

Future Trends Report

Based on Analysis of the Team's Chosen Community / Organisation in Mid-Term and Final Evaluation

Community / Organisation Studied: SLR Revolution PTE LTD

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: Based on our interview with key personnel of the company, we have come to the conclusion that due to other big retailers in the market, when moving into the 4th industrial revolution, bigger retailers such as courts would have much more funds and technical knowledge and therefore would be able to adapt quicker, leading to them being at an advantage. (Observation)

Innovation is vital for growth, but it also comes with an increased cost. SMEs are already hitting the bottom line in managing the business to stay afloat during tough times, to fork out extra money for innovation is putting a strain on most SMEs. They might not possess sufficient funds required to adapt their company accordingly to the changes that the 4th Industrial Revolution will bring in different areas such as customer needs and services. This can be problematic as it will lead to more intense competition from other larger retailers who have a bigger budget and SMEs would slowly become less attractive for customers, due to the longer adaptation time they require. (Why)

- According to a survey done by the Singapore Chinese Chamber of Commerce and Industry (SCCCI) and NUS Business School, 60% of business firms polled cited a shortage of funds to invest in change. (Evidence 1)
- However, SMEs have been unable to sufficiently utilize such opportunities. Most small enterprises do not have their own websites. For instance, in Japan while households' mobile phone ownership reached beyond 90% and Internet users reached 90.58% of the population in 2014 (World Bank 2016), SMEs selling products and receiving orders via their own websites accounted for only 10% of the total and less than 10% have their own online shops or market their goods on Internet shopping sites (METI 2014). (Evidence 2)
- According to BlueOceanSystems, Competition is everywhere locally and also internationally. With the evolution of business digitalization, many opportunities can be found but that also means that local SMEs are facing tough competition online and also offline. [Customers have access to a plethora of choices hence SMEs have to be more creative or spend a little bit more to reach the same audiences.](#)

Challenge #2: Based on our interview with key personnel of the company, many SMEs' sales come from either convenience or relationships, whereby there is trust within the owner and the buyer. However, with the 4th Industrial revolution, online shopping would become much more prominent and larger retailing companies would be at an advantage due to their ability to be able to advertise their products faster and in a more effective manner. (Observation)

This could be problematic as online shopping's convenience and safety will improve to far greater extends, as larger enterprises can make their site more prominent using the vast amount of resources that they have, people may stop going to physical stores. This affects SMEs greatly as a large amount of them do their sales through physical stores. Therefore this means that SMEs in the retail sector would start becoming less attractive and lose a portion of their customers, which can be detrimental to the company's growth. (Why)

- According to The Atlantic 2019, 22 percent of total apparel sales took place online in 2018, showing the prominence of online shopping (Evidence 1)
- According to Statista, With a forecast to 2023. It is projected that the revenue of retail sales via mail order houses or the internet in the United Kingdom will amount to approximately 52.0 billion U.S. Dollars by 2023. (Evidence 2)
- According to Forbes, online grocery sales are predicted to capture 20% of total grocery retail by 2025 to reach \$100 billion in consumer sales, according to a study by the Food Marketing Institute. While estimates of online grocery's share of the total \$641b U.S. grocery market vary, from 2% to 4.3% according to FMI-Nielsen, it is the next major retail sector to be disrupted by e-commerce, showing how with the 4th industrial revolution, more retail sectors will be disrupted by online shopping. (Evidence 3)

Challenge #3: As companies are shifting towards technology-driven businesses, they face a challenge: how and what technology to implement into their business models. (Observation)

With so many competing brands and models for a certain product and the wide variety of products available in the market, SMEs face a problem when trying to implement technology into their companies as a large number of them do not possess the knowledge to do so. Therefore they start losing out to larger enterprises that can grasp the opportunities to improve their company by utilising the latest technology available (Why?)

