

Future of the Business World: Tackling Food Insecurity in Singapore

Date : June 1, 2021

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Clean energy, educational equity, climate action, financial literacy: these are only a few of the serious global issues that demand innovative solutions. If you want to read more of them, check out our list of the [United Nations' Sustainable Development Goals](#). Today's high school students, a.k.a. Generation Z, are thinking deeply about the world's problems and how to create a more sustainable future, often using entrepreneurial energy and ideas to tackle challenges.

On this month's episode of [Future of the Business World](#) we meet Robin Ye, who together with his classmate Brian Ng, has been working to improve the system for helping people in their native Singapore who need food — otherwise known as the food insecure. Robin and Brian, high school students at Hwa Chong Institution in Singapore, are the founders of Robin Food, a proposed tech-driven bidding system to help foodbanks manage inventory and reduce wasted food. Robin Food recently won first place in the [PIMCO Zero Hunger Challenge](#), part of the NFTE World Series of Innovation.

As Robin illustrates, solutions are not always as simple as producing more food to feed the hungry. Research and analysis often reveal the need for more thoughtful, sustainable approaches to problem-solving.



Wharton Global Youth Program: Hello Everyone and Welcome to Future of the Business World, the podcast featuring teen entrepreneurs and innovators from across the globe.

I'm Diana Drake with the Wharton Global Youth Program at the Wharton School, University of Pennsylvania. It's our job at Wharton Global Youth to introduce business and finance education to high school students in ways that spark curiosity and competitiveness—and help prepare the next generation of business leaders.

Our guests on FBW are well on their way in that regard. They've thought deeply about the problems facing our planet and are working toward finding solutions.

Today's focus is food insecurity. About 690 million people worldwide go to bed hungry each night and literally don't know where their next meal is coming from. The solution is not as easy as producing more food. There is enough food to go around, but much of it goes wasted and doesn't reach those in need.

Robin Ye and Bryan Ng, 17-year-olds from Singapore, have come up with a local solution. Their venture Robin Food recently won first place in the PIMCO Zero Hunger Challenge, part of the Network for Teaching Entrepreneurship

World Series of Innovation.

Robin joins us from his home in Singapore. Robin, welcome to Future of the Business World!

Robin Ye: Thank you for having me.

Wharton Global Youth: I want to learn more about your business idea. Before we get to that, though, let's talk about the issues that Robin Food is trying to address. How serious is food insecurity in Singapore? What does the problem look like in your country?

Robin: Food insecurity is actually a very big issue in Singapore, although it is one that often isn't talked about. Although Singapore is ranked first in the global food security index due to its variety of sources of food all over the world, about 800 million kilograms of food is thrown away annually, which is equivalent to two bowls of rice per person, per day. As a result, about 10% of Singaporeans struggle to get sufficient, safe and nutritious food daily. There is in fact a very wide disparity in terms of the ability to get a balanced diet, especially between the rich and the poor in Singapore. It's actually a problem that is currently being tackled, but still remains rooted in Singapore, particularly because of the culture of buying excess food.

Wharton Global Youth: The interesting thing is that hunger is often not a food problem. Sometimes the issue is not how do you produce enough food, but rather how do you prevent food from being wasted or how do you get that food to the people who need it most. What did you learn about the importance of supply chain and logistics in helping to tackle food insecurity?

Robin: When Brian and I first started brainstorming solutions to food insecurity and trying to achieve zero hunger, we first dissected the root of the problem: where food waste is produced. And indeed we did find that food waste is actually produced in every step of the supply chain, from the supplier, the farmer perhaps, or the intermediary party, maybe the warehouse, the business to the consumer. Food waste is created at every single step. The area of food insecurity that Brian and I placed special attention on is the lack of a balanced diet. We realized that supply chains and logistics play a huge role in providing a more equitable distribution of food. That is the central ideology behind the bidding system that Robin Food proposes, which I will talk about later in the podcast.

Furthermore, there is the problem of food duplication, in terms of the food that is served to the food insecure in Singapore. As such, it is also a problem due to logistics, which is why Robin Food places special focus on supply chain and proper logistics management in order to better address food insecurity where other food organizations have failed to achieve in Singapore.

Wharton Global Youth: What did you find out about why there is so much wasted food?

