

SOLEMN DECLARATION - GROUP ASSIGNMENT**Solemn declaration by students**

Module: Technology Management

Module Code: MBAB 821

Assignment No: Exam POE

Assignment due date: 29 October 2020

We hereby declare that the assignment which we herewith submit to the North-West University as partial completion of the requirements set for the MBA degree is our own work.

GROUP NAME: Dexty

GROUP LEADER: Tano Bongers

Name	Student	Signature	% contributed
Elizma Fuller	12128635		100
Tano Bongers	33372969		100
Elaine Kleynhans	23442689		100
Andries Wessels	37189182		100

TABLE OF CONTENTS

EXECUTIVE SUMMARY.....	II
1 INTRODUCTION	1
2 THINKING A TECHNOLOGICAL INNOVATION	1
2.1 SUGGEST A NEW FIRM IN A DEFINED INDUSTRY: DEXTY'S VR TRAVEL (DVRT).....	1
2.1.1 Industry and technology introduction – Defining Virtual Reality	1
2.1.2 Technology and the travel industry	2
2.2 DESCRIPTION OF THE FIRM TO BE ESTABLISHED	3
2.2.1 DEXTY'S VIRTUAL REALITY TRAVEL (DVRT).....	3
3 DEXTY VIRTUAL REALITY TRAVEL - BUSINESS PLAN	6
3.1 TECHNOLOGY ACQUISITIONS	6
3.1.1 Acquisition Context	7
3.1.2 Acquisition Evaluation.....	10
3.1.3 Acquisitions Options	11
3.2 BUSINESS MODEL DEVELOPMENT & IMPLEMENTATION (BMDI).....	14
3.2.1 Business Modal Canvas for DVRT	15
4 HOW TO IMPLEMENT AND MANAGE A TECHNOLOGICAL INNOVATION	18
4.1 REQUIRED RESOURCES	18
4.1.1 Technology resources.....	18
4.2 THE PROCESS TO SUPPLY RESOURCES.....	20
4.3 TIMING OF INNOVATION AND LAUNCH APPROACH IN PORTFOLIO MANAGEMENT	21
4.3.1 Marketing Plan.....	21
4.4 HOW TO MANAGE CHANGE	24
4.5 NEW ORGANIZATIONAL STRUCTURE	26
4.6 ORGANISATIONAL RESTRUCTURING TO KEEP FIRM INNOVATIVE	27
4.6.1 Technology Roadmap.....	28
5 CONCLUSION	31
REFERENCE LIST.....	33

EXECUTIVE SUMMARY

The thrill of travelling has been with humanity for centuries and will probably be a given for the next few centuries too. The reality and effect of COVID-19 together with constant new technology innovations have changed the way travelling will look like in the future. Individual involvement in the consideration and planning of travel has increased over the last decade. Continues development in the travel industry created new opportunities for updated technology to be invented.

Dexty's VR Travel (DVRT) is on the frontline of innovation with a new virtual reality travel and destination selection business model. In this paper, suggestions for the new firm in the defined travel industry will be discussed. The definition and optimisation of Virtual Reality (VR) and the role technology play in the travel industry will be further elaborated.

The products, customers and competitors are listed and discussed. The business plan follows suit where the process of technology acquisition and the motivation for the technology is explained. The collaboration with strategic business partners, key activities, value propositions, customer relations and segments, essential resources, the cost structure and revenue stream requirements for the new business will be discussed and presented in table format.

The business plan implementation regarding resources, technology resources and the supply of resources will be incorporated as required to achieve strategic objectives of the new firm. Finally, the timing of innovation and launch approaches, portfolio management during the management of change will be highlighted. The practical implementation of a business plan is effectively guided by the implementation of change management and the implementation of a well-thought-through marketing plan. Implemented technology will not stay up to date inevitably, organisational restructuring and implementation of processes to keep the firm innovative, were critical aspects to be considered and researched. In an imperative investigation into implementation strategies will conclude this paper.

1 INTRODUCTION

Travelling has been with humanity for centuries and will probably be a given for the next few centuries too. With the dawn of globalisation, the travel market has grown and evolved. With the innovation of various new technologies such as VR amid the fourth industrial revolution (4IR), organisations represented in the travel industry cannot afford to lag (Shu, 2017). Any company that wants to continue existing will have to adopt these new technological innovations.

Dexty's VR Travel (DVRT) is on the frontline of innovation with their new virtual reality tours business model. Dexty's VR Travel takes the guessing and uncertainty out of planning your next holiday or tour. Dexty's VR Travel aims to takes VR to the next level by letting customers experience their trip virtually before they have to commit to a holiday destination. Allowing customers a virtual tour of world destinations and exotic locations with virtual driven activities allow DVRT to take customer experience to the next level. ✓

Partnering with hotels groups and stakeholders in the leisure travel industry all over the globe, finding your next stay is a breeze.

2 THINKING A TECHNOLOGICAL INNOVATION

2.1 SUGGEST A NEW FIRM IN A DEFINED INDUSTRY: DEXTY'S VR TRAVEL (DVRT)

2.1.1 Industry and technology introduction – Defining Virtual Reality

In a vintage classification, Virtual Reality is described by (Steuer, 1992:4) who stated that VR is, in essence, a medium, like television or the telephone. This medium is defined in terms of technological hardware in the form of head-mounted displays, motion-sensing gloves and headphones. As defined by (Ryan, 2001:3), VR is a computer-generated, three –dimensional field where we can experience and expand our physical and sensory abilities, leave our bodies and view ourselves from the outside. Virtual Reality will allow us to adopt new identities, be able to modify the

environment through verbal commands or actual gestures and see creative thoughts instantly materialised.

Relentless innovation that produces technological change affects nearly every business industry. Proactive companies do not wait for change to happen but take smart decisions and put measures in place to take advantage of changing environments and externally developed technologies (Veugeliers *et al.*, 2010a:335).

As postulated by Brockley (2004:2), in recent years, we have seen a confluence of technology that portends significant impacts on business strategies and product development. Brockley (2004:2), in recent years, we have seen a confluence of technology that portends significant impacts on business strategies and product development. (Veugeliers *et al.*, 2010a:335). In addition to specific knowledge about their industry, leaders of the near future would need to understand the flow of technology and incorporate this technological innovation flow into their businesses.

These technological innovations also spilt over into the travel bookings and hospitality industry. Travel reservations can be made directly on the websites of service providers such as hotels or through online travel agencies (OTA's). These OTA's then aggregate the services provided by many tourism and travel-related firms. Travel related products such as airline tickets, hotel rooms and holiday packages can be booked through online and social media platforms. It is estimated that the global market value of the online booking segment of the travel industry is around \$1,09 billion (Talwar *et al.*, 2020:2). The hospitality sector, especially the hotel industry, is the fastest-growing segment within the hospitality industry.

2.1.2 Technology and the travel industry

Travel agencies, like any other firm in any industry, are operational in an ever-changing business environment. The growth of the Internet has created the opportunity to alter marketing strategies enabling marketing to customers in a variety of ways. The innovation brought about by the Internet also poses several threats to the traditional business model for travel agencies as airlines and hotels are marketing their offers directly to customers through online platforms (Standing & Vasudavan, 1999:21).

Veugelers *et al.* (2010b:336) posits that in the technology identification process, two key questions need to be addressed: what are the technologies that are out there; and which technologies fit my company? To answer these questions, companies need to establish the current state of technology in their industry (define baseline technology) that allows for the continuous and efficient updating of the firm's current technology as well as the detection of new and emerging technological developments. In addition to this initial scanning process, companies also need to scan for technology adoptions by their competitors to define competitive technology intelligence.