- Based on a study done by Delloite, 68% of CEOs see new businesses and delivery services as their main threat, they are mainly using technology to make existing operations more efficient and cost-effective. This leaves tremendous untapped opportunities to use these technological advancements to pursue innovative business models. This evidence shows how many businesses are challenged to incorporate technology into their businesses (Evidence 1)

- According to an article by the Harvard Business Review, only 50% indicated the importance of digital transformation to maintaining profitability, despite 94% of business owners stating digital transformation as a top strategic priority for their businesses. This evidence suggests that many companies are taking digital transformation as a defensive approach towards keeping their current positions in the market instead of improving their business models. (Evidence)

Challenge #4: SME's face a challenge when trying to change to incorporate new technology into their as it is a struggle to compete for tech talents for IT support to help the company incorporate new technologies such as AI into the business (Observation)

Maintaining the Technological department of a company is also very costly and requires talents that are hard to find due to there being tough competition from larger enterprises. As such, SMEs may be unable to ensure that they can keep up and utilise the ever-improving technology (Why)

- Independent research firm Ipsos has found that 9 out of 10 small business owners identify the costs of maintaining and upgrading technology as their biggest challenge. Likewise, only 46% of these business owners feel that their budget can allow them access to the same technologies as larger companies. Ipsos has demonstrated that technologies such as laptops, desktop computers, and smartphones come at a significant cost to SMEs. Similarly, outsourced tech support, landline telephones, and cloud computing technologies also come at a significant cost to SMEs. This evidence shows how SMEs are struggling to incorporate new technology with the 4th industrial revolution into their business due to lack of funds and tech talents (Evidence)
- According to Camilyo, small businesses in the US spent \$168.7 billion on IT support and hardware in 2016, according to an IDC study, and this figure is expected to grow. More than 40 percent of that money is spent on hiring or contracting outside IT help. Data from Indeed.com shows that small businesses are looking to hire tech-based talent but seem to be unable to do so properly. Small business owners struggle to land the tech help they need, including IT support. This struggle -- identified by 84 percent of people at small businesses in a hiring position -- causes business growth to slow and leads to frustrated employees. So addressing this pain is also something that can resonate with a small business. (Evidence)
- A survey of 2,500 SMEs found that poor management skills — especially entrepreneurial skills — require improvement. Skill & talent shortages extend beyond management and into the workforce. Competition is the main contributor to this problem as, since inception, SMEs face pressures from bigger, competing companies within the same field. Larger companies benefit from the ability to lure valuable, skilled staff under the promise of career stability and personal growth. Joining an independent firm is a riskier proposition. If the competition wasn't enough, UK SMEs have also suffered staff shortages since 2016's Brexit vote. There's been a sharp

increase in the number of EU citizens — who provide much of the extra labour required by UK SMEs — leaving the UK due to uncertainty over future rights and status. The same issues are likely to carry through to 2018. This evidence shows that with the need for tech talents increasing, SMEs will face even more competition and struggle to hire tech talents to help run technologies in their business. (Evidence)

Challenge #5: Based on our interview with key personnel of the company, while cybersecurity is constantly improving, hackers are also finding more ways to obtain confidential information from companies and their customers. (observation)

This could be especially problematic in the 4th IR as increasing numbers of businesses would begin to incorporate technology into their businesses. This would result in many businesses being unsure of how to protect their private information. Hackers can use new ways to hack into companies' systems. Should this happen, there would be a large number of businesses being prone to hacks or ransomware. A cyber attack would be a huge blow to an SME as they might not have the means to recover from these attacks and would potentially lose the trust of their customers. (Why)

