industry, and with a good presentation consisting of the necessary facts, we feel that the government will see that the costs outweigh the benefits it brings.

How feasible is this plan?

The plan requires restaurant operators to turn up to an online seminar, which as in itself already extremely convenient as they can attend it from the comfort of their homes. And even if subsidising the cost of robotics for restaurant operators in Singapore might pose a greater challenge for our group, we are still confident we can make it happen, especially with the support from restaurant operators who see the potential of such technology. However, should the government still not want to give out the subsidy, our group is confident that as more of such devices are manufactured, the costs of such devices would also reduce drastically, and hence it will still be practical for the restaurant owners to implement into their businesses. Lastly, should the government not be convinced that they should establish a consultancy service for the restaurant operators, our group will be more than willing to work with third parties to make this happen. We will form an agreement for them to reduce their consultancy prices with the promise that many restaurant operators will look for them for valuable advice, thus leveraging on the economy of scale to make it affordable. Since we have many back up plans should our main plan fail, our group feels that this plan, even though the implementation might be challenging, is still very feasible.

Bibliography

Cite the resources you consulted using the APA format.

List of References:

- Baertlein, L., & Russ, H. (2021, June 29). *Stretched global supply chain means shortages on SUMMER MENUS*. Reuters. <https://www.reuters.com/business/stretched-global-supply-chain-means-shortages-summer-menus-2021-06-28/> .
- Cindy Co @CindyCoCNA, Co, C., & Bookmark Share WhatsApp Telegram Face. (n.d.). *COVID-19: Food container suppliers face potential shortage during circuit breaker*. CNA. <https://www.channelnewsasia.com/singapore/covid-19-food-container-suppliers-face-potential-shortage-during-circuit-breaker-762846> .
- COVID-19 coverage For Foodservice supply chain*. COVID-19 Coverage for Foodservice Supply Chain | Supply Chain Scene. (2021, August 10). <https://www.supplychainscene.org/resources/news/covid-19-coverage-foodservice-supply-chain> .
- Ladapo, B. (2020, November 17). *Are biodegradable materials more expensive?* Home Guides | SF Gate. <https://homeguides.sfgate.com/biodegradable-materials-expensive-78496.html> .
- Lai, L., Liew, I., & Won, C. H. (2021, July 20). *Businesses scramble for alternative supplies of fresh seafood as Jurong FISHERY Port shuts OVER COVID-19 cases*. The Straits Times. <https://www.straitstimes.com/singapore/consumer/businesses-scramble-for-alternative-supplies-of-fresh-seafood> .
- Manpower shortage, huge obstacle FOR F&B business expansions*. iMakan Singapore. (n.d.). <https://www.imakan.com.sg/manpower-shortage-huge-obstacle-for-f-b-business-expansions> .
- Sen, N. J., & Bookmark Share WhatsApp Telegram Face. (n.d.). *The big READ: Singapore has Been buttressing its food security for DECADES. now, people realise why*. CNA. <https://www.channelnewsasia.com/singapore/covid19-coronavirus-singapore-food-security-stockpile-national-773856> .
- Stretched global supply chain means shortages on summer menus*. businesstimes.com.sg. (2021, June 28). <https://www.businesstimes.com.sg/consumer/stretched-global-supply-chain-means-shortages-on-summer-menus> .
- Tang, S. K. (2020, November 4). *No takers for 1,000 F&b jobs, says restaurant association*. CNA. <https://www.channelnewsasia.com/business/food-beverage-jobs-no-takers-1000-jobs-restaurant-association-517526> .
- Yang, C. (2021, July 13). *Singapore F&B OUTLETS struggle to hire despite offering higher pay*. The Straits Times. <https://www.straitstimes.com/singapore/jobs/fb-outlets-struggle-to-hire-despite-offering-higher-pay-0> .

