NAVIGATING THROUGH CREATIVITY AND INNOVATION PATHS: WAZE NAVIGATION APPLICATION CASE STUDY

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CASE DESCRIPTION

*The primary subject matter of this case concerns **entrepreneurship**. Secondary issues examined include **Mobile Navigation Applications**. The case has a difficulty level of seven, appropriate for doctoral level. The case is designed to be taught in 2 class hours and is expected to require 3 hours of outside preparation by students.*

Keywords: Policy, Creativity, Innovation, Users, Transportation, Technology.

CASE SYNOPSIS

The development of new technologies, especially the internet, has resulted in the expansion and development of the global economy. This fact has led the communication and culture industries to play an increasingly more important role in a global economy. One of these industries is driven by the development of Mobile Navigation Applications that aims to help navigating in cities through applications. The objective of this research is to determine the types of Mobile Navigation Applications found in this creative industry and determine the future of the industry in terms of innovation and development of new applications within the communication sector. The research identifies the types of Mobile Navigation Applications and their uses. It determines the future development of the industry in terms of regulation and its use by the governmental institutions and professionals. With the advent of digital media, more and more entrepreneurs are now part of the media market. These entrepreneurs are also those agents who propose business models that exploit entrepreneurial opportunities in the media market. The influence of media entrepreneurs being global makes them a global agent of change. The relation of media entrepreneurs is defined through the lens of Actor-Network Theory (ANT) which shows how these entrepreneurs generally act and interact with a series of networks to recognize, evaluate and exploit entrepreneurial opportunities. One of the entrepreneurs in Mobile Navigation Application is Ehud Shabtai, an Israeli software engineer who founded Waze's Idea in 2007. He developed world's first dynamic road platform that integrated GPS, open-source software and a community of drivers. The current paper takes as a case study the Waze company which gained popularity in a short span of time, being bought by Google and its application being integrated into Google Map application. Due to this acquisition, other local and global ecosystem and industries recognized the great potential in the navigation market therefore new competitors of Waze navigation application emerged in market over the period of time. Moreover, Waze business expanded further when one of its competitors named Moovit carpool joined hands in 2019.

CASE BODY

Waze team produced the world's first live map with drivers from all countries to provide users with real-time information and help them drive better at all times. Waze is a mobile social app that allows drivers (the target audience of the app) to build and use real-time road knowledge. The service includes continuously updated maps, traffic and traffic alert alerts and information that offer users the fastest way to reach their destination.

Waze works on drivers' cell phones on the road and updates maps and traffic modes while traveling. In addition, drivers can also independently report and update other users about what is happening on the road including accident alerts, police mobility, weather damage, fuel discounts and more. Because the map and its content is user-created, Waze is provided to drivers free of charge.

Waze is constantly inventing itself to adopt and provide its users' needs and interests:

a. Future travel planning: In addition to route heuristics, Waze enables to plan future travels by simply entering the date and time of the event. The app also recommends best times of starting the trip and even reminds of pre-planned trips.

b. Departure / Return to Destination: The app recommends a departure time based on real-time traffic status to save traffic time. The route and estimated time of arrival will appear on the map before one even start his journey (Figure 1).
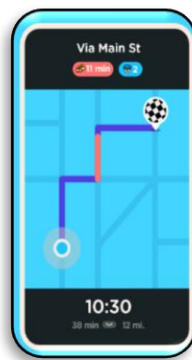

FIGURE 1
ROUTE IDENTIFICATION WITH ESTIMATED TIME

If there is a car accident during the trip that causes delays or roadblocks, traffic jams and the like, Waze app provides its real-time traffic updates to its users. The app also has the features of updating the target tracks, it reports loads, provides estimated traffic time and alerts about the presence of police. It allows its users to stay up-to-date, alert and on the go (Figure 2).
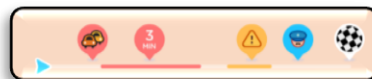

FIGURE 2
REAL-TIME TRAFFIC UPDATES

Waze has a convenient and Simple User-Interface. The app allows the user to run in the background other mobile applications and work in parallel with a number of different apps e.g.,

