

**Digital Transformation with Design Thinking.**

**Case study for a micro sized destination management company**

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<p>Change and evolution will continue forever, and human being will find a way to adapt to the changes. However, digital revolution changed the rules of businesses around the customers, competition, data, innovation and value. The digital evolution changes are intangible, non-physical, very new to the world and more than the amount that humans can deal. This makes digital transformation difficult and scary especially for the smaller and micro sized companies. These companies have less opportunities in their nature of operating in small market, in limited location with smaller revenue. They do not understand what has been happening in digital world, what to digitalize, what technology to use and how to lead this change.</p> <p>Digital transformation is strategy, business plan, change management, obtaining, managing data and building a digital brand. Different approaches with innovative solutions needed for digitalization process. Design Thinking is the tool for defining the problem and finding the most desirable, valuable and feasible solution.</p> <p>The aim of this study is to discover essential of digital transformation, design thinking and to show that design thinking can be applied to smaller scaled companies to start their digitalization journey. Design Thinking approach applied to a case company by conducting several workshops. As a result, this study created a digital transformation roadmap along a content map, defining the value proposition and strategy development plan.</p>	
<b>Keywords</b>	
Design Thinking, Digital, Digital Roadmap, Digital Transformation, Innovation, Strategy	

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# 1 Introduction

## 1.1 Background

Change and evolution have been the case since ever, and the change will continue forever. Human being has always been part of these change and it has always found a way to adapt to the change. However, the sound of the digital change is very scary and difficult to manage. The reason is, the amount and the speed of the change is more than the amount that humans can deal with (Caudron and Van Peteghem, 2014). Before the digital era while the physical and tangible things have changed, with the digitalization intangible and non-physical things have been changing as well as the new areas introduced to the world.

These intangible changes explained in **four waves** as listed and illustrated in below (Caudron and Van Peteghem, 2014).

- The **first wave** is the new digital products or services.
- **Second wave** is the internet which removed the borders, time zone, and distances.
- **Third wave** is the social media which created crowd of people to share ideas, impact others, and bring a lot of people to same platform.
- **Fourth wave** is the mobile which increased the speed of the change enormously, reduce the time between request and response. The moment something happens, everyone knows it next second.

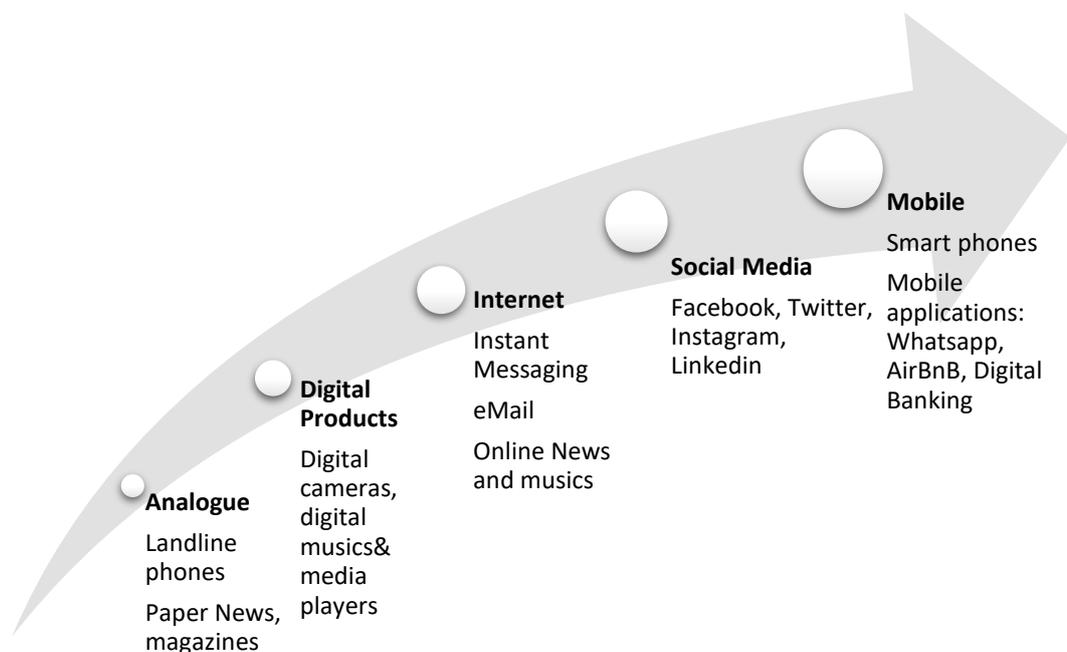


Figure 1: Digital waves (adapted from Caudron and Van Peteghem, 2014)

