EY's Tesseract and Its Impact on GM and Lyft

An exclusive report from CompStrat Consulting

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Contents

Executive Summary

In this report, I have analyzed the impact of EY's new mobility as a service platform, Tesseract which is based on blockchain and allows the user to buy mobility as a service and also to invest in owning a single vehicle, fleet to other modes of transportation on fractional or full share basis.

In the first section, I introduced the concept of mobility as a service and the benefits of using mobility as a service such as solving the congestion problem in a city. After introducing mobility as a service, I explained the EY's Tesseract platform, the job to be done by the platform and business model canvas for the tesseract in which I explained all the nine building blocks of the business model canvas.

Further, in the report, I explained how the fleet available on the platform could grow. Initially, to cross the chasm, we need to target a niche market which I selected based on the attractiveness and fit model. The niche selected was staff travel (employees who can use our mobility services to reach their workplace and home).

In the next sections, I discussed the impact of tesseract on GM (representative manufacturer) and Lyft (representative MaaS platform) and how these companies should strategically respond to the threat of tesseract and how they can use three horizon model to build businesses for future.

1. Introduction

Before analyzing the impact of Tesseract on General Motors and Lyft, I am starting with explaining the definition of Mobility as a service, description of the tesseract platform, job to be done by the tesseract platform and business model canvas for the tesseract platform.

1.1 Mobility as a Service (MaaS)

As per the MaaS alliance, the mobility as a service is the integration of various forms of integration services into a single mobility service accessible on demand (15). In other words, it is a shift from personally owning a vehicle to consuming mobility solution as a service. With the rise of ride-sharing services and e-hailing services, there is a current trend towards consuming mobility as a service. As most of the population is now living in urban areas and there are so many services like bike sharing, carpooling, ride sharing coming up in these areas which are giving rise to the trend of mobility as a service. Moreover, the anticipation of self-driving cars becoming a reality is also helping this trend (16). To give an example of a company who is trying to offer mobility as a service by integrating various modes of transport is Whim Application. By using the whim app, the residents of Helsinki, the southern capital of Finland, can plan and pay for all modes of public and private transportation within the city (17). The use of Mobility as a service app is quite beneficial, and it can help in solving the problem of congestion in cities.

1.2 Tesseract

Last year on August 30, EY announced Tesseract, the mobility as a service platform, which is based on the Blockchain technology. The platform facilitates fractional vehicle ownership, shared use, and seamless multimodal transport and it will change how autonomous vehicle fleets can be owned in the future and provide access to a variety of on-demand mobility options (1). The use cases for Tesseract are about fractional ownership. In fractional Ownership, a group of people invests in a car fleet, and they pay for what they use, and if they have invested more than they can use, they get the return from others who are using it more. With Tesseract, single vehicles, pool of vehicles, and other transport services are available on the platform. Vehicles and trips are digitally logged on the blockchain, and transactions are automatically settled between owners, operators and third-party service providers through a single-source, usage-based payment system. Ownership of the assets is flexible and can be on a full or fractional share basis (1). In short, the tesseract is a platform to provide shared mobility using blockchain based assets. There are three enablers of Tesseract: first, cryptocurrency which involves instantaneous and immutable transactions without an intermediary, second, asset tokens which keep a transparent digital record of ownership and reduced CapEx and the third is smart contracts for automation of processes and reduced OpEx. To explain this, let us say you decided to join the platform by creating a wallet and then you put currency in it. This currency in the wallet will be managed by smart contracts. You can use it to buy mobility, or you can invest in a single vehicle, a pool of vehicle, or in an electric vehicle and return you will get ownership tokens, representing a record of your ownership. The usage data of every booking is then communicated to the blockchain network, and then the smart contract is used to calculate usage fee. A further contract then distributes this fee to all the investors who have invested in the platform based on their ownership tokens (18). The benefits of tesseract are enabling new consumer offers for electric vehicles, increasing fleet utilization to transform vehicles into investible assets and enable seamless mobility as a service.