YouTube, Spotify, Photography and Recording etc., without switching between apps so as to minimize user contact and phone messaging while driving (Figure 3).
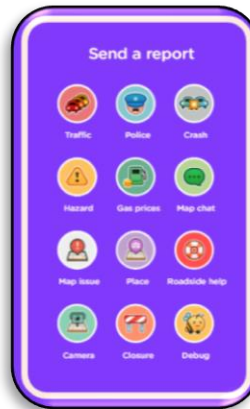

FIGURE 3
SIMPLE USER INTERFACE

c. Real Time Report: the users can also share and report alerts during their journey.

d. Prevention of Forgetfulness of Children in Vehicles: The navigation app sends a reminder to driver before the end of the trip which helps parents/ guardians not to forget the kids in the car. The app prevents disasters where parents forget their children in the back seat of the vehicle and these cases usually ended in death due to heat and suffocation.

e. Carpool: Allows the users to travel in partnership by making daily travels quick, cost-effective and fun. It's basically an innovative way to share the road and costs of travel.

f. Waze Local: In addition, Waze app allows local small businesses to advertise themselves on its interface by showing a business / organization ad when the passenger is nearby.

Maps and navigation services have become vital for technology companies as consumers adopt smartphones and other mobile devices. Waze uses satellite signals from members' smartphones to generate maps and traffic data which then shares with other users, offering real-time traffic info.

In addition, the social features of the app have been embedded within Google Maps that enhanced 'Google Maps' App by integrating Waze services with Google search services. Waze is considered as the hallmark of value in navigation apps market. Due to the acquisition of Waze by Google, the local and global ecosystems and industries understand the great potential in the navigation market. Waze has constantly reinvented itself in the fast-changing market with new and well-established competitors. Few of the competitors along with their features are presented below for comparison:

1. Here WeGo App: is a free app for navigating by car / bike / public transport or walking. It works even without internet connection. The app is of high quality and fast and it includes traffic reports. Here WeGo app includes the following features:

   • A vvoice navigation option.

   • Places of interest which can be saved.

   • It shows a number of routes and gives detailed information such as train prices, bus, taxi fares and more.

   • Real-time public transport information.

2. Maps.me: A similar free and recommended navigation app that also provides guidance, even when there is no internet, on traveling or walking, with detailed directions. Anyone can edit and contribute to the map. A slightly simpler visual app, Maps.me app includes the following features:

- Save and share locations.
- The maps are updated daily, the app is available worldwide.
- Search for restaurants, cafes, tourist attractions, hotels, ATMs and public transport.
- Make hotel reservations via Booking.com directly from the app.

3. Sygic: it's a high-quality android navigation app, with real-time reports and 3D maps. It works even without internet connection. Its use is free for 7 days. There is a one-time payment for the maps and unlimited updates. Its price, without a time limit, is 27 euros (or 20 without traffic reports). The features of Sygic application include:

- Precision and speed, many options.
- Quality maps from all over the world.
- Guided voice navigation while traveling and walking.
- Information on parks, tourist sites, gas stations and even pedestrian views.
- Advanced view that helps the driver look less at the screen while navigating.

4. Google maps: It is a long-Standing, familiar, free maps app that provides real-time updates. It contains comprehensive and accurate maps from 220 countries, public transit schedules and quality traffic reports. Google maps requires an internet connection - unless the user has downloaded a destination map in advance. The features of Google maps app include:

- Navigation while traveling by car, bus and walking.
- Points of interest and business information on the go (from the Google Places repository).
- A very up-to-date map that includes quality traffic information such as Wise's, road updates and public transport.
- Computing route recalculation - Live.
- Locating closed roads, traffic jams accidents.
- Search on offline maps.
- Internal maps of major places such as airports, shopping malls and stadiums.
- Already on almost every device.

5. Moovit App: in the carpool niche, Moovit app was a significant competitor for Waze. Moovit app helps travelers know when they need to go on a train or when their train should arrive at the station. It also operates a co-operative travel service called Carpool Moovit. The app shows the driver the recommended price by a predetermined distance and the driver is invited to set a price lower or higher than the recommended price. Moovit Carpool was launched in September 2016 and now has tens of thousands of users. Drivers who want to offer their empty places for shared travel, should download the Carpool Moovit app for the driver and enter the details of their travel. Travelers who want to find a carpool ride should look for a route as usual in the Moovit app where drivers who offer travel within the service will appear. The Carpool driver can collect up to three passengers per trip and they will pay him sums which ceiling is set so that they do not exceed the cost of the trip.

