

Written Report

These are the challenges that we have come up with based on our interviews, surveys and research.

- 1) Rapid changes that may cause disruption in the financial industry
- 2) Cybercrime
- 3) Not keeping up with / Resisting change
- 4) Over reliance on technology
- 5) Not having the right skillset

Rapid changes that may cause disruption in the financial industry

Observation:

Based on the results of our interviews and surveys of the people in the finance community, we can conclude that as technology becomes more advanced it will be harder to predict and may have a disruptive trend (now we may be using keyboards but in future may be voice recognition) which means that we would not be able to foresee what will technology become in the future and whether or not it will severely disrupt us and make our lives hard or benefit us.

Problem:

As banking shifts from being a branch-specific activity to one that permeates all digital channels (mobile, social and online), the importance of having several brick and mortar bank offices decreases which means that more and more people would lose their jobs and become unemployed.

Research:

Based on an article by Finextra in the European union alone, nearly 9100 bank branches were shut down by the end of 2016 owing to higher adoption of electronic payments and online/mobile banking. This clearly shows that people actually prefer online banking/payment to physical banking/payment. And this may pose

a problem to banks in the future.

Cybercrime

Observation:

Based on our survey and interviews, most people felt that the IR 4.0 will open doors to newer and more advanced technology, but it will also give more ways and opportunities for cyber criminals to strike. They also felt that it is a prevalent problem as it has a lasting effect.

Problem:

This may increase the cyber-related crime rates even further, causing customers to lose trust from companies that have been targeted by cyber criminals.

Research:

On the Singapore government website, the rate of cyber-related crimes increased by 36.1% in 2018 from 2017 and a whopping 932% in 2017 from 2016. This shows that cybercrime is on the rise due to the increase in crime rates. Based on an article by the Straits Times, cybercrime has a much more lasting effect than most people think. It may take months and possibly even years for repairs. It also takes an emotional toll on the victim, in some extreme cases causing them to go into depression.

Not keeping up with / Resisting change

Observation:

Some companies cannot keep up with rapid changes in technology, possibly due to a lack of funds. While some companies resist change as they believe in a more traditional way of running their businesses. In extreme cases, companies have gone bankrupt.

Problem:

The IR 4.0 will bring about a myriad of changes, such as data analysis and e-payment. Without this advanced technology, companies will lose out and may even be replaced.

Research:

Based on an article by a business newspaper, several companies, such as Dell and Blockbuster, that have resisted or could not keep up with change. . If a company cannot keep up with it resists the change that the IR 4.0 brings, low employee morale, and declining industry influence and the production of products that no one wants to buy, which can cause irreparable harm to a company, will occur.

Over reliance on technology

Observation:

Based on our interviews and surveys, many people also felt that over reliance on technology was a problem for most of the younger generation. As the younger generation have more knowledge on the convenience of technology, they tend to overuse technology.

Problem:

Technology is not infallible , and there may be some errors in the coding. Hence, it is not as reliable as people think as these errors may cause companies a loss of large amounts of money. For circumstances such as blackouts, the workers will not be able to work efficiently as they only know how to work well with the help of technology.

Research:

Based on a health article that describes the effects of over reliance on technology, over reliance on technology has made people lazy and it now takes less physical effort to do many jobs as the computer has taken over. As individuals, workers all need to be constantly stimulated and learning, with reliance on technology the

same personal development may be slower and resulting in a lazier workforce. Such a working attitude and approach could be detrimental in the long run for the employee's health.

Not having the correct skillset

Observation

Based on the results of our survey, many people felt that in the future the next generation would need to have a different skill sets such as one that enables them to adapt to new changes to the environments/conditions in the workforce. They would also need to have the ability to ask the right questions. This would affect how the generation learns from their predecessors.

Problem

If the next generation do not obtain or hone these skill sets they would not be able to cope and will not be able to take over from the previous generation. This will result in our economy being affected immediately and in the long run our economy may fall.

Research

An article by todayonline stated "Therefore, rather than moulding the workforce for the unknown jobs of the future, educational institutions should instead focus on imparting the adaptive skills needed for the future economy." This backs up the problem stated above that we should focus on sharpening our adaptive skills instead of creating new jobs or preparing ourselves for new jobs.

Underlying problem

Given that companies with a lack of technological advancement may be removed from the market, how may we help them improve such that they can succeed in years 2030 and beyond in Singapore.