The technology intelligence process' output for DVRT is a set of technology intelligence profiles on new disruptive technologies. Travel agencies are well-defined industries, standing on the brink of the 4IR. Virtual Reality is one of the upcoming technologies of 4IR. Combining these well-established industries and the upcoming technology, we suggest a travel agency that utilises VR as their innovative technology. Virtual Reality will give this company its competitive advantage. ✓

2.2 DESCRIPTION OF THE FIRM TO BE ESTABLISHED

2.2.1 DEXTY'S VIRTUAL REALITY TRAVEL (DVRT)

Virtual Reality tours have emerged as a saviour for the wanderer at heart, offering potential travellers a peek into national parks, museums and to entire cities (Guha, 2020). Using a VR headset, potential travellers can experience a first-hand virtual feel of their next holiday destination. Dexty's Virtual Travel Agency will offer potential travellers a novel, end-to-end VR experience to assist in planning their next trip abroad. Through the use of VR headsets, DVRT will enable their travelling customers to become acquainted with the virtual surroundings of their entire trip. The end-to-end virtual experience will span the virtual visit to the business lounge of the airport, the business class comforts of the airline, to the hotel group's luxury suite for executive travellers (Morris, 2016). These VR services offered by DVRT will offer potential customers a glimpse of the actual scenery and comforts they can expect from their actual real-life trip. ✓

Digitization and the tremendous opportunities brought about by the Internet, allow Travel Agencies like DVRT to link their customers with their final destinations, airlines and resorts before they commit to the booking.

Products

Virtual travel agencies (VTA's) such as DVRT, designs VR tours of hotels, restaurants and holiday activities that are linked to the VTA database, where prospective clients can experience them. The product offering is to obtain a virtual tour of your planned holiday to assist in your selection process and confirmation decision. Customers can take detailed virtual tours of their activities and accommodation (Morris, 2016). Through DVRT's VR platform, you are connected with companies (hotels, resorts, restaurants) all around the world by merely putting on your VR headset/phone. VR tours are immersive by nature, they ignite the imagination and create an emotional connection for the user. The product offering of DVRT allows for the creation of an A-list of possibilities. Clients can then take virtual tours of the locations, destinations and countries of choice, creating that A-list in the comfort of their homes and prioritizing real-world visits to a select few. Virtual tours ultimately make the world smaller (Morris, 2016). VR enables customers to experience a virtual trial run before they book their holidays, a practice that is becoming increasingly important because of travel circumstances shaped by COVID-19 (Guha, 2020).

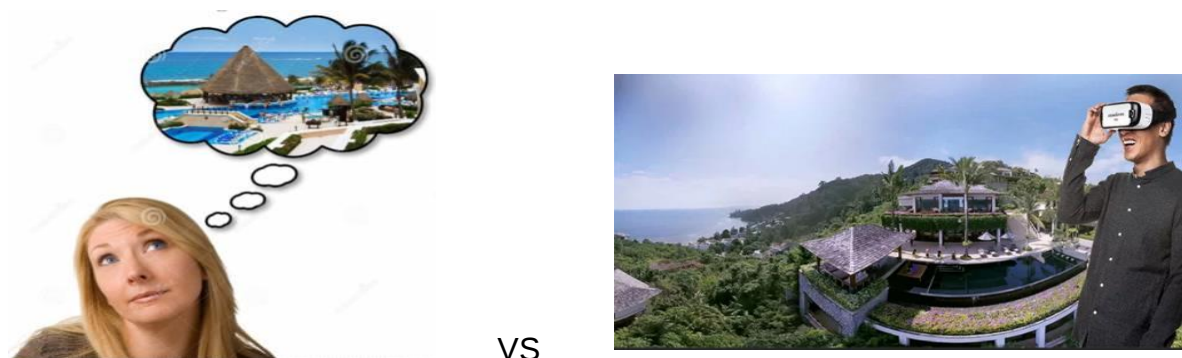


Figure 1: Dream vs Reality holiday planning

Customers

Virtual Reality can be utilized for solving and easing consumer uncertainty. Consumer uncertainty is one of the biggest challenges and concerns for tour operators. On the other hand, it can serve as an opportunity to bring VR into the decision-making platform. It can be utilised as a supplementary means to clear doubt

associated with booking, giving the travel companies an edge in the process (Guha, 2020).

The customers associated with DVRT's business model will include:

- business and leisure travellers (the core customer)
- Airlines and general tour operators (the logistics customer)
- Hotel groups/ Guesthouses, Game lodges (the accommodation customer)

Virtual Reality is believed to be the next-generation computing platform (Morris, 2016).

Competitors

Virtual reality travel is not, or a recently established technology, various tourist destinations have introduced VR to assist the traveller to make a final decision. VR has been incorporated into games, travel destinations, iconic tourist attractions and daily operated apps. VR is already implemented in various tourism attractions with some highlighted below (Joseph, 2020; O'Donnell, 2019):

- The Grand Canyon VR experience – priced at \$2.99 and through Immersive Entertainment allows for a virtual motorised kayak ride through the Canyon. The tour can further be tailor-made by selecting sunlit or moonlit experiences.
- Realities – is a free application from Realities.io—the VR travel app allowing the user to explore scanned and modelled real-work environments. Locations have been captured with specialised scanning equipment adding virtual reality effects and not just a mere photo experience.
- VR Museum of Fine Arts – is free from Finn Sinclair, the app allows a museum tour at your own pace without limitations of how close you can stand from the paintings. With a real experience complete with museum pamphlet to assist in the navigation, you will be able to experience Monet's water lilies to Michelangelo's David.
- Google Earth VR – available for free from Google, will allow you to be able to see everything from your home to your favourite travel destination. This application is the only one that incorporates comfort features in order to prevent travel sickness.

- Rome Reborn: the Pantheon – created by Flyover Zone specialising in cultural heritage sites and monuments. Accompanied by two virtual guides tourist can explore the exterior and interior sanctuary for only £3.99.
- The great pyramids of Egypt – available for free utilising Samsung VR channel, YouTube VR app and AmazeVR tourist can experience the great Pyramids with full commentary and background providing fascinating and immersive insights into the experience.
- World traveller – based on the Budapest video game, challenges players to figure out in which city they are based. Progression to the next game level will teleport the player to a street or location anywhere on earth and require them to figure out the destination.

VR travel is an established technology, therefore keeping customers, products and competitors in mind during the technology acquisition process is of utmost importance. The focus of DVRT will be mainly focused on establishing a service for the existing travel industry with the main focus being airlines, major hotel groups and adding extra value to current travel agencies.

3 DEXTY VIRTUAL REALITY TRAVEL - BUSINESS PLAN

3.1 TECHNOLOGY ACQUISITIONS

Technology acquisition implies the transfers of technology, including transaction cost associated and encountered in the various stages of the technology acquisition process. The process of acquiring technology can be done in various ways by incorporating various steps and processes (Fartash *et al.*, 2018:1498; Mortana & Ford, 2012:4). According to Norling *et al.* (2000a:27), the agreements provided during the acquisition process assists in more efficient ways for a company to obtain access to intellectual property that can be incorporated during the production of a product.

According to Mortana and Ford (2012:4), the following are vital aspects of the technology acquisition phase:

- Identification of attractive technologies and partners with technological capabilities;
- Assessment of identified opportunities, selection of the most promising ones and with in-depth consideration of the terms of the acquisition;
- Negotiations of terms between acquirers and sellers;
- Transfer of the technology to the acquirer, after successful negotiations.

3.1.1 Acquisition Context

A structured approach forming part of the business plan will assist the reduction of complexity. This will reduce possible scenarios and ensure that those involved remain objective whilst focussing on the most critical questions (Fartash *et al.*, 2018:1500).

Some of the essential critical questions asked during the acquisition phase of DVRT development was:

- A. Why do we need to acquire the technology?
- B. Whom are we going to acquire the technology from?
- C. How will the maturity of the technology affect the acquisition options?