As Waze is greatly connected to its user's needs, they reacted fast and on 30th of October 2019, they announced the collaboration with Moovit, event which was described as 'big day for the mobility industry'. Moovit owners were excited to announce their collaboration with Waze Carpool. Together, they launched a pilot program offering a more affordable, convenient and fun way to commute, in the US, Brazil, Mexico, and Israel. This was the first partnership of its kind, to have the capacity to empower millions of daily commuters to share the road and the costs. With half a billion users, Moovit is the platform used mostly by public transit riders, while Waze

Carpool has the world's largest community of drivers. Now, Waze Carpool drivers can connect with even more riders heading in the same direction via Moovit's app with the first ride for new Waze Carpool users.

INSTRUCTORS' NOTES

"A Business that Makes Nothing but Money is a Poor Business"

The development of new technologies, especially the internet, has resulted in the expansion and development of the global economy. This fact has led the communication and culture industries to play an increasingly more important role in a global economy (Deng, 2013). Innovation is understood as an action of change that is a novelty in which creative integration processes are combined to create, modify or improve a product, a service or a system. Innovation in a creative industry, influenced by new technologies and the use of new devices and digital media, has generated new business models and new business opportunities that cover needs that did not exist until today (Abelson et al., 2017; Ashurst & Jones, 2017; Pierce et al., 2017). It is interesting to highlight the continuous increase of companies related to creativity and new media and, above all, the role they play in a multidisciplinary society, based on diversity. The market values of new products based on technological innovation are determined by their originality, uniqueness, performance and appearance (Kao & Liebovitz, 2017).

The development of the internet in the first decade of the twenty-first century made companies adapt their business strategies to new consumer habits and needs (Goetzel et al., 2007). In this sense, one of the industries that have grown the most in the last 10 years has been the mobile phone industry. This sector has increased exponentially around the world, increase driven by the development of emerging countries and the reduction of the production cost of this type of support (Ashurst & Jones, 2017; Klein, 2018). The software in mobile terminals is known as mobile applications (APPs). Following the results of Statista (2018), by the year 2021, a total of 352.9 billion applications are expected to be downloaded. If the use of applications by category is considered, it can be seen how applications related to e-mail management get a total of 45% of usage percentage, applications related to tourism and the creative industry get 28% with respect to the total of application. Categories downloaded in the world applications for social communication get 47% and, finally, categories such as shopping and messaging applications get 40%, and 45% respectively (Autry et al., 2010; Saura et al., 2018). There is no doubt that the use of mobile applications has become a consumption habit for users who benefit from their content (Baldwin et al., 2017; Kao & Liebovitz, 2017; Goodarzi, 2018). Innovation and creativity in the development of mobile applications has led to the fact that the communication sector has established itself as one of the sectors that has received more development in recent times (Handel, 2011; Pierce et al., 2017).

The media entrepreneurship in software applications influences human lives, resulting in a change in our daily habits and lifestyle. As one can see, their influence extends beyond the traditional and national boundaries and their influence has changed billions of lives around the globe. Similarly, the team of Waze Navigation Application that was developed back in 2007, turned this vision into reality: they produced the world's first live map with drivers from all countries to provide users with real-time information and help them drive better at all times using the Waze Navigation Application. Maps and navigation services have become vital for technology companies as consumers adopt smartphones and other mobile devices. Therefore, Waze application is taken as a case study and related with the actor network theory along with

the competitors of Waze in global market. Waze uses satellite signals from members' smartphones to generate maps and traffic data which it then shares with other users offering real-time traffic info.