Solutions

- 1) Invest in advanced technology
- 2) Funding of startups
- 3) Educate the younger generation
- 4) More courses for companies
- 5) More talks by professionals

Invest in technology

We, the Association of Financial Advisors Singapore, will recommend that companies invest in advanced technology. Companies can invest some of their funds to buy advanced

technology such as having A.I to scan their banking records instead of having auditors flip through the bank records. The A.I would be able to detect irregularities and tell if someone is stealing money. For example, the A.I would be able to detect patterns in companies stock patterns. This would help companies gain an edge in the market and improve their businesses, allowing them to compete on an equal level with other companies. Some other examples are some articles about Northwestern Mutual and Prudential Financial. For example, Northwestern Mutual has already invested 43 million into the financial services industry and are planning to invest 150 million more. Another example is Prudential Financial investing 10 million into fintech company Aura.

Funding of startups

We, the Finance Ministry of Singapore, will help fund startups. If they present documents that authorises them to start a business, this ministry will fund the companies SGD\$200,000 a year for a maximum of 2 years, but will receive 10% of their total earnings in a year. However, a minimum of SGD\$100,000 has to be repaid each year. With more funding, these startups can invest more money into technology or other areas, such as hiring more workers and developing infrastructure etc. This will ensure that these startups will be able to survive in this competitive day and age and improve business with increased efficiency. Similar companies in Singapore, such as the Capability Development Grant and Early-stage Venture Funding, are already helping startups in other areas, and they are successful. Multiple business newspaper articles state the benefits of a startup having funding. The benefits for the startups include overcoming hindrances, allowing companies to expand earlier and

repairs for accidents.

Invest in education for the younger generation

We, the Ministry of Education, will work together with the Ministry of Finance to invest more money into the study of infocomm, so as to enhance the curriculum and make it more advanced. We will invest 0.5% of the annual GDP into the infocomm curriculum in order to allow the schools to invest more money into technology advancement and a better education for the students in this area. This is about 4 million dollars for each school which is more than enough for them to advance their facilities. Most students will join the workforce by 2030. Educating them now will allow them to improve the circumstances of each company by making up for their lack of technological advancement. This will also enable them to have a wider variety of choices and solve the unemployment problem. According to optics.org, UK national quantum technologies programme, received 94 million euros funding from the government. This shows that it is also feasible for the Singapore government to invest more for the education of technology. According to another research article by opengovasia, the South Australia state government has invested in the wine industry, giving them better access to cutting edge tech. This shows that our solution is feasible as the Singapore Government can also invest more for the education of technology. According to a graph made by the World Economic Forum, there is an increase in the number of hours worked by people with technological skills. This shows that there is a greater demand for employees with technological skills and that this skill is needed and becoming more important, showing

that this solution must be implemented.

More courses for companies

We, the training department, will reckon that the companies invest more time into training employees to be well-versed in the world of technology. We will organise more training sessions for employees, such as courses on how to interpret the data on your computer. This way, the employees will be ready for the upcoming industrial revolution 4.0 and the companies would not trail behind as much. This will also help them gain an edge over other companies who do not want to implement this suggestion. The solution can be implemented now so as to ensure that they are proficient when the industrial revolution enters the finance industry. In an article made by the market insider, bankers are rushing to take Oxford University's courses on fintech, blockchain strategy, algorithmic trading, and artificial intelligence before robots take their jobs. More than 9,000 people from upwards of 135 countries have taken the online open courses, which focus on digital transformation in business. This shows that this solution should and must be implemented.

Talks by professionals

We, the ministry of national development, will hold events for professional businessmen to give talks and provide advice to companies which lack the advancement of technology. It is our mission to develop Singapore to have a world-class infrastructure and we want to aid these companies to ensure that our economy does not collapse. The professionals will be able to give advice to

these failing companies without sufficient technological advancement to help improve themselves. The events can include talks on technology and how it can help in many ways, followed by a consultation for individual companies to consult a professional and ask them questions or ask for their suggestions to their problems. The companies who attend this event will be able to pick up points on how to improve business or solutions for problems they are currently facing. Companies which lack the advancement of technology will then be able to implement these solutions and thus be able to catch up to other companies and succeed.

Criteria for selecting the best solution

1. Which solution is the cheapest to be implemented into the society so that the companies can improve from the year 2030 and beyond?
2. Which solution has the highest feasibility of being carried out such that companies can improve from the year 2030 and beyond?
3. Which solution would be the most effective to the failing companies after being carried out?
4. Which solution carries the least risk of failing?
5. Which solution is the easiest to maintain after it is implemented so that we can cut down on the budget needed by the related parties?