A. Why do we need to acquire the technology?

The motivation for acquiring technology can primarily affect the kind of technology the organisation is looking for. Four types of motives have been identified by Mortana and Ford (2012:4):

- Motivation 1: Developing new technological capabilities
- Motivation 2: Increasing strategic options
- Motivation 3: Gaining efficiency improvements
- Motivation 4: Responding to the competitive environment.

M1: Develop Technological Capabilities

The fundamental motivation for the acquisition of external technologies is the constant need to develop new technological capabilities and to fill gaps. The gaps can be taken in various forms, either internal or market-related. The aim is further to fill possible gaps in the R&D knowledge base present (Fartash *et al.*, 2018:1497;

Mortana & Ford, 2012:6). The objectives can include gap-filling in the existing product line with consideration to create and establish a new brand or a brand new product can also take place, like in the case of DVRT.

As a new company, DVRT has identified a gap in the technological capabilities in the travel industry. New technology will be created in a well-established industry that has evolved and incorporated technology advances presented.

M2: Increase Strategic Options

The main benefit of acquisitions is the possibility to improve the strategic flexibility of the organisation by increasing the internal technological capability, giving more strategic options and allowing the selection of the best available technology (Mortana & Ford, 2012:6).

A key motivation for DVRT is the improvement of a technological capability that will provide solutions and strategic options. Various partners will be evaluated to establish the best fit for the organisation but also to increase overall incorporation and implementation of the DVRT travel technology.

M3: Gain Efficiency Improvements

The organisational need to innovate more rapidly is a critical motivator for technology acquisitions in order to reduce the time before hitting the markets. One of the main reason to involve outside knowledge, skills and existing technology features is to reduce the cost and time. Technology acquisition can reduce this and in the process will the organisation become more responsive to market demands (Fartash *et al.*, 2018:1499; Mortana & Ford, 2012:6).

The massive momentum and drive of the 4IR globally will force DVRT to reduce the time before hitting the travel industry. The knowledge, skills and existing technology features provided by outsourcing and getting key partners involved will save much time.

M4: Respond to the Competitive Environment

Rapid technology changes and fast-moving competition in the market encourages the requirement and consideration of technology acquisitions. This will help the organisation to feel less vulnerable and on the other hand, more competitive. The

utilisation of partnerships, collaborations and outsourcing instead of internal in-house activities are becoming a more viable option (Mortana & Ford, 2012:6).

Outsourcing critical aspects of the technology design and implementation will save time and money, partnering with vital well-established organisations like Google travel,

Samsung, major airlines and hotel groups will not only increase capital income but will also provide credibility for the product.

B. Whom are we going to acquire the technology from?

The acquired technology can be sourced from various sources and can include private companies, universities and government agencies (Mortana & Ford, 2012:8).

The compilations of sources can differ from a single company, more than once and can be in the form of a consortium. For optimal work, performance is its utmost importance to understand the characteristics of the potential partner.

The following critical questions need to be asked and evaluated to determine the best suitable technology source to be used (Mortana & Ford, 2012:8):

- What kind of organisations can one consider as a source for technology?
Samsung, Google travel, Google Earth VR, VR technology software firms like Zone fly over, Realities.io.
- What are their key characteristics?
Must be well-established companies looking to acquire a new line of technology
Must be credible in their respective industries
- What is the organisational motivation for providing technology?
Building on their brand
New income source
Job creation
- What alternative partnering options could we consider?
A joint venture, buying out established technology

- What level of maturity is the current technology?
Google and Samsung have matured technology that is well established in the market. They have the resources and capital to further invest in this new technological innovation.
- What will the level of maturity be at the end of the acquisition?
DVRT will have a low/young maturity when trying to establish this innovation alone. When partnering with key partners will a much higher level of maturity be achieved at the end of the acquisition.

C. How will the maturity of the technology affect the acquisition options?

The acquired technology will require further development. The level of 'maturity' will guide the utilization of the acquired technology. The 'maturity' level refers to the amount of work needed to bring it up to the required level, whether it is a new scientific phenomenon or whether it is nearly market-ready. The maturity level of the technology is significant factors to consider in the context phase of any technology acquisition.

The 'maturity' level is measured by making use of reference scales implemented by NASA and are regularly used in aerospace innovations. An alternative method is the Science, Technology, Application and Market model (STAM). The STAM model sets out the technology innovation process in the following basics steps: scientific underpinnings, the development into technology, leading to an application and finally introduces into the market. Depending on the maturity level of the technology, will the knowledge transfer mode varies from the beginning of the collaboration to the desired final development stage (Mortana & Ford, 2012:10).

3.1.2 Acquisition Evaluation

Three main factors can be utilised once the technology is identified. This process will assist in ensuring that the acquisition will meet the required needs. The three main factors to consider are (Mortana & Ford, 2012:15):

- The company's ability to absorb and utilise the technology – absorption capacity refers to the ability of an organisation to evaluate, appropriate and make fair use of external knowledge sourced. Superior absorptive organisations will be more innovative and profitable due to their ability to select or deploy resources effectively. This will specifically relate to the level of technical knowledge, experience in acquiring technology and its R&D capabilities.
- Compatibility of you and your potential partner – also referred to as 'due diligence'. This critical first step concerns the motives between partners and what measures than can be put into place to limit knowledge exchange. This process will involve various fundamental principles like the shared strategic vision on alliance aims, compatible alliance and corporate strategies, the potential for the alliance to add value for customers and technical capabilities.
- Suitability of the technology to cater to the identified needs – the final step in technology suitability to be determined. Essential factors to be considered include potential commercial value. Intellectual property is another vital factor to consider via collaborative development modes (alliances, consortia or joint ventures).

3.1.3 Acquisitions Options

After the evaluation process is the identification and evaluation of the various available options for regulating and managing the acquisition of importance, critical areas have been identified as focus points to consider (Mortana & Ford, 2012:28). Each of the points will be discussed below.

Future Technology Development

Current technology must be evaluated, especially with the establishment of a 'gap' in the market. Further future technology development should be evaluated based on gaps in the market (Fartash *et al.*, 2018:1500). With existing VR technology and applications available, DVRT aims to target a gap in the industry. In most cases, the technology is immature and needs further enhancement and developed to the required needs. This can be done on three different or collaborated forms (Mortana & Ford, 2012:28):

- Internal development – when acquired technology fits into the organisation's product line, a higher degree of control would be required, and therefore internal development would be preferred.
- External development – when an alternative development patch is required due to the detailed specifications, external developers would be preferred. External development would also be preferred when the internal cost for development is too high.
- Co-development – when more stable but strategic long-term collaborations are required, knowledge and skills would be passed between the parties. This time and the resource-sensitive option would be viable for DVRT due to the internal resources, knowledge and Intellectual property gathered during the design of the technology innovation.

Contracts and Relationships

The technology protection of all parties involved and the establishment of relationships with partners need to be put in place. DVRT will incorporate resources, knowledge, skills and technology of established partners in the industry and therefore, special consideration to be spent on the establishment and protection of relationships via contracts.

The form of the relationship varies according to the technology transfer requirements and can be presented in various forms from a straightforward contract for R&D to a joint venture (Mortana & Ford, 2012:28). Regardless of the relationship, it will be governed will the form of a formal contract, designed to protect the parties in the transaction. It will further ensure profitable relationships for all. Various contractual forms need to be considered, but Corporate Venture capital (CVC) is most often used to manage high-potential acquisitions, new technologies by start-ups or small firms. This allows a firm to maintain a high degree of flexibility and to withdraw from the investment if the set expectations are not met (Mortana & Ford, 2012:31).