In the last decade, many researchers have shown interest in the study of how users use applications on their mobile phones. Therefore, how users behave when they use a mobile application and their consumption habits have become key factors for research in this field (Kao & Liebovitz, 2017). In this regard, media entrepreneurship is a concept that was coined more than a decade ago. At the advent of digital media, more and more entrepreneurs became part of the media market. These entrepreneurs are also those agents who propose business models that exploit entrepreneurial opportunities in the media market. The potential market influence of media entrepreneurs is global that makes them a global agent of change even though media entrepreneurship is still an emerging field of research. The history of this domain has been highlighted from the dotcom boon in 2000 when numerous startups emerged. The start-up trend had increasingly improved in the late 2000s and 2010s when several social media platforms emerged and media entrepreneurs revealed how they could change the world in a blink of an eye. For instance, Mark Zuckerberg (founder of Facebook), Larry Page (co-founder of Google), Ma Huateng (founder of Tencent), Jan Kuom (founder of WhatsApp), Evan Spiegel (founder of Snapchat), Reid Hoffman (founder of Linkedin), Sean Parker (founder of Napster), Jack Dorsey (founder of Twitter), Yoshikazu Tanaka (founder of Gree), and Hae Jin Lee (founder of Line) are among the most well-known media entrepreneurs. Their media entrepreneurship influences human lives resulting in a change in our daily habits and lifestyle. As one can see, their influence extends beyond the traditional and national boundaries and their influence has changed billions of lives around the globe. The influence of digital media in our lives has increased the net worth of media entrepreneurs as compared to their commercial peers. For instance, comparing the net worth of Mark Zuckerberg, the founder of a new media firm, to that of Rupert Murdoch, the founder of an old media, it is evident that their respective firms deliver similar value. Nevertheless, Zuckerberg's net worth had risen to one billion US dollars in three years while Murdoch's net worth got to that same level after forty years. The same picture can be seen if comparison is made between the founders of LinkedIn, Reid Hoffman and Charles Dolan, the founder of Cablevision Systems. The growth rate of their respective networks is also different. The annual growth rate of LinkedIn is higher than eighty percent while the annual growth rate of Cablevision Systems was lower than one percent.

Studying how these media entrepreneurs emerge and act in order to experience such growth is of significance (Goodarzi et al., 2018; Buschow & Laugemann, 2020). For instance, Abernathy & Sciarrino (2019) consider this domain by elaborating the strategic digital media as an emerging concept which is both critical and influential in the global economy. The strategic characteristics of digital media enable these media entrepreneurs to use their strategic insights to combine them with their entrepreneurial alertness (discovery view) or creative destruction (creative view) approaches to explore, evaluate, and exploit entrepreneurial opportunities (Emami & Khajeheian, 2019; Horst & Hitters, 2020; Nel et al., 2020; Khajeheian, 2019; Newzoo, 2017).

Similarly, Ehud Shabtai, the founder of Waze Company, took free mapping and navigation application (for iOS and android) challenge as an opportunity and now the company has over 130 million users today. Considering Waze navigation application, a successful business model, the paper will consider Waze Company as case study for new startups utilizing actor-network theory (ANT) and its connection to entrepreneurship.

A qualitative research will be carried out utilizing Anthropological approach that combines information about people's thoughts and information collected by observing their behavior and social interactions (Salamzadeh, 2020). Although connecting media entrepreneurship with Actor-Network Theory (ANT) is an interesting research area, it has not been investigated before by researchers. For instance, Kumar & Rangaswamy (2013) investigated the mobile media actor network in urban India. However, their focus was not on the media entrepreneurship—ANT nexus. Instead, they explained how the practice of piracy increases the consumption of media encouraged increased adoption of technology and increased the digital literacy of Indian mobile users.

In a similar study, Kumar (2013) took the same approach and the concentration was also on mobile and media which resulted in similar findings regarding the use of technologies. Lorenzen (2018) investigated media startups and mentioned the importance of using ANT in such studies. The focus on media entrepreneurship was also missing. In another research, García-Avilés et al., (2019) argued that the advancement of a variety of technologies is significantly essential in media industries. ANT was also used as a lens in this study to explain their thoughts but the focus still was not on media entrepreneurship. Horning (2012) also marginally pointed out the importance of applying ANT in media research. Therefore, there is the need for the elaboration on the connection between ANT and media entrepreneurship. To do so, the paper takes advantage of the general entrepreneurship frameworks as explained by (Korsgaard, 2011) and creates network connections using the ANT. This approach makes it possible to provide a better understanding of this nexus (Salamzadeh & Arbatani, 2020).