Decision making matrix

Solutions	Cheapest	Most feasible	Most effective	Least risk	Easiest to maintain

Investment in technology	1	2	5	2	2
Funding of startups	3	4	4	1	1
Invest in education for younger generation	2	5	3	4	5
More courses for companies	4	3	2	3	3
More talks by professional	5	1	1	5	4

Total scores

- 1. Investment in technology: 12
- 2. Funding of startups: 13
- 3. Invest in education for younger generation: 19
- 4. More courses for companies: 15
- 5. More talks by professional: 16

Best possible solution

- Invest in education for younger generation

Action Plan

We, the Ministry of Education, will work together with the Ministry of Finance to invest more money into the education of infocomm studies so as to make the curriculum more advanced in schools which already have it and implement it for the schools which do not have it currently. We will invest 0.5% of the annual GDP into the infocomm curriculum in order to allow the schools to invest more money into technology advancement and a better education for the students in this area. This is about 4 million dollars for each school which is more than enough for them to advance their facilities.

Most students will join the workforce by 2030. Educating them now will allow them to improve the circumstances of each company by making up for their lack of technological advancement. This will also enable them to have a wider variety of choices and solve the unemployment problem.

Evaluation of action plan

Time frame and Feasibility

We feel that this solution will likely be implemented in the near future (2020-2023). The results of the solution would be beneficial to some problems. This will be further elaborated later. We also feel that this solution is very feasible and has a highly likely chance of being implemented.

Research

According to optics.org, UK national quantum technologies programme, received 94 million euros funding from the government. This shows that it is also feasible for the Singapore government to invest more for the education of technology. According to another research article by opengovasia, the South Australia state government has invested in the wine industry, giving them better access to cutting edge tech. This shows that our solution is feasible as the Singapore Government can also invest more for the education of technology.

Benefits(By 2030)

1. **Reduce the problem of unemployment**
 - With the government investing in a more advanced education for the younger generation in the technological field, the current students, who will mostly join the workforce by 2030, will have one more skill set to apply for a job with. This will

solve the unemployment problem as there will be a wider distribution of jobs. A report from the Straits Times states “The unemployment rate for Singaporeans rose for the third consecutive quarter to 3.3 per cent last month, up from 3.2 per cent in March. This is after seasonal variations were taken into account. The rate for Singaporeans and permanent residents combined rose to 3.1 per cent, up from 3 per cent, while the overall unemployment rate was unchanged at 2.2 per cent.” This shows that the unemployment in Singapore is a serious problem and with this solution, the unemployment rate would go down as there are a greater distribution of jobs.

2. Improve the market value of each company

- With the advanced education in the field of technology, the students will be able to help the company improve in terms of the area in technology each company possesses. This will help them improve the market value of each company, thus allowing them to catch up with companies that already had technology advancement and were ready for the Industrial Revolution 4.0. The students can help companies build better firewalls, interpret the data, and code some apps for the company. “Marketing teams can take advantage of lead generation services that offer unique targeting of audiences. The customization that companies will be able to do to gather leads, and the quality of those leads, will also increase in 2018. This is, consequently, enabling companies to spend more time figuring out who their target audience is, instead of actually gathering their information.” This allows the company to have more time to plan their strategy with the help of technology, thus proving that the students, who will help improve the

company's technological advancement and capabilities, will also increase their market value.

Risks

1. Students might not be cooperative

- Some students might not want to pay attention in these classes. Even though the government invests around 4 million in each school to enhance their learning experience, if the students do not cooperate with the lesson, the money would have been wasted. This would result in a total wastage of 1 billion dollars. This is a lot of money and if wasted, many opportunities would be lost. The government would have been able to invest in many other things and this might negatively impact the market.

2. Lack of teachers skilled in this area

- Although the government invests a lot in this area, there might be a lack of teachers who are proficient in this area. This will cause the schools to have an inefficient system as they do not have sufficient teachers, thus limiting their studies. This would reduce the effectiveness of the idea of investing money as there is no use of having new facilities when you lack of proper personnel to coach the students. Take for example, you cannot do well in sports without a coach or a mentor. This is exactly the case in teaching students. Although students can self-study, it will be more efficient if there is a teacher so we think that this is one of the bigger risks.

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