- According to the Singapore Business Review, 56% of SMEs experienced a cyber incident in 2018, this includes cyber errors and attacks. This shows how even SMEs currently are facing cyber threats, with the 4th industrial revolution, as hackers find more ways to hack into systems, cybersecurity will be an even bigger problem (Evidence)
- According to Business Matters, a large number of small businesses believe that they are unlikely to become targets of cybercrime, thus only 26% of SMEs have formal cybersecurity policies and a mere 19% train their staff to be cyber aware. This shows how SMEs do not think that they will be cyber-attacked, with the 4th industrial revolution, SMEs are more vulnerable to cyber-attacks (Evidence)
- According to CPO magazine, there were 12,440 new breaches in 2018, which was an increase of 424% over the known breach count in 2017. A total of 14.9 billion identity records were found to have been exposed during the year, up from 8.7 billion available in 2017. This shows how as time passes, more and more companies are getting cyber attacked, as new technologies developed. With the 4th industrial Revolution, SMEs will be more vulnerable to new cyber-attacks (Evidence)

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.

Incorporating Challenge(s) # 1, 2, 3, 4

Given that there is a high probability of SMEs being slow to adapt to the fast-paced technological changes, it appears that SMEs may not be able to keep up with the competition in the future (CP). How might we enhance the support of SMEs (KVP) to ensure that they can continue to grow their company (Purpose) in the year 2030 and beyond (Future Scene Parameters)?

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: Automation of operations

We, the Ministry of Technology, will together with various SMEs around the country, create and develop a machine for retail SMEs. Customers would be able to select the products they would like to view and test through an Automated Machine. Virtual reality will be used for customers to test and experience using the products before purchasing. The machine would also have an in-built AI system that can recommend products according to the customer's needs and also answer any queries regarding the product. The customer can choose to purchase the product after viewing it and can make payment and receive the product from the machine. Money from the budget will then be allocated to creating these machines. To help SMEs implement these machines, they would be sold at a subsidised price to these companies, and technicians would be sent over to assist the running of the machines for a period of time.

This solution will help support SMEs by reducing the manpower required in running the shop, helping them save labour costs and resolve manpower shortages. This solution also supports SMEs in implementing Haptic technology into their companies, which is a technology that uses touch to control and interact with computers. A user may apply a sense of touch through vibrations, motion or force. Consequently, this would also grow the company by increasing efficiency and sales, enabling them to stay competitive in the market. Furthermore, the money that would otherwise be used on hiring salesmen could also be used to expand the company or focus on other projects. The machines will be developed and available for implementation by 2030.

- According to an article by Forbes, 65% of customers said they would visit a restaurant more often if there were self-ordering kiosks available. KFC CFO Gavin Felder has also expressed that kiosks help to ease order anxiety, which explains why consumers tend to spend more through kiosks, with reports showing that there is as much as a 30% increase in spending. These statistics show how automated kiosks can increase sales and similar technology can be applied to different SMEs to increase business.
- According to Mckinsey & Company, as retailers introduce additional automation into their retail models, they will end up with fewer but more highly skilled jobs. To get the right talent, retailers may need to invest in higher wages, automation can help to reduce the budget required.

- According to Forbes, automation in retail will result in lesser jobs, but there is an opportunity to improve both existing and new retail jobs. This technology gives workers more opportunities to focus on customers but also lowers the size of the workforce in the long run.

Solution #2: SMEs United Group

We the United Association of SMEs in Singapore (WHO), will create an organisation for SMEs across the country to support each other through various ways to enable them to adapt to technological changes and improve at a rapid rate. (WHAT) This will take place in the years 2025 and beyond. (WHEN).

With the government's help, this solution helps facilitate collaborative innovation between SMEs and grants the ability for SMEs to brainstorm ideas together to improve their product. The SMEs can also provide assistance to one another in areas such as manpower, advertising, funding and also technological knowledge and equipment. This increases the rate at which SMEs can adapt to technological changes, thus enhancing support to SMEs via assistance from other SMEs (WHY)