According to media firms, it is evident that putting more emphases on elaborating business models has become a crucial issue (Klinger & Svensson, 2018; Indrati et al., 2018). Lack of knowledge about the best choice to make money from a typical media might endanger its future survival (Tsourvakas & Riskos, 2018). There are four main media business models-i.e., Content oriented, Commerce oriented, Context oriented and Connection oriented- which are reviewed in detail. This typology suggests that one shall choose among the mentioned business models for media firms to help them succeed in this VUCA (Volatility, Uncertainty, Complexity and Ambiguity) world (Bennett & Lemoine, 2014). This typology is comprehensive to a great extent and it is vital to break down the 4C typology into more detailed groups in order to cover different aspects of various media. Thus, policy makers may take this typology into account for devising policies, monitoring media and also implementing relevant initiatives in media industries. Also, public funding might be used for content oriented and connection-oriented business models (Salamzadeh et al., 2019).

The relation of the entrepreneurs with the Actor-Network Theory is related with the market which is defined as a robust network of participants including the media entrepreneur, digital technologies and the audiences engaging in regulated interactions. In this actor network environment, every player in the supply chain is an agent. However, the activities of most agents are more pronounced than the other. Pronounced agencies in these markets are pluralistic in nature. They are a combination of media entrepreneurs and the audience that interact with the media to either create or discover entrepreneurial opportunities in media markets. This approach is, to some extent, different from that of the general entrepreneurs who should be the sole protagonists and recognize entrepreneurial opportunities (Korsgaard 2011).

As internet plays a pivotal role in our daily lives, businesses and economics are growing rapidly due to vast and current information from the internet. The findings of a study on 'Finding behavioral factor influencing Indonesian Micro, Small and Medium Enterprises (MSME)

decision-making in adopting E-commerce application' showed that there are four factors that influenced MSME owners' decision-making - namely value, personality, tendency to take risks and potential uncertainty. The most dominant factor affecting the MSME owners' decision to adopt was the tendency to take risks (Kurniawati &

Saputra, 2019). Similarly, the idea of Waze was born years ago when Ehud Shabtai, an Israeli software engineer with a degree in computer science and philosophy from Tel Aviv University, received a Personal Digital Assistant (PDA) with an external Global Positioning System (GPS) that included navigation software. The excitement quickly turns into disappointment - the product did not reflect the frequent changes that characterize the real road trip. As an experienced open-source programmer with rich experience - Ehud decided to focus on this challenge and started building the world's first dynamic road platform that integrated GPS, open-source software and a community of drivers. His goal was to accurately reflect the state of the roads, the state of traffic and all the information necessary for drivers at any given moment.

The first mapping project called Freemap was officially launched in 2006 and was enthusiastically received by the Israeli driver community. Two years later, Ehud joined entrepreneurs Uri Levin and Amir Shiner and together they founded Waze (combination of the words maze with ways) which is funded by the following venture capital bodies:

a. Blue Run Ventures;

b. Magma Venture Partners;

c. Vertex Venture Capital.

Waze team joined to turn their vision into reality. They produced the world's first live map with drivers from all countries to provide users with real-time information and help them drive better at all times. The service includes continuously updated maps, traffic and traffic alert alerts and information that offer users the fastest way to reach their destination. According to Israel's National Statistics Agency survey of 2016 (Figure 4), the employees utilize various types of transport to reach their workplaces. Its data revealed that 58.5% of the employees used private transport, 17% used taxi or bus and only 7.4 % used shuttle service to reach their workplaces. This shows that there is a great potential of using navigation application like Waze mobile app in private vehicles.

Waze works on drivers' cell phones on the road and updates maps and traffic modes while traveling. In addition, drivers can also independently report and update other users about what is happening on the road including accident alerts, police mobility, weather damage, fuel discounts and more. Because the map and its content are user-created, Waze is provided to drivers free of charge.