1.3 Job to be done by Tesseract

The job to be done by the tesseract is to provide a platform where people can buy mobility as a service and also, they can invest their money in mobility assets. Tesseract will remove the burden of owning personal vehicles and will shift focus on buying mobility on demand at any time. Since it allows people to invest their money in owning up the single vehicle, fleets of the vehicle or any other mode of transportation fully or fractionally, it should ensure good returns or smooth mobility, so that fleet on the platform keeps on growing.

1.4 Business Model Canvas

In this part, I have explained the business model canvas for tesseract (See figure A.1 in Appendix for reference). The purpose of using business model canvas is to answer some key questions related to tesseract platform.

1. **Customer Segments:** The objective of the tesseract is to lessen the burden of owning a car and offering mobility as a service. The customers of tesseract will be car manufacturers who will offer their cars on the fleet to be used for transportation and those people who are looking for mobility as a service.
2. **Value Proposition:** The value proposition of Tesseract is to provide mobility as a service. Since we are making use of the blockchain, the payments will be immutable due to which security and trust will be unparalleled. The cost of ownership will be less on the shoulders

of user and user will be able to pay for what it consumes. Since tesseract provide the assets tokens (i.e., fractional ownership), people can invest in a single vehicle or vehicle fleets, and it can be a good place to invest.

3. **Channels**: The channels through which customers can buy mobility are apps, website or by calling to a toll-free number. The process to avail the tesseract service should be as easy as possible.
4. **Customer Relationships**: The services should be customizable and personalized so that the customer can select the modes of transport he wants to use from going one place to other. Customer convenience should be very high compared to what they can get by owning a personal vehicle. The customer relationship can also be built using social media platforms.
5. **Revenue Streams**: The revenue stream will be consisting of the microtransactions that will result from the charges related to usage of the platform. EY can also take some percentage of the transaction as the charge for using the platform. Advertising on the platform can be another source of the revenue stream.
6. **Key Resources**: Key resources required for tesseract platform are IT platform (i.e., website, blockchain network and mobile application), human resources (i.e., customer support staff and IT personnel for the platform), management and fleets of vehicles (be it a car, bikes, etc.).
7. **Key Activities**: The key activities involve making sure that when a user requests mobility from point A to point B, then the routes as suggested by the platform and modes of transportation available on the platform should be convenient to the user. Since we are using the blockchain, it will be easy to settle the payment, and it will be faster too.
8. **Key Partnerships**: Key partners to ensure that tesseract platform becomes the go-to platform for mobility as a service are car sharing companies, ride-hailing companies, car manufacturers, public transportation companies and bike sharing companies.
9. **Cost Structure:** To provide the platform, EY's cost will include using the public cloud for data storage, computing activities. The cost will also involve maintaining blockchain network. Since tesseract is new to the world, sufficient efforts are required to create awareness of the product and to make it easy and convenient for a user to use.

2. Economies of scale:

As we know that mobility as a service is a new concept, and there will be resistance to this idea, Innovators and Visionaries will be open to using mobility as a service but to take this idea to the pragmatism will require targeting a niche of the market and convince them a proof of concept is required. By targeting a niche market, we will be able to cross the chasm. To select the niche, the market needs to be segmented, and each segment should be analyzed based on attractiveness and fit. As shown in the table B.1, I segmented our market as staff travel (employees traveling daily to their workplace), students, tourists, persons with no means of transportation (i.e., without a car), and business travelers. I evaluated each segment based on the size of the market segment, compelling reason to use our service, value addition, not served well by the current infrastructure and need for our product. Each segment was then given a score between 1 and 5. Based on the evaluation, the niche market to target for tesseract will be staff travelers who travel daily to their respective workplace.

Once the niche is selected, our task is to own the niche which is our staff employee travelers. To do this, we need to provide the whole product which should make the mobility of the employees to their workplace as smooth as possible. Once the niche market is dominated, we will have a strong reference point for the pragmatist which will be enough to convince the pragmatists to use

our platform. Hitting the niche market correctly (i.e., dominating the niche we selected) will create a bowling alley, and in this way, we will be able to hit other pins (i.e., market segment).