- The UN Industrial Development Organization (UNIDO) serves as a “matchmaker” for North-South and South-South industrial cooperation, promoting entrepreneurship, investment, technology transfer, and cost-effective and sustainable industrial development. It helps countries to manage the process of globalization smoothly and to reduce poverty. This evidence shows how collaboration between countries' industries can help industries adapt to changes. The same concept can be applied for SMEs, where collaboration between SMEs in this SMEs United Group helps SMEs adapt to technological changes (Evidence)
- The UN Conference on Trade and Development (UNCTAD) helps developing countries make the most of their trade opportunities. The World Bank provides developing countries with loans and grants and has supported more than 12,000 projects in more than 170 countries since 1947. This evidence shows how countries can assist one another to help each other make the most of trade opportunities. The same concept can be applied for SMEs, wherein this SMEs United Group, SMEs can assist one another to help make the most of opportunities to adapt to technological changes. (Evidence)
- Having a huge network is an important tool for growing your business. Small business owners usually have a limited network of their clients. Building your network will develop new contacts. Alliances are made for collaboration building. A network of clients and colleagues is increased. Every collaboration does not ensure a huge network of contacts but it is a way to continue growing your network. (CompleteController)

- Learning comes with collaboration. Most businesses, initially, were small businesses. Using proper resources, funding, business bookkeeping and accounting management, making the right decisions at the right time and in the right direction made those businesses grow into medium sized or even large corporations. When collaborating, not just the business collaborates, the experiences are joined and there is learning for everyone who becomes a part of the business collaboration. Every business owner uses his/her techniques, experiences, and learning in individual businesses. With collaboration, new learning in business dealings opens its way. (Complete Controller)

Solution #3: Great SMEs Day

We, the Ministry of Trade and Industry (WHO), will work alongside the SMEs, to organise a biannual public event where all SMEs of Singapore will be invited to share about their businesses with the general public and build relations with potential customers. (WHAT). This will take place from 2020 and beyond. (WHEN)

In this solution, SMEs can share about their company to a receptive audience which they might not be able to do due to financial or other constraints. SMEs can attract customers and build up customer loyalty, maintaining business. SMEs would also be able to find business partners after learning about other companies. Thus, this enhances support to SMEs through advertising of their SMEs. (WHY)

- Businesses can also have face to face interaction, which 87% of business directors say is easier to communicate through as compared to online platforms. This shows how SMEs can advertise their business better in real life compared to online, thus an event like this can help them advertise better (Evidence)
- 88% of exhibitors have expressed that attending trade shows has helped raise awareness of their brand, showing how an event like this will help raise awareness about each SME (Evidence)
- Over 50% of expo attendees are there for the first time, leaving many potential customers and 92% of trade show attendees say they are looking for new products. This shows how SMEs have higher chances of having new customers with an event like this (Evidence)
- 77% of executive decision-makers found at least one new supplier at the last show they attended. This proves how this event could help SMEs find new business partners. (Evidence)

Solution #4: Government Schemes

We, the Ministry of Trade and Industry (WHO), will increase and help SMEs seize opportunities to improve their adaptation capabilities by implementing more schemes and providing an increased amount of funds to SMEs. (WHAT) This will start being implemented in the span of the next few years. (WHEN)

This solution will allow SMEs to remain competitive and stay relevant as they would have the support and funds by the government to innovate and develop their capability and workers' skills. They would be able to constantly tap into the latest technology to enhance their services and products, resulting in them staying relevant and attractive to customers.

(WHY)

- According to SME Portal, there are 33 different grants and programmes to help SMEs, including programmes such as Operation & Technology Roadmapping (OTR), SMEs Go Digital, Start Digital, Technology Adoption Programme (TAP) and Technology for Enterprise Capability Upgrading (T-Up), all which help SMEs adapt to technological changes (Evidence)
- According to the Straits Times, more initiatives will be announced in this year's Budget to help SMEs tap new technologies to enhance the way they operate, but companies are also encouraged to send their employees for upskilling. According to Senior Minister of State for Trade and Industry, Dr. Koh Poh Koon, by adopting new technologies and reskilling its workers, SMEs can be competitive not just locally but globally as well, showing how this help from the government can help SMEs remain competitive (Evidence)
- According to the Straits Times, in Minister for Trade and Industry S. Iswaran's speech in Parliament, the government is helping SMEs seize opportunities to ensure that Singapore's companies are geared up for the longer term. This is important to sustain Singapore's competitiveness and growth as others are also similarly adapting themselves. This shows the importance of the government helping SMEs to adapt to long term technological changes (Evidence)