Ownership of Intellectual Property

Existing IP titles and patents are also to be considered when acquiring the technology. In most cases IP can be used as a 'currency' or 'bargaining chips' to avoid or limit delays. The ownership of intellectual property (IP) is a critical point of debate. Intellectual property ownership can be categorised in three different forms (Mortana & Ford, 2012:35).

- Individual Ownership: The IP can belong to one party only
- Joint Ownership: The IP can be shared between the parties who collaborate to develop it.
- Public Ownership: The IP can be owned by everyone and donated to the public. In which case, legal rights by all parties are excluded.

Technology exploitation

The main aim would be to develop an innovative service utilising new information and technologies in order to create a source of income, profit and other organisational benefits (Fartash *et al.*, 2018:1497). The timing and implementation of technology exploitation are of utmost importance, especially in the case of high-technology firms. With opportunities knocking and closing at a rapid pace, the early access of know-how or resources to enable fast exploitation is of importance. According to Fartash *et al.* (2018:1499), the obtaining of resources for exploitation are most effective when collaboration between partners are taking place. To ensure effective and profitable returns, DVRT will investigate the collaboration with suitable partners.

Technology intelligence/ identification (TI)

As defined by Norling *et al.* (2000b:23), TI can be defined as information that is business-sensitive and relates to technological developments that can influence a company's competitive position. Capturing TI is more than technology scouting, but a structured process that involves four essential steps:

- Planning and organizing of competitive information

- The collection of intelligence information
- Data analyses
- Utilizing intelligence data for action

The first objective for DVRT would be to set up a data-gathering strategy using libraries to search for relevant literature on technological changes brought about by VR in the travel industry. Secondly, a technology assessment group involving DVRT's employees needs to be set up. These employees need to have good forecasting skills and would be responsible for scanning the competitive landscape. The key idea of the strategy is to assess how far competitors are with a similar VR offering to that of DVRT.

The consideration and evaluation of the mentioned issues are more speculative than the assessments made during the evaluation process. Frameworks and checklist are available to assist the consideration of all the issues involved. Key points will be shortly highlighted in the section below.

3.2 BUSINESS MODEL DEVELOPMENT & IMPLEMENTATION (BMDI)

Digital transformation forms a vital part of all companies worldwide and involves in-depth discussions about topics ranging from social analytics networks, mobile telecommunications or other similar phenomena (Blaschke *et al.*, 2017:122). Digital transformation has significant effects on business architecture, especially in areas like strategy, business models, organisational processes, portfolio solutions, and technology competencies. Therefore the re-designing of a business model is of utmost importance, necessitating business leaders to have a systematic in-depth approach (Blaschke *et al.*, 2017:122).

To assist organisations, SAP addressed the shortage of information resources and delivered a Business Model Development & Implementation (BMDI) program, based on the business model canvas designed by Osterwalder (Blaschke *et al.*, 2017:122; Osterwalder & Pigneur, 2010:44). The principle of Osterwalder was amended and altered according to the requirements of SAP. This allowed the organisation to

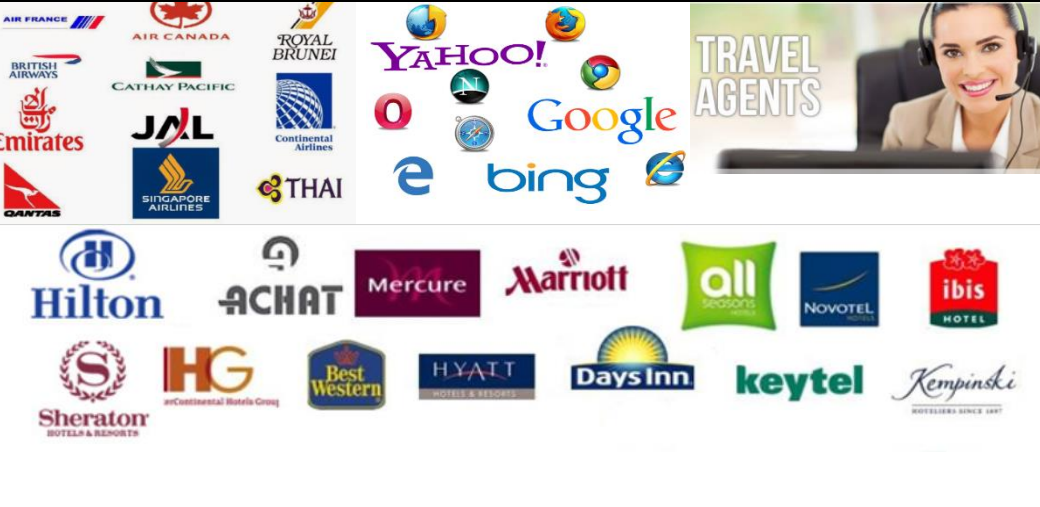
further build on the business model in order to answer internal requirements during their business technology development phase. This methodology aims to assist organisations to adapt business models to fulfil future demands brought about the continuous and accelerated changes in business technology (Blaschke *et al.*, 2017:122). An updated BMDI and new technology innovations neither guarantee future business success nor increased revenue. The benefit of a business model innovation is that it can provide more sustainable market success (Blaschke *et al.*, 2017:123). Insights into business models increase attention into practice and research with regards to the focus on new technology or innovation.

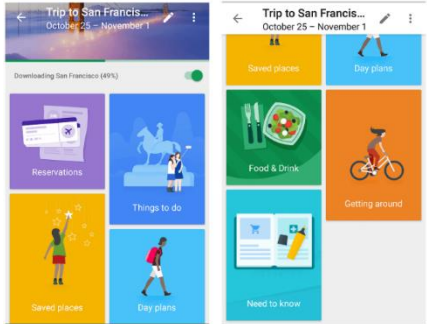
For this study the Business model canvas of Osterwalder, as adjusted by SAP was used as a basis to establish and to answer critical aspects including the following (Blaschke *et al.*, 2017:123; Osterwalder & Pigneur, 2010:44):

- What value propositions are offered? ✓
- Whom will the customers be?
- How operations will work
- Why the business model seems financially interesting?

3.2.1 Business Modal Canvas for DVRT

The following business model canvas has been compiled for the purpose of illustration of key focus areas identified during the establishing of the firm DVRT.

Strategic partners	 • Internet search engines, airlines, hotels, and travel agencies provide
---------------------------	---

	digital resources to clients	
Key Activities	- Analyse customer data in order to provide optimal service (add insert linking to new Dexty VR travel) - Kontiki Tours ✓, VR Group Tours - Mass participation tours (virtually drinking coffee with friends under the Eiffel Tower)	
Value propositions	<i>Innovation, customization, convenience, risk reduction, and brand/status.</i> - Cloud-based apps and information - On-demand services and information - Accelerated decision support - Move related travel info to abstract resources - DVRT incorporated into Google Maps ✓ and new app (application) development for private/individual use - Income from advertising opportunities - Premium DVRT subscription to agencies, hotels, individuals - Bridge gap between the unknown travel destination and the Reality - Experience the destination before investing money to go there	
Customer relations	- Cloud-based networked customer relationships - Better knowledge of customer needs and interest - Cloud integration provides customer profiles - Allowance for virtual experience from inside the plane, to the suite at the hotel. ✓ - Allow for more detailed pictures of customers wants, needs and interests - Star Alliance airlines – Miles & More loyalty program	

Customer segment	• Target market: any person who would like to travel to any destination around the globe. • Digital key element – Data • Ability to target micro-segments including individuals ✓ • Aggregation of customer data assisting profile generation (Google search of travel destinations, assisting in shortlisting country/ travel destination options) • Digital consumers with smartphone preference incorporating VR headset technology
Key Resources	• Virtual software development • Business package compilation ✓ • Internet • Networks
Channels	• Training centre for travel agency personnel • Customers can access anywhere, anytime • Internet (website) • Promotions through social-media ✓ • Smartphone, VR headset • Computer/technology devices 
Cost Structure	• Value-driven cost structure • Travel agencies packages for VR access ✓ • Packages priced according to country popularity • Individual google packages available • Data usage benefits for Google 