Robin: Focusing specifically on the food that has been distributed by food banks to beneficiaries [people who are food insecure] in Singapore, we found the issue of duplication to be a very severe one. Take Area A, for example. In Area A there are many low-income households and as such many food bank organizations such as Food Bank Singapore and Food from the Hearts, two notable food charities in Singapore, provide food for the beneficiaries in this area. However, this problem of duplication arises because one household receives two packs of food from these two different organizations, which is too much. It's in excess of what they actually need. Much of this food is actually wasted. Furthermore, there seems to be a disconnect between the preferences of food by the beneficiaries and the food that is actually provided by the foodbank itself. Upon doing more research, Brian and I found that there are many elderly who are actually food insecure in Singapore and they receive food items like croutons, for example, and given that they do not have many teeth it is extremely hard for them to eat it. As such, a lot of the food they receive in their food packs is often thrown away simply because they cannot consume it. And the food goes to waste.



Robin Ye hopes to propose his app idea to the Government of Singapore.

Wharton Global Youth: Let's back up for a minute, Robin. The foodbank model is an essential solution. What exactly is a foodbank?

Robin: Let's take a few steps back. In Singapore, a foodbank is typically a nonprofit, charitable organization that provides food to the needy. The food that they distribute to beneficiaries, which are needy families, come from donations as well as the organization's own purchases. While the government in Singapore provides affordable food to Singaporeans through vouchers, for example, foodbanks are typically a more sustainable solution in providing food for the needy and the food insecure; providing them with a safety net in case they have insufficient food and can then get assistance from foodbanks.

In fact, the foodbank model in Singapore is very diverse. They provide foods in a whole variety of ways. There is Foodbank Singapore, which provides foods to soup kitchens as well as other charitable organizations. There are other foodbanks that have warehouses where residents can come down and take foods that are needed in their cooking. And there is also organizations that make meals that they [give] to the beneficiaries. The foodbank scene in Singapore is actually extremely vibrant and essential to keeping the stomachs of Singaporeans full every day.

Wharton Global Youth: Now that we have more of an idea of the landscape, tell us about your model for Robin Food, what is your entrepreneurial approach to tackling food insecurity in Singapore?

Robin: Previously, I have talked about two particular issues. The first being the duplication of food that occurs and the second being that the food for these food insecure typically are unhealthy and may not be very balanced. As such, the Singaporeans who receive food from these foodbanks may have a bit of an unbalanced diet.

The idea of Robin Food is essentially a bidding system for foodbanks in the form of a central, organizational system. It comes through a digital application. This local, central organization, which we propose to be created, would collect all food donations from donors in Singapore and store them in this organization's own central warehouse. So, the bidding system in the digital application would then be implemented to allow foodbanks to bid on various foods based on their current inventories and [the preferences] of the beneficiaries [they serve].

You may ask, 'How do you determine foodbanks' food that they receive in terms of the proportion of the donations?' This bidding system will be aided by an algorithm that essentially assigns each food item a value according to its nutritional value, demand from beneficiaries, as well as current supply. For example, one particular unit of vegetable would cost one token, whereas one unit of meat or a more sought-after food would require five tokens. Each food bank would then be given a certain number of tokens to keep based on the number of beneficiaries that they serve. Foodbanks then use this application to bid based on their needs and the beneficiaries' preferences by choosing from the food items listed in the various categories. We go a step further by proposing that foodbanks with excess inventory can also indicate on this application what foods they have and can then ship food to other foodbanks to achieve a more equitable distribution of food. Each foodbank then has the food they need and no food goes to waste. This digital application

essentially acts as a facilitating medium, which would be more convenient for users, increasing the speed of food transactions between the three key stakeholders: the central organization, foodbanks and beneficiaries.

Wharton Global Youth: How did you come up with this idea, Robin? Did you design your own algorithm?

Robin: We got the inspiration for this idea by looking at the current solutions that are in Singapore. We observed that there was quite a complex system of food distribution, with the food going from donors to foodbanks to customers with basically a lack of communication between stakeholders at every point of the way. As such, the food that is provided to beneficiaries at the end of the day may not be what they actually eat. Brian and I had an epiphany one day when we were doing our brainstorming and decided to come up with a centralized logistics system. The algorithm has not been developed yet. It is an idea that we are pushing forward. We believe that this is extremely achievable given that there have been similar apps out there that have bidding systems, but perhaps not for the food insecurity scene.

“For Robin Food to actually be successful, all foodbanks and charities in Singapore must be on board in order to make a central organization effective.” — Robin Ye, Entrepreneur

Wharton Global Youth: What did you learn about the market for approaches like Robin Food? Are there local policies to support the development of online platforms and to support innovative solutions that might bring about real change?