Once Google Geo Vice President Brian McClendon envisioned in his blogpost that we could see real-time traffic updates from our friends and fellow travelers driving ahead of us and informing us that they are stuck in a particular lane and show us the faster routes in order to avoid congestion. And indeed, on June 11, 2013, this vision started to become a reality when Google announced that it had bought Israeli mapping startup Waze (Google Buys Israel's Waze to Keep Mobile Maps Lead | Reuters, 2013). This collaboration reduced the problem of traffic jams. Maps and navigation services have become vital for technology companies as consumers adopted smartphones and other mobile devices. Waze uses satellite signals from members' smartphones to generate maps and traffic data which then shares with other users, offering real-time traffic info.
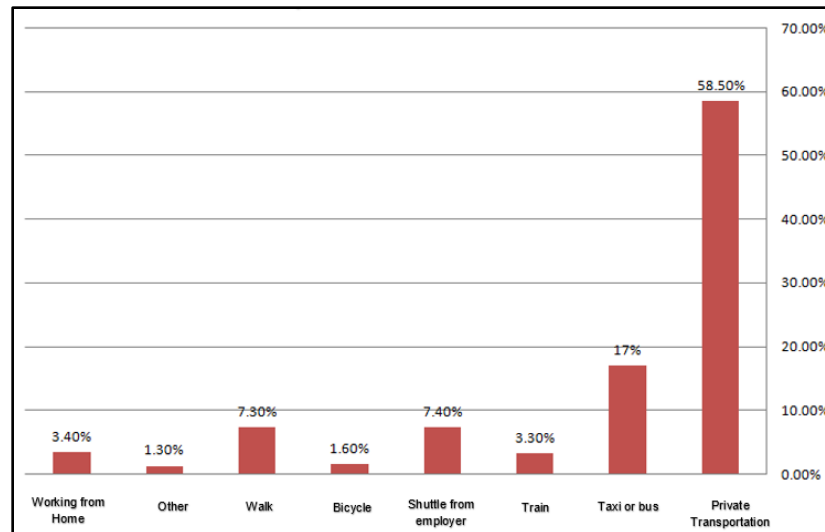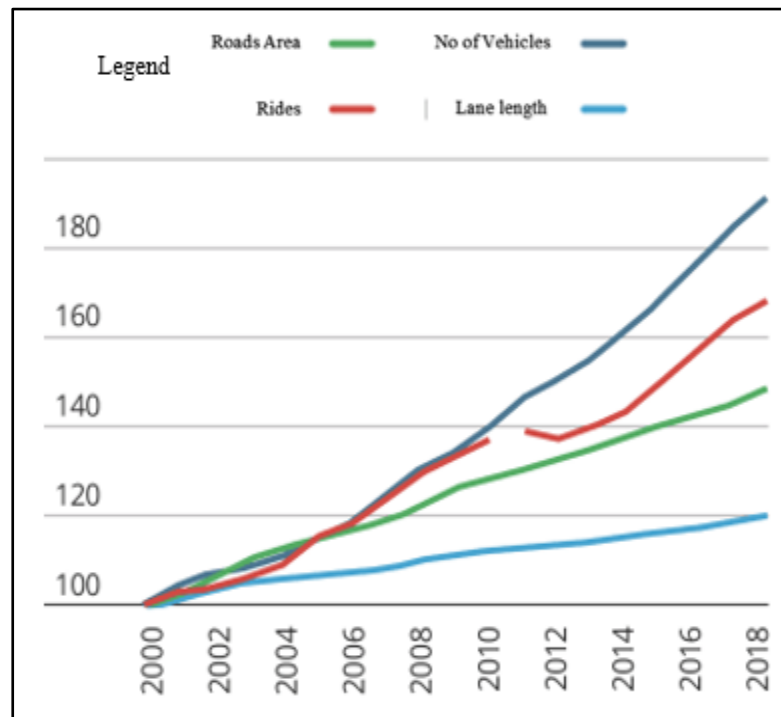
Source: Israel's National Statistics Agency 2016

FIGURE 4
TRANSPORTATION TO WORK

As Waze is greatly connected to its user's needs, on 30 October 2019, they announced for the collaboration with Moovit, day which was described as a 'big day for the mobility industry.' Together they launched a pilot program offering a more affordable, convenient and fun way to commute, in the US, Brazil, Mexico, and Israel. This was the first partnership of its kind to have the capacity to empower millions of daily commuters to share the road and the costs. With half a billion users, Moovit is the platform used most by public transit riders, while Waze Carpool has the world's largest community of drivers. Now, Waze Carpool drivers can connect with even more riders heading in the same direction via Moovit's app with the first ride for new Waze Carpool users.