In other words, tesseract should target employee travel first as a niche market segment, and the initial fleet/modes of transportation available on the platform should be capable of addressing the requirements of the staff travel. Partnership with bike sharing, car sharing, and car manufacturers is crucial for the initial fleet. Once the niche market is captured and is seen as a reference point, people will start investing in fractional or full ownership and will also start using the platform, and the fleet will grow.

3. Impact on General Motors

The change in car ownership behavior will hurt General Motors (GM). Currently, the business model of manufacturing and selling vehicles is in value outflow stage. As per the Accenture research, by 2030, the revenues from manufacturing and selling vehicles will be marginally higher than what they are today, and the profits from car sales will even shrink from $129 billion to $122 billion approximately (2). On the other hand, the revenues from Mobility as a service are projected to soar to almost $1.2 trillion with profit reaching as high as $220 billion (2). The impact of mobility as a service platform on General motors can be seen in the following ways:

- The build and sell model of the GM will be impacted and to survive in mobility as a service environment; GM needs to innovate its business model. In other words, as the shared mobility or mobility as a service concept gains traction, the private ownership of car will decline which will affect the build and sell a model of GM (8).
- The customer expectations will be high, and they will be asking for new services and features more rapidly than in the current scenario.
- The attractiveness of luxury OEM brands and cars will increase because there will be a persistent group of customers who want to own the cars (3).
- The attractiveness of autonomous vehicles will also increase in the MaaS era (3).
- Tesseract will result in an increase in vehicle utilization which may result in fewer units of vehicles to be manufactured (4).

4. Impact on Lyft

The impact of tesseract will be adverse on Lyft. Presently, Lyft is on-demand transportation service platform that lets people hire a cab with the use of the smartphone (9). Lyft charges 20% of every transaction for its platform use, and 80% goes to the driver (9). The reasons why Lyft will be negatively impacted by the Tesseract are as below:

- Tesseract offers multimodal transposition on its platform while on Lyft, the mode of transportation is cars. Having multiple modes of transportation on tesseract allows a user to better plan his/her trip. Thus, it can act as a strong reason for Lyft users to leave the platform and join tesseract.
- Tesseract offers assets tokens (digital record of ownership) which means you can invest in owning a single vehicle or vehicle fleets fully fractionally and will be paid depending upon usage of your vehicle by another user. Lyft does not offer this kind of service. The

attractiveness of making money by investing in tesseract platform will also be an important factor in customers leaving Lyft platform.

- On the tesseract platform, payment can easily be settled among owners based on the usage of their mode of transportation, and since every record is on the blockchain, the record cannot be modified.

Due to these reasons, the tesseract is a better platform than Lyft, and therefore, riders of the Lyft will see more benefit in joining the tesseract platform affecting the business of Lyft.

5. Recommendations:

I have divided my recommendation into two parts. The first part (i.e., 5.1) is about GM's strategic response to tesseract and second part (i.e., 5.2) is about Lyft's strategic response to tesseract. In both the parts, I have discussed what GM and Lyft can adopt in their three horizon model to keep playing the infinite game of business.

5.1 GM's strategic response to Tesseract:

Based on the strategy palette (see figure A.3), we know that mobility as a service is the future and General motors have the resources to change it. Therefore, the strategy of GM should be of a visionary. The strategic response of GM should consist of the following parts:

- There will be a small group of persistent customers who want to own a car, and such customers are highly likely to be looking to purchase a luxury vehicle. Therefore GM should position itself as a luxury car manufacturer and should manufacture and sell vehicles of the highest quality.
- GM should join tesseract platform as an OEM and should operate as a fleet operator. In this way, GM can offer its manufactured vehicles to users of tesseract platform and get the payment based on the usage of its car as logged in the blockchain network.
- GM should make itself available for fractional ownership of its and in that way acting as a good investment opportunity for users who have joined tesseract for investment. To attract investors to invest in its cars, GM should give offers and better returns than competitors to the investors.
- GM should change its model to "build for service" and provide the manufactured vehicles to fleet providers. It is same as airplane manufacturers building passenger planes for airlines (3).
- GM who already have Maven, a car sharing service, should be making its Maven platform more attractive. This can be done by being a fast follower approach and introducing blockchain into their platform. This will make their platform decentralized and will make transactions much faster. As per the recent news, they have already started experimenting with peer to peer car sharing service (5).
- GM needs to change its approach to customer-centric approach and should innovate to create new values for the customers.

As rightly said by the Simon Sinek that business is an infinite game and there are no winners in this game, and the purpose of being in an infinite game is to continue playing the game. Therefore, GM should follow the below three horizon models to create businesses for the future.

- **Horizon -1**: The horizon 1 of GM will be its core business of manufacturing and selling vehicles. The core business needs to be maintained and defended by the competitors. Currently, the direct competitors of GM are Fiat Chrysler Automobiles, Ford motors company, Toyota motor corporation and Tesla (6). To defend its core business from the competitors, GM should embrace new technologies faster than its competitors. GM's move to research and manufacture electric and autonomous vehicles is a part of their strategy to defend their core business.
- **Horizon- 2**: In horizon-2, GM should look for an adjacent market that they currently do not serve. One of the recommendation for horizon -2 for GM is to be mobility as a service platform similar to tesseract. The GM should make use of blockchain to make its platform more transparent trustworthy and for faster transactions.
- **Horizon -3**: In horizon-3, GM should look for new markets. For the new markets, GM can use its research in LiDaR technology which is used to create 3-D image of a distant object. There are many applications of LiDaR such as ground survey, micro-topography, in agriculture, precision forestry, environmental assessment, modeling of the pollution, etc. GM should invest in pioneering the LiDaR technology, and the recent move of GM to buy startup Cruise is aimed at making advancement in LiDaR technology (7).

5.2 Lyft's strategic response to Tesseract:

The strategic response of Lyft to Tesseract should be as follows:

- Lyft has an advantage over Tesseract because it has an existing customer base. As per Lyft, more than 23 million people took a Lyft in 2017 (10). Since there are 23 million people/riders using Lyft platform currently, it will be easy for Lyft to test new things on its platform. Therefore, Lyft should start fast following the services offered by Tesseract and should open its platform to OEMs and another mode of transportations. By other modes of transportation, I mean bike sharing services, public transportation, etc. As per the recent news, Lyft has partnered with Baltimore bike-sharing services and a handful of bike share stations has been transformed to Lyft pickup and drop off locations (11).
- Lyft should make its platform open for users to buy and own a car on its platform giving them an option to the user to invest in car ownership and get returns based on the usage of that car. Currently, Lyft charges 20% of each transaction and 80% goes to the driver (9). If Lyft allows other to invest, then based on the fraction of ownership of the person, he should get a part of the transaction.
- Since competition in the mobility as a service field is growing and is expected to get intense, therefore Lyft should focus on customers pain points and try to resolve them as soon as possible. This will reduce the number of customers leaving its platform. For example, currently, one of the reasons why riders are not happy is unfair cancellation charges (12), effort should be made by to make the cancellation charges as fair as possible. This can be done using more reason codes to find out why the ride was canceled and based on the reason code deciding the appropriate cancellation fee. Another pain point is that riders consider surge pricing as unfair and a way to exploit the customer when they need the ride with urgency. Lyft should make use of existing technology such as blockchain to make its pricing as transparent to the riders as possible. The trust gap between the Lyft and its riders needs to be addressed. This recommendation is about helping them improve their existing service to lower the customer churn rate.