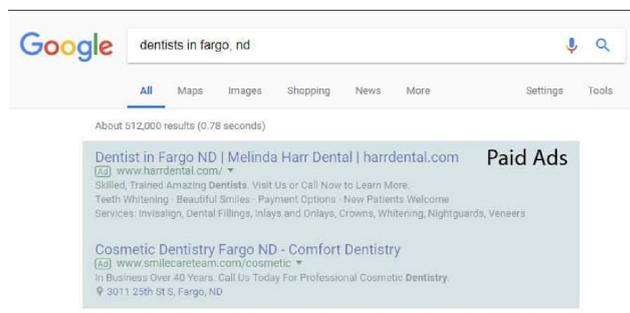
Solution #5: SME's Portal

We, the Ministry of Technology (MOT), will alongside the SMEs create an online portal specifically for SMEs to help advertise their product and make their companies more well known, possibly increasing sales. (WHAT) This will be implemented by 2030 (WHEN)

Many SMEs are unable to advertise their products online effectively as the websites of the larger companies are much more well known and they can afford to pay web browsers like Google for their websites to appear at the top of the search list. By creating a portal specifically for SMEs, it would be more convenient for people looking for specialised items or other products from SMEs. This will increase the

number of views or clicks the websites of various SMEs get and thus increases their popularity too, potentially leading to more customers.(WHY)

- According to Richard N. Katz and associates, “portals serve a knowledge management function by dealing with information glut in an organized fashion.” This shows how a portal for SMEs would be able to organize all the different businesses into one website to offer customers a collated list of what different businesses offer instead of having to search for their websites one by one.
- According to Connect, fundamental portal properties include content aggregation, faster search, web content management, workflow and analysis. This shows the benefits an SME portal could potentially bring about, like a more efficient search for consumers to find what they want and having more options to choose from.
- Google Pay per Click Cost Estimates. The average cost per click with Google Ads is \$1 to \$2. However, CPCs can vary greatly, from as little as pennies per click to over \$50 per click.



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: Which solution will be the fastest to implement for SMEs so that there is a longer time for SMEs to prepare to adapt to the changes of the 4IR?

Criterion #2: Which solution will be the most cost-efficient for the government so that it can be implemented without spending a large amount of the budget?

Criterion #3: Which solution will be most appealing to those whom it may concern?

Criterion #4: Which solution will have the most lasting effects for SMEs so that SMEs will not face this problem again in the long-term?

Criterion #5: Which solution would be the greatest improvement over what is currently available for SMEs so that they can take a big step forward in adapting to the 4IR?

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	Automation of Operations	3	3	5	5	5	21
#2	SME United Group	1	2	3	4	4	14
#3	Great SME Day	4	5	2	3	2	16
#4	SME Directory	5	4	1	1	3	14
#5	Govt Schemes	2	1	4	2	1	10

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 #1:

Who will be in charge: Ministry of Technology (MINTECH)

What will be done: MINTECH will create and develop a machine named “Xenon” for SMEs. Through Xenon, customers can view, select, and purchase products. A Virtual Reality “Headset” will be used for customers to view the product. Special Gloves that give touch feedback will be used for customers to test and feel the virtual product. Using artificial intelligence in the form of a hologram, Xenon can answer queries from customers related to the product. The Product can be purchased from machine and payment will be made through the machine

How this will be done(Manpower): MINTECH will hire people and train them. These employees will go through an intensive training programme to learn technological skills from MINTECH. To help the company to get accustomed to this machine, MINTECH will send 1 or 2 of these “technicians” to assist the running of the machines to SMEs. These “technicians” will stay with the SMEs for a period of time and teach employees at SMEs how to use these machines. The technicians will return to MINTECH once the period is over

How this will be done(Financial): Money from the budget will be allocated to creating this machine. To further incentivise business owners to try the machine, they would also be given a trial period of 6 months. Should the company decide to use the machine, they would then pay a subsidised amount of money to MINTECH for the use of the machine and technician services at the end of the trial period.