Robin: Upon doing some further research, we contacted organizations all over Singapore, from social enterprises to local foodbanks, as well as funding and private investment organizations in terms of getting their feedback and seeing if they would be warm to our solution. In fact, we have received very warm feedback from them. Even Ashoka Singapore expressed interest. In terms of the private scene, we believe that there is actually support for this particular solution.

In terms of the government sector, they have very detailed plans to better help the food insecure in Singapore, particularly because it has gained more media coverage recently with documentaries, plus in-depth reporting from Channel News Asia, a news organization in Asia that also covers Singapore. And so, we realized that there are grants out there by the government to provide funding for such solutions and we also believe that Robin Food will be extremely scalable in the future.

Wharton Global Youth: I’m sure you have many takeaways from this experience. Do you think you better understand the people who you are trying to help through Robin Food? Do you understand the issues of the food insecure and the challenges that they face?

Robin: Unfortunately, given the COVID-19 situation, particularly in Singapore, Brian and I were unable to go down and interview the food insecure. But we found a whole variety of information online, on the Internet, posted by news organizations and universities that have done research reports on the food insecurity situation in Singapore. We have read through the stories of many of the food insecure. I could maybe raise two examples to highlight the food insecurity of the situation that Brian and I read. The first one is Mr. Ho, an 81-year-old Singaporean living in a one-room rental flat. He couldn’t eat the biscuits and croutons given to him in his food pack, which highlights the problem of the food provided not being catered to the preferences of the beneficiaries. Another example is Ankylo, who actually receives a food pack containing foods such as instant noodles, rice, biscuits, which you would typically see in a normal food pack. But it is in fact not very healthy for a person in the long-term, particularly given the lack of nutrients. Reading these stories, Brian and I really got an opportunity to look into this food insecurity situation through the perspectives of the food insecure themselves. We empathized with them and felt their situation, which is why we felt even more passionate about Robin Food and hoping that we can roll it out further in Singapore in the near future.

Wharton Global Youth: What is the next phase of development for Robin Food?

Robin: Brian and I are 18 years old and in Singapore we are preparing for our GCE A-Level exams, so we're not developing the idea for Robin Food further, at least for this year. But we do have plans in the future to perhaps propose this solution to the Government of Singapore and collaborate with them to work on this idea to scale it up. For Robin Food to actually be successful, all foodbanks and charities in Singapore must be on board in order to make a central organization effective. We identify the government to be a key stakeholder here, and we will reach out to the government further in the future to see whether they would be willing to take on this idea and have us on board to further develop this idea.

Wharton Global Youth: One question I like to ask all of the entrepreneurs we interview on *Future of the Business World* is if you could change one thing in the world, what would it be?

Robin: If I could change one thing about the world, I would choose to lift everyone out of poverty. I believe lifting everyone out of poverty helps to resolve a lot of problems. It helps to improve the standard of living of many people all over the world and it helps [address] problems like climate change because people no longer have to care for their basic needs. Looking at all the Sustainable Development Goals drafted by the United Nations, I realized that Zero Poverty will help to resolve many, many SDGs, such as Zero Hunger, which is the goal that we were trying to achieve through Robin Food. That is the reason why I believe that lifting everyone out of poverty would have a very huge impact on society.

Wharton Global Youth: Let's wrap up with our lightning round, Robin. Try to answer these questions as quickly as you can!

What is your favorite emerging business trend?

Robin: Working from anywhere.

Wharton Global Youth: What is something about yourself that might surprise us?

Robin: I am an avid fan of tea: read tea, Earl Gray tea, green tea, Chinese Pu'er, you name it.

Wharton Global Youth: What do you love most about living in Singapore?

Robin: The vibrant food culture in Singapore, especially the hawker culture, where you can walk down about 200 meters and find a whole galore of food that you can eat, chicken rice, nasi lemak, even curry, you name it.

Wharton Global Youth: What is your favorite company slogan?

Robin: It has to be Nike's slogan: Just Do It!

Wharton Global Youth: What business person would you most like to invite to lunch?

Robin: Steve Jobs [the founder of Apple]. Although he has passed away, I would really love to invite him to lunch and have a conversation with him simply because his innovations and creativity are so inspiring.

Wharton Global Youth: Thank you so much for speaking with us today, Robin, on Future of the Business World.

Robin: Thank you for having me.