Austin, D. (2021, May 5). *What does the end of the pandemic mean for ghost kitchens?* NCR. <https://www.ncr.com/blogs/restaurants/end-of-pandemic-ghost-kitchens> .

Ghost kitchens: Food delivery apps leave restaurants without waiters or dining rooms: Video. CNA. (2019, November 9). <https://www.channelnewsasia.com/watch/ghost-kitchens-food-delivery-apps-leave-restaurants-without-waiters-or-dining-rooms-video-1490711> .

grubtech. (2021, February 28). *Why should you convert your restaurant into a cloud kitchen? Virtual brand creation tips.* <https://www.grubtech.com/blog/why-you-should-convert-your-restaurant-into-a-micro-cloud-kitchen-and-how> .

Hermes. (2020, December 24). *US ghost Kitchens thriving in pandemic.* The Straits Times. <https://www.straitstimes.com/business/us-ghost-kitchens-thriving-in-pandemic> .

Hermesauto. (2020, December 23). *Delivery-only 'ghost' kitchens flourish during pandemic.* The Straits Times. <https://www.straitstimes.com/business/delivery-only-ghost-kitchens-flourish-during-pandemic> .

Holtzapple, A. (2021, March 30). *Ghost kitchens take off during covid-19.* Ghost Kitchens Take Off During COVID-19 | Vulcan Equipment. <https://www.vulcanequipment.com/blog/ghost-kitchens-take-during-covid-19> .

Kelso, A. (2020, October 5). *How the pandemic accelerated the Us GHOST KITCHEN market '5 years in 3 months'.* Restaurant Dive. <https://www.restaurantdive.com/news/how-the-pandemic-accelerated-the-us-ghost-kitchen-market-5-years-in-3-mont/585604/> .

Kim, S. (2021, January 15). *How Covid accelerated the rise of GHOST KITCHENS.* CNBC. <https://www.cnbc.com/2021/01/15/how-covid-accelerated-the-rise-of-ghost-kitchens.html> .

Quek, E. (2020, October 4). *Cloud or GHOST kitchens take bigger bite of SINGAPORE'S food delivery market.* The Straits Times. <https://www.straitstimes.com/lifestyle/food/cloud-kitchens-take-bigger-bite-of-the-market> .

Who should be using ghost kitchens: Smart city kitchens Singapore. SmartCity Kitchens. (n.d.). <https://smartcitykitchens.com/ghost-kitchen/> .

- Beltis, A. J. (2020, November 4). *Robots in restaurants: How automation can change the game - on the line: Toast pos*. Robots in Restaurants: How Automation Can Change the Game - On the Line | Toast POS. <https://pos.toasttab.com/blog/on-the-line/robots-in-restaurants> .
- Feller, C. (2021, June 21). *10 robots automating the restaurant industry*. www.fastcasual.com. <https://www.fastcasual.com/blogs/10-robots-automating-the-restaurant-industry/> .
- Jain, V. (2021, July 7). *How ai-powered robots are helping the food industry*. QSR magazine. <https://www.qsrmagazine.com/outside-insights/how-ai-powered-robots-are-helping-food-industry> .
- Joshi, N. (2020, February 4). *Bon Appétit! ROBOTIC restaurants are the future*. Forbes. <https://www.forbes.com/sites/cognitiveworld/2020/02/03/bon-apptit-robotic-restaurants-are-the-future/?sh=e915b3121365> .
- Kai, N. W. (2020, October 3). *Coffee break? Check out Singapore's first robot BARISTA outlet*. The Straits Times. <https://www.straitstimes.com/singapore/coffee-break-check-out-singapores-first-robot-barista-outlet> .
- Kit, T. S. (2020, April 16). *As COVID-19 hits F&B SECTOR, Calls emerge for delivery apps to lower commission fees*. CNA. <https://www.channelnewsasia.com/news/business/covid-19-food-sector-delivery-apps-lower-commission-fees-12643252> .
- Loria, K. (2019, February 23). *How robots are used in restaurants to streamline food service*. Restaurant Insider. <https://upserve.com/restaurant-insider/the-future-is-now-how-robots-are-used-in-the-food-service-industry/> .
- Previsor. (2020, October 16). *Restaurants and covid-19: Challenges affecting the industry*. Previsor Insurance. <https://previsorinsurance.com/blog/restaurants-and-covid-19-challenges-and-changes-affecting-the-industry/> .
- Semakau landfill 20th anniversary*. National Environment Agency. (n.d.). <https://www.nea.gov.sg/corporate-functions/resources/publications/books-journals-and-magazines/envision-lite/june-july-2020/semakau-landfill-20th-anniversary> .
- Sraders, A. (2020, July 21). *4 ways businesses can adapt to a changing supply chain environment*. Fortune. <https://fortune.com/2020/07/21/coronavirus-business-supply-chain/> .
- Yun, T. H. (2020, March 30). *Chope survey Captures devastating impact of the coronavirus pandemic on F&B*. The Straits Times. <https://www.straitstimes.com/lifestyle/food/chope-survey-captures-devastating-impact-of-the-coronavirus-pandemic-on-fb> .