How this will address the key verb phrase: This solution will enhance support for as they would receive help in adapting to technological changes in the 4IR both financially and in deciding what technology to choose. Thus, with new technology in their businesses, the company would cut down on labour costs as stores would be automated. Efficiency would also increase as customers would not have to wait for staff or salesmen to be available to have their queries answered. This way, the company will be able to grow during the 4IR.

Who will support this solution: The parties that will support our plan is the government and the SMEs. The government would be willing to invest money into this machine as SMEs currently contribute to 50% of Singapore’s GDP, making SME development very important to our economy. The government has also invested in similar projects, like the Productivity and Innovation Scheme where the government

gave out \$7.8 million in subsidies for investments in technology. Secondly, the SMEs, as it is an opportunity to cut down labour costs, solve manpower shortage issues and increase productivity.

Implementation Schedule

1st: Research (2019-2021)

2nd: Prototype (2021-2025)

3rd: Trial Period (2025-2027)

4th: Improvement (2027-2028)

5th: Trial Period 2 (2028-2029)

Finally: Implementation and advertising (2029-2030)

Evaluate the Action Plan:

Difficulties faced:

- The available technology might not suit all the different types of SMEs
→ The Machine will be developed not just for electronics SMEs, but other SMEs
- SMEs may be unwilling to use this technology in their shops.
→ Trial period to convince SMEs that this technology is worth paying for
- Due to the lack of physical humans inside stores, there could be an increased chance for thefts
→ Increased security sensors at the door of store
- As the stores would be mainly run by Xenon, there would be a great disruption to sales if it was hacked.
→ Increased monitoring of Xenon's systems and increased security

Changes to Action plan after interview:

- Needs better hands On Experience, customer would like to test and use the product before buying, especially in electronics industry
-----> Special Gloves (BEAD TECH)
- Many SMEs will be sceptical of this machine and may be unwilling to purchase it
-----> Trial Period
- Technicians may not be trained well to help the SME with the machine
-----> Intensive Training Programme

Secondary Research:

- According to Mckinsey & Company, as retailers introduce additional automation into their retail models, they will end up with fewer but more highly skilled jobs
- To get the right talent, retailers may need invest in higher wages
- According to Forbes, automation in retail will result in lesser jobs, but there is also a lot of transformation possible to improve both existing and new retail jobs.
- This technology gives workers more opportunity to focus on customers but also lowers the size of the workforce in the long run
- According to Fortune.com, Organizations like the World Economic Forum have forecast that automation in retail will significantly alter the labor market.
- This could potentially lead to major job losses while creating new kinds of work.
- The retail sector is particularly prone to major disruption, led by online giant Amazon as it increases spending on new technology in an effort to cut costs on manpower
- According to Business Insider, by 2050, Artificial Intelligence can perform any intellectual task a human can perform, such as speaking, translating between languages and picking out the bit of a paragraph that answers your question
- According to the International Business Times, Microsoft has developed an artificial intelligence-based technology that's capable of answering questions just like humans. Microsoft said that AI would be skilled enough to handle follow-up questions as well.
- According to Wired, The company Haptx has already developed its own haptic gloves that give you touch feedback so you can feel things in VR.
- VR has also been used for employee training, like how Walmart and Boeing are utilizing Oculus vr headsets to train their employees through simulations.
- The technology would definitely be available in the future and can be used for SMEs.

Based on consultation with organization and secondary research, using Virtual Reality, Artificial Intelligence and Haptx technology, this machine should be able to perform its functions.

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Cite the resources you consulted using the APA format.

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