Revenue Streams

- Package deals to:
 - Airlines
 - Travel agencies,
 - Hotel groups
- Individual packages
- Advertising packages
- Data allocations
- Availability of customer profile information (most searched countries)





Country	Arrivals	Country	Arrivals	Country	Arrivals
France	81,000,000	Turkey	14,000,000	Malaysia	10,000,000
USA	81,000,000	USA	10,000,000	Russia	10,000,000
China	70,000,000	Germany	10,000,000	Hong Kong SAR, China	10,000,000
Spain	20,000,000	Russian Federation	10,000,000	Ukraine	10,000,000
Italy	10,000,000	Malaysia	10,000,000	Thailand	10,000,000

Table 1: Business model canvas

4 HOW TO IMPLEMENT AND MANAGE A TECHNOLOGICAL INNOVATION

4.1 REQUIRED RESOURCES

There are two main types of resources needed in any company to succeed. The first one is human resources, and the second is technology resources. Both types have overlapping similarities, and thus for DVRT have been collaborated into the following:

4.1.1 Technology resources

With regards to technological resources, Krar *et al.* (2020:5) state that there are various critical types of resources needed:

People

The axiom is that peoples' need for technology will drive the technology that will be invented.

In analysing the labour force needed for this project, the following distinctions can be made and will require the following skill sets:

- The first important participant will be the CEO, who will lead and inspire the development of the virtual reality program.

- Project managers will be appointed to make sure the project runs according to our schedule (using instruments such as a Gantt-Chart)
- System administrators will be required to make sure the product functions correctly.
- The business needs software developers for programming or to train companies buying our VR program to use the technology.
- As a Benchmarking activity, Quality controllers are essential to make sure the products are on par with opposition products and to help improve our product experience.
- Lastly, the salespeople will be needed to convince a travel agency to buy our virtual reality program so they can improve the service to their clients.

Information

Technology has three critical aspects that must be covered, namely, data collection, analysis, and recording. When businesses have access to this information, it is easier to make informed decisions for strategy implementation. Data collection would be a starting point to assess consumers' purchasing behaviour. The second step will be to analyse the information received from the market research and lastly record the findings. The analysis will shed light on the problem and will give strategic thrust for the business to re-plan for future success.

Capital

The main resource focus for DVRT will be to secure the capital required to develop and produce the virtual reality software and devices. It is imperative to identify the investors and investments that are needed. Making use of the issuing of redeemable shares can help the business acquire the required capital for technology development.

- *Redeemable shares*

The company can buy back the shares that they issue to shareholders at a later stage.

If shares are not the desired means of financing the business and project, it is possible to borrow money from financial institutions.

4.2 THE PROCESS TO SUPPLY RESOURCES

A joint venture is the collaboration of two or more businesses consolidating resources, time and expertise to achieve organisational strategic goals whilst expanding products and business growth (Bilotkach, 2019:38). Various travel agencies and airlines like Thomas Cook, the Co-operative Group, Midlands and Air France-KLM have established joint ventures to ensure technology and market optimisation (Baxter, 2019:19). Bilotkach (2019:38) postulates that a joint venture between airlines has become an integral part of the business due to high operational cost, optimisation of marketing strategies to keep and maintain the competitive advantage. A further benefit is an increase in product quality through the coordination of internal expertise. Bilotkach (2019:38) postulates that a joint venture between airlines has become an integral part of doing business due to high operational cost, optimisation of marketing strategies to keep and maintain the competitive advantage. A further benefit is an increase in product quality through the coordination of internal expertise (Bilotkach, 2019:39).

A joint venture will benefit DVRT with different marketing and distribution channels, for example, indirect or direct distribution channels. Dexty VR Travel can make use of an indirect distribution channel, for example, Producer-Retailers-Consumer, this means that DVRT can get the product into different travel outlet stores to sell the product and make it easily accessible for customers.

Various types of joint ventures exist that are specific to the needs of all organisations involved. Dexty VR Travel will co-operate in a limited and specific way, and this means that DVRT as a start-up business can make use of joint ventures with Sure Travel and others to sell the product through their distribution network. Dexty VR Travel understands the benefits and risks of entering into a joint venture to strengthen long-term relationships. It will be more cost-efficient to market and distribute through the avenues already established, rather than create it from afresh.

Making use of joint ventures with tourism agencies and development teams will help DVRT expand and help to create virtual reality travel options. Division teams will help to create a platform. Hotels, flights, and other suppliers will provide the content we need to put into our virtual reality software and to make use of the technology in their environment.

In DVRT's Business plan, it is essential to manage the cost structure involved when considering a joint venture. A few key aspects are:

- Travel agencies packages for VR access
- The pricing of packages according to the country popularity
- Individual Google packages available and data use benefits for Google.

4.3 TIMING OF INNOVATION AND LAUNCH APPROACH IN PORTFOLIO MANAGEMENT

The timing of innovation implementation is a critical factor to be considered, and according to Beckett and O'Loughlin (2016:33) can influence the success or failure of new start-up aiming to promote innovative ideas.

According to McGuire (2020), a marketing plan is a report that outlines your marketing strategy for the coming year, quarter, or month. Aspects such as overview, goals, objectives, and advertising must be included in a marketing plan, a timeline to indicate the tasks at hand, and to make sure they are completed on time. Lastly, it is crucial to understand the customers, their needs and how to advertise to our target market.

4.3.1 Marketing Plan

There are 7P's in the marketing plan. Dexty VR Travel will focus only on the main 4P's, namely Price, Product, Place, and Promotion. Pistol and Țoniș Bucea-Manea (2017:759) define the steps as:

- **Product**

For any company, the focus should be on the development of the product they want to sell as various types of online products exist. Online products refer to the way a product was purchased and how it will be utilised afterwards (Pistol & Țoniș Bucea-Manea, 2017:759). Various factors can be considered during the development process of the product. The need to identify competitors is one crucial element.

Dexty VR Travel is designing a virtual reality program and creating a product that can be used by our travel agency and strategic partners, for customers to experience the virtual world of the different vacation destinations. This will be a crucial added benefit in the conclusion of their preferred travel destination, decision. The VR product envisioned a new unknown feature to the competitors we face (for example Rennies Travel, PentraVal, and Flight Center) in the sense that they have not created or implemented VR in their businesses. This will enable DVRT to be the first travel agency making use of this technology, aiming to become a business leader in the way travelling is presented to clients. This is an excellent business opportunity because the technology can be expanded into other businesses and sectors.

- **Prices**

The price of the product is essential. The business must calculate the unit cost of the product and add mark-up price to the amount based on the other 3P's (Pistol & Țoniș Bucea-Manea, 2017:760). If we have a long term vision, and the expected life cycle of the product, it could be essential to ask a lower price to attract customers and increase the price afterwards as the business grows and clients are satisfied with the product.

The product life cycle shows that there are four phases during the lifespan; the Introduction phase, in this phase, it is imperative to keep the pricing competitive. During the ramp-up and plateau phases, pricing can be amended to unlock value and tap into the market value of the industry. During the decline phase of the lifecycle, particular price adjustment would need to be made to allow for an exit strategy and the replacement by new products (Westphal, 2002:280). Dexty VR Travel will make use of value-based pricing techniques to extract the maximum

amount of value from the digital, high technology offering. Pricing strategies such as cost-based pricing and competitor based pricing will not be used as this offering is novel and allows for an incredibly unique value proposition: experiencing a VR tour from the comfort of your home.