According to the Moovit data, since the launching of "*Lane plus*" program, the carpool travels increased by 20% as compare to the amount of the carpool travelers before the program. On October 2019, the mobility office launched new policy, the "*Plus lanes*" program which restricted certain lanes for vehicles with more than one passenger. The purpose of the program was to encourage passengers to abandon their private vehicle and move to cooperative travel and public transport as today. Prima facie, the new policy, which already proven to be effective in other countries, should have been effective in Israel as well. However, in reality, due to the facts that the volume of travels in Israel has increased by almost 70% in the last two decades, while the area of roads has increased only by 48% and the length of roads has increased by only 20% (according to the national statistics agency data) and in addition the public transportation was not developed enough, the new policy was not that effective in Israel. Due to the fact that the average number of passengers in private vehicles in Israel is only 1.2 passengers, the travelers or drivers have to find a solution for this new mobility challenge.

Israel's National Statistics Agency survey of 2018 (Figure 5) compared the transportation need of the employees with the road infrastructure and its capability. The data of last 18 years shows that the rate of increase in number of vehicles was more than the roads area and the lane length. Similarly, the number of rides also increased drastically as compared to the roads area and the lane lengths. It can be assessed that over the period of the last 18 years there has been

continuous rise in the number of vehicles. This provides an opportunity to Waze and other mobile navigation application to respond to their client's needs by developing technological solutions in present-day real-time road infrastructure and its challenges.

Source: Israel's National Statistics Agency 2018

FIGURE 5
UNMET NEED - TRANSPORTATION NEED VS. CAPABILITY

The start-up trend had increasingly improved in last few decades with the advent of several social media platforms and media entrepreneurs (for example, Facebook, WhatsApp and LinkedIn). These platforms revealed how they could change the world in a blink of an eye. The influence of digital media in our lives has increased the net worth of media entrepreneurs as compared to their commercial peers like Mark Zukerberg and Rupert Murdoch. Similarly, maps and navigation services have also become vital for technology companies as consumers adopt smartphones and other mobile devices. Waze is considered as the hallmark of value in navigation apps market. It works on drivers' cell phones on the road and updates maps and traffic modes while traveling. While taking advantage of internet, navigation application innovations and the global community utilizing these apps without any discrimination provides a source of successful models for new start-ups and entrepreneurs. Waze competitors also emerged in global market. However, Waze either enhanced its services by improving its features or enhanced its reach through collaboration with other companies such as 'Google maps' and 'Moovit'. In the relationship of entrepreneurs with the actor network theory, it is the robust network of participants including the media entrepreneur, digital technologies and the audiences engaging in regulated interactions that interact with the media to either create or discover entrepreneurial opportunities in media markets. Besides, given the low development pace of road infrastructure

and high pace of increase in private transport, it is essential for entrepreneurs to bring creativity and innovation ideas like Waze Carpool for the betterment of community and global economy.

CONCLUSION

In the 21st century, technological advancements have great influence on creativity and innovation. The use of new devices and digital media has generated new business models and new business opportunities for entrepreneurs. The domain of media entrepreneurs is analyzed in this paper by considering examples of social media entrepreneurs. Since last decade, a big number of mobile navigation applications have been developed and used in the world that all of these applications and their features could not be compared in the present case study. The complexity of various navigation applications limited the scope of this study. However, endeavors were made to compare the features of leading applications. Waze start-up idea of navigation application has proved its worth globally. Waze's attitude to respond to clients' needs, (through features like children forgetfulness alert feature, real time reports and other features), Waze rapidly responded to the "*Land plus*" government policy. The impact of this and the collaboration with their competitors in the carpool niche enabled Waze to continue its intimate relationship with the clients by fulfilling the current needs. Their media entrepreneurship influences human lives resulting in a change in our daily habits and lifestyle. The relationship of media entrepreneur with the lens of Actor-Network Theory (ANT) is based on a combination of media entrepreneurs and the audience that interact with the media to either create or discover entrepreneurial opportunities in media markets. The influence of Waze extends beyond the traditional and national boundaries and has changed billions of lives around the globe. The influence of digital media in our lives has increased the net worth of media entrepreneurs as compared to their commercial peers. The start-up trend had increasingly improved over the period of last year's when several social media platforms emerged and media entrepreneurs revealed how they could change the world and its economy in a blink of an eye.

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