- As we know that it is most likely that future belongs to self- driving cars. Therefore investment should be made in ensuring that Lyft is prepared for the future with self-driving cars. Currently, the main issues with self-driving cars are the safety and the recent accident by Uber self-driving vehicle in Arizona (13) has raised the eyebrows of skeptics. Therefore, Lyft should invest in self-driving cars so that they can come up with a safe self-driving fleet of vehicles and become the go-to the platform to buy mobility as a service having self-driving cars. As per the recent news, Lyft is offering self-driving car rides to its users in Las Vegas by partnering with Aptiv (14).

To survive in this business environment and to keep playing the infinite game of business, Lyft should look beyond its core business and should adopt three horizon models. Three horizons for the Lyft are as follows:

- **Horizon-1**: In horizon 1, Lyft should maintain and defend its core business which is providing mobility as a service. To do so, Lyft should work on the recommendation provide above to make its offering competitive and customer-centric. To summarize the recommendations mentioned, Lyft should make use of upcoming technologies to make its service better, partner with companies providing another mode of transportation such bike sharing services, companies providing public transport and improve its existing services by eliminating current customer pain points.
- **Horizon-2**: In horizon 2, Lyft should look for adjacent markets they do not serve currently. The new markets could be providing a platform where people can book private rooms and hotels. Offering hotels and private living spaces, Lyft can become the go-to the platform to plan your travel. They can become an innovative platform for tracking and logging usage of private living spaces or hotels and then charge the customers automatically based on their usage. To make it more transparent and trustworthy, they can make use of blockchain. To explain this, let us say a user has an account on “Lyft for travelers,” and the user must have input currency into their platform wallet, then the user books a private living space or hotel from their platform. When the trips start, and the user starts using the private living space or hotel, based on the usage Lyft will charge the user automatically and will keep a record of the transaction on the blockchain. Another adjacent market can be Lyft for startups or offices where people can rent office space, and they will be charged based on their usage.
- **Horizon-3**: In horizon 3, Lyft should find new markets for the future. The possible market for this is in virtual reality travel. As we know that traveling is time-consuming and requires so much of time and it is exhausting too. Moreover, there is a high likelihood that you may not be able to see all the places you want in your lifetime. Therefore, virtual reality travel (VR travel) is a good option, and Lyft should be looking to find a market in VR travel. For example, you want to go to your favorite place in New York, but you are currently in NC and so not have the time to travel. By using the VR travel gadget developed by the Lyft, you should be able to experience and feel the real-time ambiance of that place. This new technology could be the game changer for the travel industry.