- **Promotion**

Promotion is a crucial aspect of sales and relates to “telling the story”. Online direct marketing receives the best responses from online customers via internet promotions, targeted advertising via the various search engines and also utilising e-mail (Pistol & Țoniș Bucea-Manea, 2017:762).

Dexty VR Travel will use a primarily digital-driven promotion strategy to convince customers to use our VR product. Dexty VR Travel is a start-up company, and tapping into an established retail outlet network will allow for easy access to marketing channels through the distribution channel. The cheapest way but definitely the most effective way to do promotions today is social media; this will include Facebook, Twitter, Instagram, LinkedIn, YouTube, WhatsApp. Most people are using one or more of these social media platforms, and it is basically without cost. Marketing and advertising can be done with a link on our strategic partners/ joint ventures companies' websites that will redirect the consumer to the business's website to see the advertisement.

- **Place**

The place element of the four P's relates to the distribution model used (Pistol & Țoniș Bucea-Manea, 2017:762). Dexty VR Travel is an online company that allows customers the product experience right from home or during a visit to an affiliated travel agency. Dexty VR Travel can also go to different expos to show and sell the products to customers, to increase sales, but our main focus will be on advertisement so the product will be sold online. Dexty VR Travel will also leverage the joint venture partners, that can also assist us to sell our products through the joint venture, and making use of their distribution channels.

4.4 HOW TO MANAGE CHANGE

The goal of innovation management is to cultivate a suitable environment to encourage innovation that allows the firm to react to external or internal opportunities and use its resources to introduce new ideas/processes or products (Altamony *et al.*, 2016:690). Creativity is the basis for innovation management; the end goal is a change in service or business process. Innovation management can be viewed as an integration of firm, technology, and market. Innovation can either be a pushed-process of finding uses for existing technology or a pull-process, finding areas where customer needs are not yet met and finding solutions for those needs (Nieminem, 2018; Noronha, 2016).



In every business, the change will happen, and your business and team have to adapt to this change. Change can be anything from leadership, mergers, products, or even employees. According to, change can lead to unexpected developments, and leaders must show the team how to deal with change. If the business can divide the expectations and responsibilities of the team, it will help them to set up an action plan to achieve the goals of the business.

According to(Perkins, 2019) are there 8-ways to manage a team through change:

Organizational design

The management team sets an example for employees to deal with the transformation of the business. The business must compile a report or SWOT-analysis where the strengths, weaknesses, opportunities, and threats are shortlisted. The skills, experience and knowledge of each person, are to be introduced and analysed to assist the company to move into the visioned direction. Dexty VR Travel will have to assess the situation for change to make sure that the employees of the business have the necessary skills, experience, and knowledge to deal with the change and also be able to do the new work.

Change management

Dexty VR Travel will have to deal with situations where employees are refusing change because of the changes that need to take place, and they are not uncertain of the outcome. Effective communication during the change process is of utmost importance to ensure employees understand and to keep the morale of employees high. The collaborated result will increase innovative and creative employees.

Setting the course of the business

Leaders guide their employees at every step they take to help employees deal with the change occurring. The leaders will help the team to understand the vision that the business has with the change taking place. Dexty VR Travel needs to communicate with employees when dealing with change.



Team participation

Dexty VR Travel's leaders should be facilitators for change. Leaders should portray the behaviour they want to see from their employees, making it easier for them to deal with change.

Decision-Making Empowerment

Involving and allowing employees of DVRT to take part in the decision making and problem-solving process will encourage them to change. Their assistance and creativity in the process can assist in them coming up with possible solutions to problems that the business will face making use of different problem-solving techniques, for example, using the Delphi, Force-field analysis or a brainstorming session will help the business see the problem from different perspectives.

Talent as a motivator

Career goals and planning are critical aspects of promotion and career ambitions. Dexty VR Travel can use promotions as a critical aspect to make sure employees deliver quality tasks and help them grow as an individual so that they can evolve in their careers and achieve their personal goals.

Keep the Team Moving Forward

Businesses find it challenging to deal with implementing the change because of the people side and the emotions of people. DVRT needs to play an open hand with their employees to allow them to understand the change required.

Sharing the Success

DVRT's team needs to be made aware of the importance of change and their influence on the success of the change and making them see the importance of change.

4.5 NEW ORGANIZATIONAL STRUCTURE

The choices of an organizational structure could be a long or short command chain, a wide or narrow span of control, or a centralized and decentralized structure for making quick decisions.

According to Devaney (2019), an organizational structure can be defined by an illustration/organogram to understand the line of command and reporting. Organizational structures can use functions, markets, products, geographies, or

processes as their guide, and cater to businesses of specific sizes and industries. Various organisational structures can be utilised as listed below (Devaney, 2019).

Matrix Structure

In the matrix structure, the model will follow a dual reporting relationship that means a functional reporting line as well as a product base reporting line. It is a combination of different structures. Dexty VR Travel will make use of the matrix structure where we have different reporting relationships. Figure 2 represents DVRT's organogram.

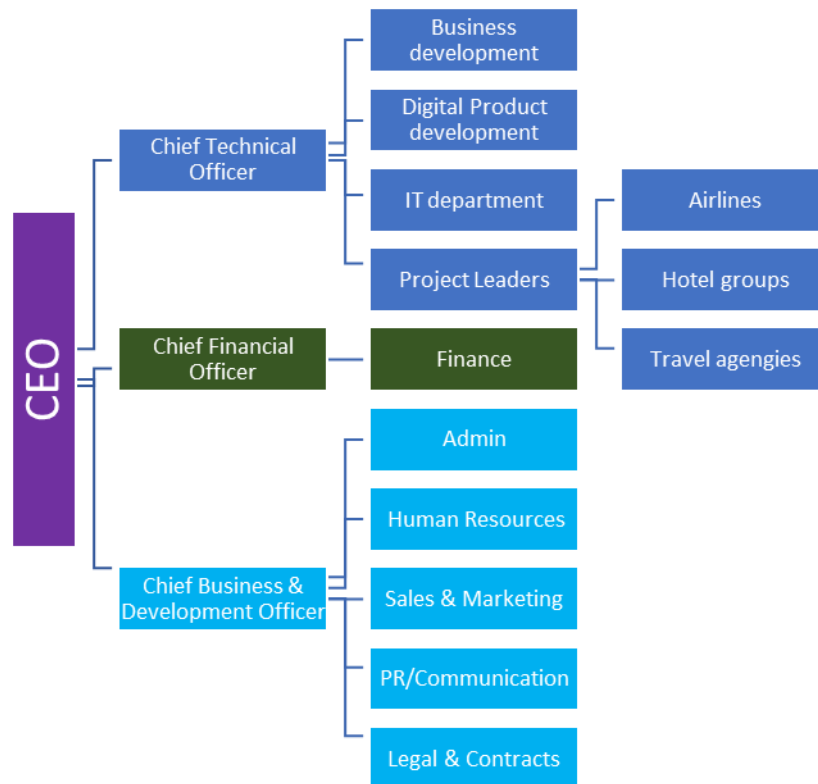


Figure 2: DVRT's Organisational structure chart

4.6 ORGANISATIONAL RESTRUCTURING TO KEEP FIRM INNOVATIVE

To maintain and ensure an innovative spirit within a firm, it is recommended that “Christensen’s theory” be prevented. Christensen’s theory postulates that firms’ resource allocation methods discourage investments in potentially disruptive technologies. This theory relates that disruptive technology produces products that are smaller, cheaper and more convenient to use than traditional products (Kouziokas, 2016:110).

A simple platform to support an innovative culture and drive innovative ideas would be the creation of an annual “Innovation Award”. This would reward any employee, irrespective of work level to contribute to new ideas that could support the firm’s technological development and relevance in a rapidly changing business environment.