- Abdullah, A. Z. (2020, September 21). *About 6,700 opportunities offered in food sector since April amid Covid-19 pandemic: Mom*. CNA. <https://www.channelnewsasia.com/news/singapore/food-sector-jobs-opportunities-mom-traineeships-13128798> .
- Aday, S., & Aday, M. S. (2020, August 24). *Impact of covid-19 on the food supply chain*. OUP Academic. <https://academic.oup.com/fqs/article/4/4/167/5896496> .
- Best, D. (2021, July 21). *How is Covid-19 affecting food industry?* Archives. Just Food. https://www.just-food.com/hot-issues/how-is-covid-19-affecting-food-industry_id1169.aspx .
- Jackson, N. (2020). *COVID-19: News and analysis for the food industry*. New Food Magazine. https://www.newfoodmagazine.com/topic_hub/108951/covid-19-hub/amp/ .
- Key contact Leon Pieters Global Consumer Industry Leader leonpieters@deloitte.nl . (2021, June 30). *Covid-19: Impact on food & beverage consumer products companies*. Deloitte. <https://www2.deloitte.com/global/en/pages/about-deloitte/articles/covid-19/covid-19--impact-on-food---beverage-consumer-products-companies.html> .
- Labs, W. (2020, June 8). *The ongoing impact of covid-19 on the food industry and its supply chains*. Food Engineering RSS. <https://www.foodengineeringmag.com/articles/98915-covid-19-will-continue-to-make-an-impact-on-the-food-industry-and-its-supply-chains> .
- Nakat, Z., & Bou-Mitri, C. (2021, March). *COVID-19 and the food INDUSTRY: READINESS ASSESSMENT*. Food control. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7523550/> .
- Pti. (2021, January 26). *Covid-19 pandemic may take four to five years to end: Singapore Minister*. mint. <https://www.livemint.com/news/world/covid19-pandemic-may-take-four-to-five-years-to-end-singapore-minister-11611641971382.html> .
- Scattergood, G. (2021, May 5). *COVID-19 and apac's food and beverage Sector: All our Coronavirus news...in one place*. foodnavigator. <https://www.foodnavigator-asia.com/Article/2020/03/24/COVID-19-and-APAC-s-food-and-beverage-sector-All-our-coronavirus-news-in-one-place> .
- Spanos, J. (2020, June 19). *7 food and beverage supply chain challenges for 2020*. NexTec Group. <https://www.nextecgroup.com/7-food-and-beverage-supply-chain-challenges-for-2020/> .
- Wolf, E. (2020, December 4). *The economic impact of food tourism*. World Food Travel Association. <https://worldfoodtravel.org/news-the-economic-impact-of-food-tourism/> .