6. Conclusion

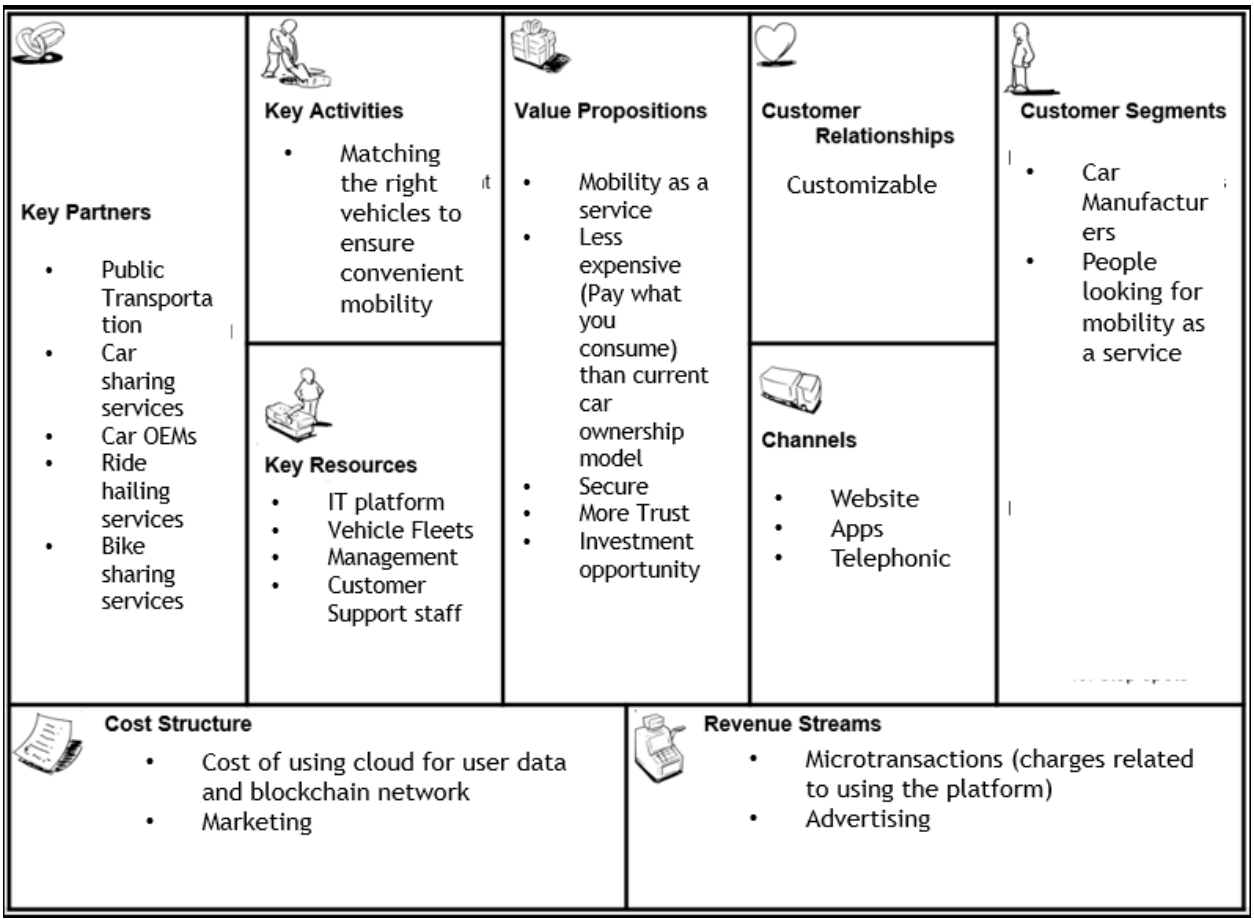
In conclusion, we can say that the mobility as a service is expected to grow. The tesseract platform is going to hurt both GM and Lyft. For GM, Tesseract will impact its “manufacture and sell” model.

For Lyft, it can affect its business and growth by posing to be a better alternative to its riders. The strategic response of both GM and Lyft should be of a fast follower by actively recognizing the trends in the market and to modify or experiment with its offering or service. Additionally, both GM and Lyft should look beyond their core business and should use horizon three model to find new or adjacent markets for future.

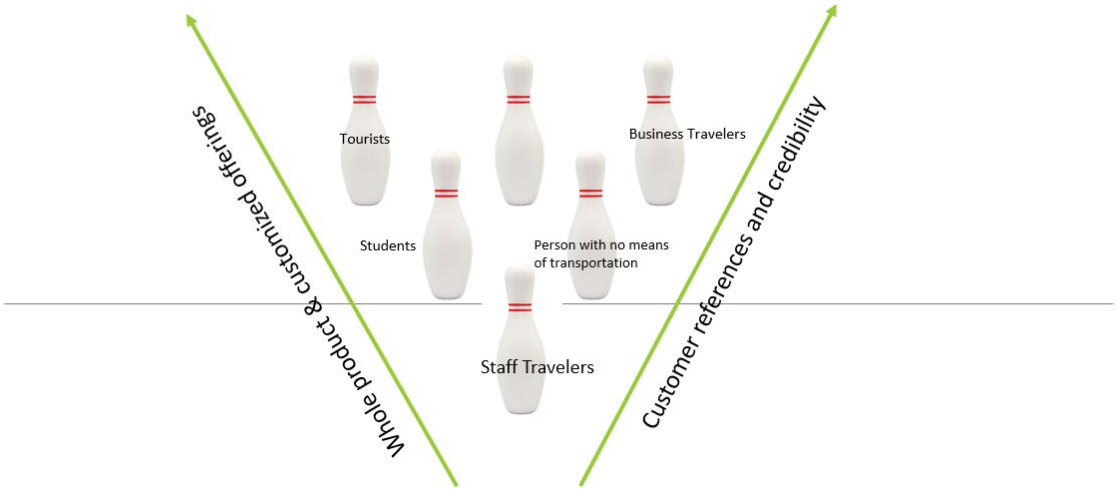
Appendix:

A: Figures

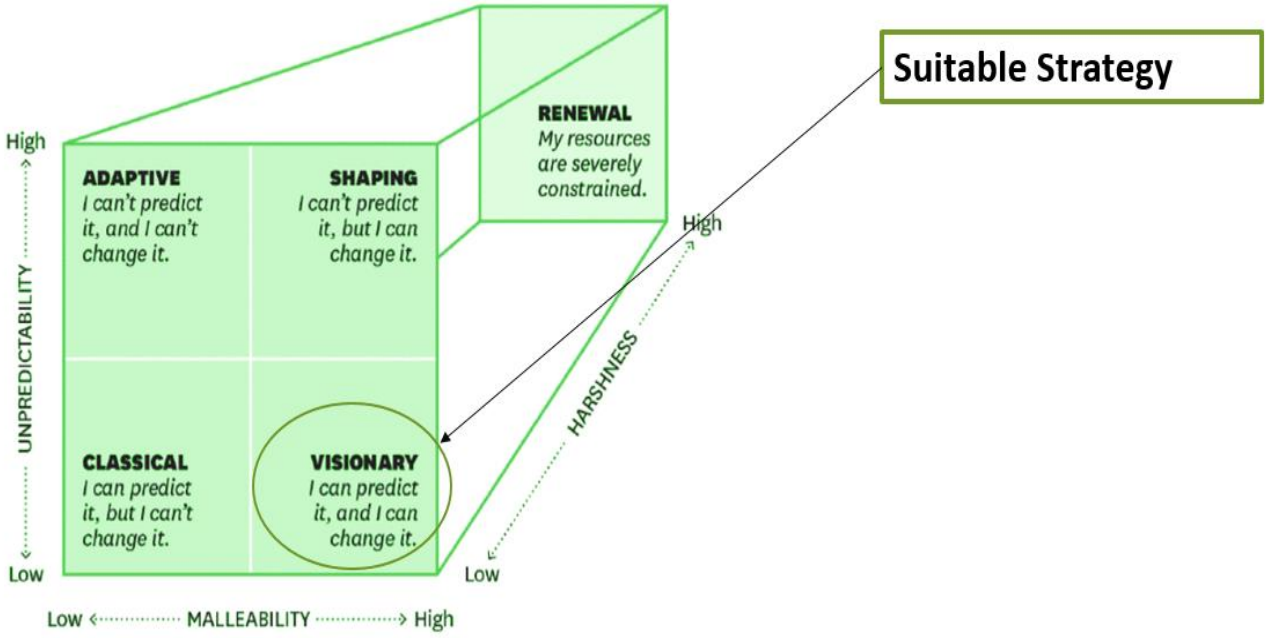
A.1 Business Model Canvas for Tesseract



A.2: The Bowling Alley Success Model for Tesseract



A.3 Strategy Palette



B: Tables

B.1 Evaluating Niche Markets based on attractiveness and Fit:

Markets	ATTRACTIVENESS			FIT		Total Rating
	Size	Compelling Reason	Value Addition	Not Served well by competitors	Need for our product	
Staff Travel	5	4	5	4	4	**22**
Students	5	4	4	3	4	**20**
Tourists	5	5	4	3	3	**20**
Persons with no means of transportation	4	4	5	4	4	**21**
Business travelers	4	4	4	4	3	**19**

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