Innovation can be referred to as a combination of crucial skills to be implemented in order to accomplish business and product objectives. The end goal would be to treat innovation like any other business discipline (Noronha, 2016). Innovation capabilities form a crucial part of driving sustainable organisational transformations in the current turbulent business environment experience (Van De Wetering *et al.*, 2017:71).

The main focus for keeping an organisation innovative would be the careful structuring of innovative capabilities within the organisation by establishing classifications of innovation. Two distinct forms have been identified: incremental and radical innovation (Van De Wetering *et al.*, 2017:72). Incremental innovation refers to the organisation's ability to generate innovations that will add benefit and refine and reinforce existing products and services. Radical innovation can be described as refinements of the existing products, services delivered, or technologies applied. The key contributor to innovation is to find the sweet spot where all three capabilities overlap to enhance innovation within an organisation (Van De Wetering *et al.*, 2017:74).

4.6.1 Technology Roadmap

The technology roadmap (TRM) has its origins in technology-intensive product-based organisations and is just as applicable to service-based companies. The technology roadmap is a method that ensures that investments in technology are aligned with the needed development capabilities that are needed for the exploitation of upcoming opportunities (Wells *et al.*, 2004:47).

A technology roadmap is a communication tool that is used to help with making strategic decisions. Technology roadmap integrates strategic business context and technology considerations to identify technologies that have the most potential to meet the goals of the business (Wells *et al.*, 2004:47). Technology roadmap helps with planning and coordination at a strategic level, enabling senior managers to

make suitable technology investments (Kerr & Phaal, 2020:119967; Wells *et al.*, 2004:47).

Roadmaps consist of various forms, but usually has a time-based chart that links technology development or investment to products and markets (Pearson *et al.*, 2020:2; Wells *et al.*, 2004:47). Using expert opinions from different sectors of business, roadmaps look forward from the present to create a future prediction that can answer specific questions (Kerr & Phaal, 2020:11967; Wells *et al.*, 2004:48).

The best roadmaps merge technology-driven and needs-driven perspectives. Technology pulls and pushes perspectives, charts particular technology developments to identify future product opportunities and customer needs. In identifying the pull and push perspectives, companies can identify in which technologies to invest (Wells *et al.*, 2004:48).

A TRM provides a framework for organizing and presenting important technology planning information. The TRM aids technology investments and coordination across the business (Wells *et al.*, 2004:49). According to Wells *et al.* (2004:49), the results of road mapping depends on particular business goals, products, services and available resources, knowledge and information and communication aims. Therefore, road mapping is applied differently within each organisation. The employment of a technology roadmap will align your IT projects with your strategic long term plans (Patrikos, 2020). Patrikos identifies six steps to create a roadmap. Keeping these six steps in mind, DVRT designed their roadmap based on information gathered during the compilation of the research of new technology innovation. The information below is based on the DVRT business plan and presented in Figure 3 below:

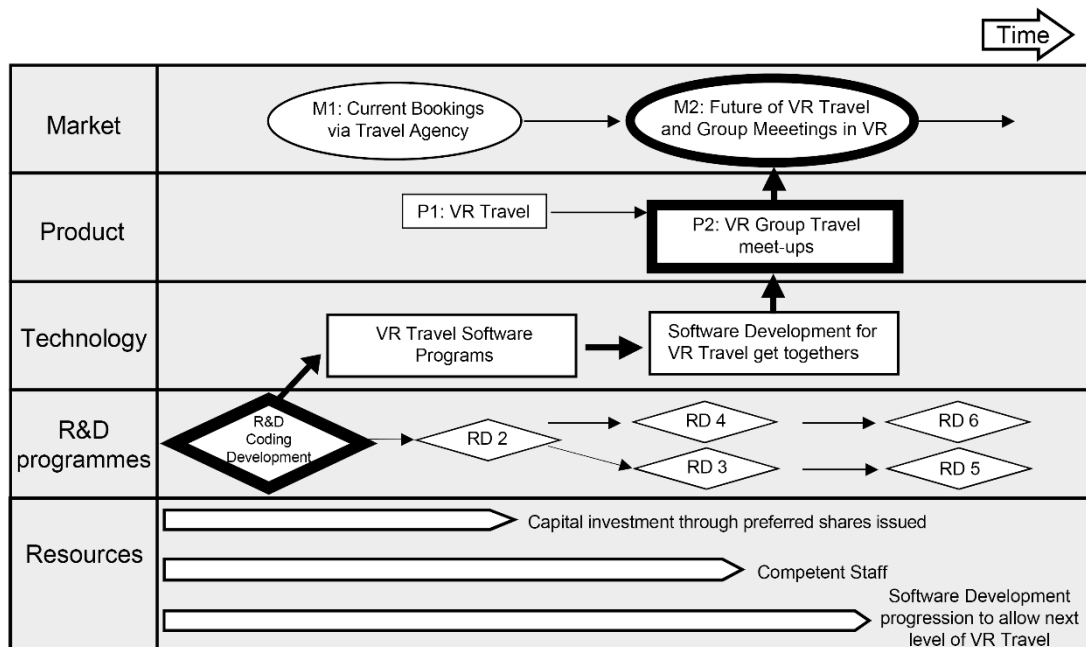


Figure 3: Dexty VR Travel Technology Roadmap

*2
3

The information presented in Figure 3 above is a representation of DVRT technology roadmap. The information presented is further elaborated in the points below:

1. Identify your strategic objectives

Online Business, Virtual tourism, Linking with strategic partners, Internet-based company.

2. Plan for the future

Older innovations: Apps, YouTube channels, website and social media presence.

New Innovations: VR Stores, VR Agencies, VR Tour groups, VR Social gatherings.

DVRT aims to make available social experiences where friends from all over the globe can meet and go on virtual tours together, for example, have coffee together underneath the Eiffel Tower.

3. Define your functional needs

Old structures: Buildings and offices which are slowly becoming absolute and inefficient and can only be accessible in the office area. An online company is accessible from anywhere and at any time.

Current technologies: The Internet via websites, social media and Youtube.
The new technology: VR.

4.Measure the cost

Given the immature nature of VR travel, accurately defining the cost structure for business planning is complicated.

5.Establish a realistic timeline

Given the fast pace of technology innovation, the perceived future state of VR travel could be obtained in a timeline of 5 – 8 years.

6.Appoint an IT steering committee

DVRT will, in conjunction with HR, will set up a committee for support as needed.

5 CONCLUSION

The tourism industry undeniably has progressed in massive strides over the last 40 years. The involvement of the tourist customer in the planning, scheduling and booking of flights and hotels in various destinations have developed and will keep on changing and developing in the near future. In line with the eagerness and curiosity, the new opportunities of VR will bring new insights into the way people make their final travel decisions. Long gone are the days where a mere printed photograph or internet picture will keep tourist intrigued.

Although VR is at no cost new to the tourist industry will it undoubtedly change the way forward. Regardless of current technologies, there are gaps in the market that will enable the technology enthusiast to further create and enable technology to become a profitable tool.

The principles of management of technology as stated by Fartash *et al.* (2018:1498) form crucial pathways and give clear guidelines to be followed during the identification, selection, acquisition, exploitation and protection during the

establishment of new technological innovation. In a competitive market, the utilisation of the technology management process frameworks of utmost importance. It is a matter of protection, utilisation in order to ensure survival. Technology innovations are a constant phenomenon, ever-changing and ever-evolving. ✓

REFERENCE LIST

Altamony, H., Al-Salti, Z., Gharaibeh, A. & Elyas, T. 2016. The relationship between change management strategy and successful enterprise resource planning (ERP) implementations: A theoretical perspective. *International Journal of Business Management and Economic Research*, 7(4):690-703.

Baxter, G. 2019. Capturing and Delivering Value in the Trans-Atlantic Air Travel Market: The Case of the Air France-KLM, Delta Air Lines, and Virgin Atlantic Airways Strategic Joint Venture. *MAD - Magazine of Aviation Development*, 7(1):17-37.

Beckett, R.C. & O'Loughlin, A. 2016. The impact of timing in innovation management. *Journal of Innovation Management*, 4(3):32-64.

Bilotkach, V. 2019. Airline Partnerships, Antitrust Immunity, and Joint Ventures: What We Know and What I Think We Would Like to Know. *Review of Industrial Organization*, 54(1):37-60.

Blaschke, M., Cigaina, M., Riss, U.V. & Shoshan, I. 2017. Designing Business Models for the Digital Economy. In Oswald, G. & Kleinemeier, M. (Eds.). *Shaping the Digital Enterprise: trends and Use Cases in digital Innovation and Transformation* (pp. 121-136). Switzerland: Springer.

Brockley, E.M. 2004. Emerging technology intelligence: scanning and monitoring for strategic planning. Massachusetts Institute of Technology.

Devaney, E. 2019. 7 Types of Organizational Structure & Whom They're Suited For [Diagrams]. <https://marketinginsiders.com/7-types-of-organizational-structure-whom-theyre-suited-for-diagrams/> Date of access: 18 Oct. 2020.

Fartash, K., Davoudi, S.M.M., Baklashova, T.A., Svechnikova, N.V., Nikolaeva, Y.V., Grimalskaya, S.A. & Beloborodova, A.V. 2018. The Impact of Technology Acquisition & Exploitation on Organizational Innovation and Organizational

Performance in Knowledge-Intensive Organizations. *Eurasia Journal of Mathematics, Science and Technology Education*, 14(4):1497-1507.

Guha, A. 2020. Is virtual reality the future of travel? <https://travelandynews.com/is-virtual-reality-vr-the-future-of-travel/> Date of access: 16 Oct. 2020.

Joseph, P. 2020. 10 of the best virtual reality travel experiences. <https://www.travelmag.com/articles/virtual-reality-travel-experiences/> Date of access: 18 Oct. 2020.

Kerr, C. & Phaal, R. 2020. Technology roadmapping: Industrial roots, forgotten history and unknown origins. *Technological Forecasting and Social Change*, 155:119967.

Kouziokas, G.N. 2016. Technology-based management of environmental organizations using an Environmental Management Information System (EMIS): Design and development. *Environmental Technology & Innovation*, 5:106-116.

Krar, S., Gill, A., Smid, P. & Gerritsen, R.J. 2020. Technology Of Machine Tools. 8th. New York: Mcgraw-Hill.

McGuire, S. 2020. What is a Marketing Plan and How To Make One? <https://venngage.com/blog/marketing-plan/> Date of access: 20 Oct. 2020.

Morris, K. 2016. The future is now: Virtual Reality tours will revolutionize commercial space. <https://www.morrissegroup.com/the-future-is-now-virtual-reality-tours-will-revolutionize-commercial-space/> Date of access: 16 Oct 2020.

Mortana, L. & Ford, S. 2012. Technology acquisitions: A guided approach to technology acquisition and protection decisions. Cambridge: UK: University of Cambridge Insitute for Manufacturing.

Nieminem, J. 2018. What is the difference between "disruptive innovation", "radical innovation", "discontinuous innovation" and "breakthrough innovation?". <https://www.quora.com/What-is-the-difference-between-disruptive-innovation-radical->

[innovation-discontinuous-innovation-and-breakthrough-innovation](#) Date of access: 7 Sept. 2020.

Norling, P.M., Herring, J.P., Rosenkrans Jr, W.A., Stellpflug, M. & Kaufman, S.B. 2000a. Putting competitive technology intelligence to work. *Research-Technology Management*, 43(5):23-28.

Norling, P.M., Herring, J.P., Rosenkrans Jr, W.A., Stellpflug, M. & Kaufman, S.B. 2000b. Putting competitive technology intelligence to work. *Research-Technology Management*, 43(5):23-28.

Noronha, L. 2016. What is the difference between a sustaining innovation and a disruptive innovation? <https://www.quora.com/What-is-the-difference-between-a-sustaining-innovation-and-a-disruptive-innovation#:~:text=A%20sustaining%20innovation%20is%20an%20incremental%20innovation%20that,few%20years%20or%20decades%29%2C%20displacing%20an%20earlier%20technology>. Date of access: 7 Sept. 2020.

O'Donnell, A. 2019. 7 Great Virtual reality Travel experiences: Try VR to fulfill your bucket list without leaving the couch. <https://www.lifewire.com/virtual-reality-tourism-4129394> Date of access: 15 Oct. 2020.

Osterwalder, A. & Pigneur, Y. 2010. Business model generation: a handbook for visionaries, game changers, and challengers. Hoboken, NJ: Wiley.

Pastrikos, J. 2020. IT strategy: 6 steps to creating your technology roadmap. <https://www.bdc.ca/en/articles-tools/blog/it-strategy-6-steps-creating-your-technology-roadmap> Date of access: 27/10/2020.

Pearson, R.J., Costley, A.E., Phaal, R. & Nuttall, W.J. 2020. Technology Roadmapping for mission-led agile hardware development: a case study of a commercial fusion energy start-up. *Technological Forecasting and Social Change*, 158:120064.

Perkins, T. 2019. 8 Ways to Manage A Team Through Change.
<https://www.glassdoor.com/employers/blog/8-ways-manage-team-change/> Date of access: 18 Oct. 2020.

Pistol, L. & Țoniș Bucea-Manea, R. 2017. The „7Ps”&”1G” that rule in the digital world the marketing mix. *Proceedings of the International Conference on Business Excellence*, 11(1):759-769.

Ryan, M.L. 2001. Narrative as virtual reality. *Immersion Interactivity in Literature*.

Shu, L. 2017. The best VR apps for travel. <https://www.digitaltrends.com/virtual-reality/best-vr-apps-for-travel/> Date of access: 15 Oct. 2020.

Standing, C. & Vasudavan, T. 1999. Internet marketing strategies used by travel agencies in Australia. *Journal of Vacation Marketing*, 6(1):21-32.

Steuer, J. 1992. Defining virtual reality: Dimensions determining telepresence. *Journal of communication*, 42(4):73-93.

Talwar, S., Dhir, A., Kaur, P. & Mäntymäki, M. 2020. Barriers toward purchasing from online travel agencies. *International Journal of Hospitality Management*, 89:1-7.

Van De Wetering, R., Mikalef, P. & Helms, R. 2017. Driving organizational sustainability-oriented innovation capabilities: a complex adaptive systems perspective. *Current Opinion in Environmental Sustainability*, 28:71-79.

Veugeliers, M., Bury, J. & Viaene, S.J.T.f. 2010a. Linking technology intelligence to open innovation. *Technological forecasting social change*, 77(2):335-343.

Veugeliers, M., Bury, J., Viaene, S.J.T.f. & change, s. 2010b. Linking technology intelligence to open innovation. 77(2):335-343.

Wells, R., Phaal, R., Farrukh, C. & Probert, D. 2004. TECHNOLOGY ROADMAPPING FOR A SERVICE ORGANIZATION. *Research Technology Management*, 47(No. 2 (March–April 2004)):46-51.

Westphal, L.E. 2002. Technology Strategies For Economic Development In A Fast Changing Global Economy. *Economics of Innovation and New Technology*, 11(4-5):275-320.

Results

q4.4 = 5

figure 3 = 3

General Marks = 68

Total = 76

Feedback

- *1: Managing change was well explained and the 8 ways briefly explained
- *2: figure well explained