# Internet of Things & Artificial Intelligence & Machine Learning & Deep Learning & Robotics & Natural Language Processing & Block Chain

Figure 2: New wave in digital era

Below diagram illustrates some of the well-known digital platforms that appeared disruptively and took place in digital revolution (Medium, 2018) (Wikipedia, 2019). It is clearly showing that in last few decades many disruptive digital products & businesses were born.

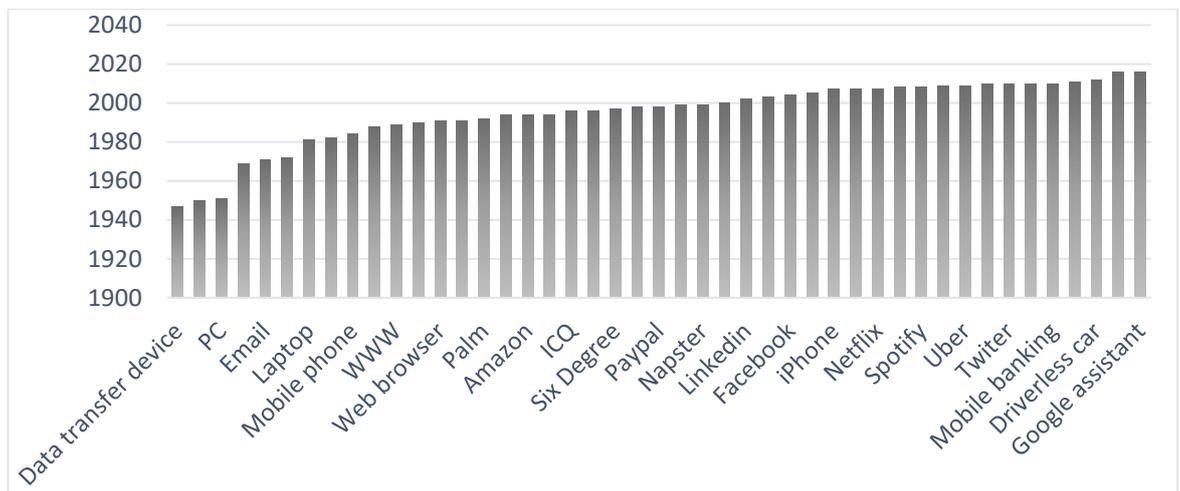


Figure 3: Digital revolution

Now we are offered countless of interesting, high quality and similar solutions. The providers can globally access to their consumers without geographical boundaries. This brings its own challenges such as how to distribute, how to provide a service in several languages and what kind of price model to adopt. Hence, the digitalization impacted many areas and not only the technology.

The digital transformation waves that defined by (Caudron and Van Peteghem, 2014) also changed how the people think, feel and perceive the world. While the technology is rapidly changing and advancing more than ever, the value delivery, customer expectations are changing and developing too. Probably another challenge is delivering a simple, easy to use, easy to access product or service with latest advanced technology.

Most of the big companies and organizations have seen this change already long time ago and they have already been transitioning to adapt to this new world. This change is not a one-time action for any organization but lifetime and continues several activities as the disruptive technologies emerge. It is almost impossible for any organization to survive in the current world without using the new and smart technologies, business processes, learning and adopting the new ways of working cultures.

Large and medium organizations have the possibility to follow up the new trends, create new strategies and reach to the new technologies. However, this is not the same for small businesses or start-ups such as Kalabalik Travel who is the case company of this study. Kalabalik Travel is one of the 267,447 micro sized companies in Finland. These micro sized companies own 1 to 9 employees including the owners. While the 93.2% of all the companies are micro sized companies, 1.2 % of them are large and medium companies. The turnover of these large and medium companies is € 260 bn and micro sized companies is only € 70 bn (Yrittajat.fi, 2019). These micro sized businesses are less fortunate to adapt new methods and technologies compared to large companies.

Digital transformation is more than using latest technology or recruiting the best people. In every aspect of the digital transformation, new and innovative solutions are needed. Design thinking is the tool to generate innovative ideas and solutions. Hence, the digital transformation and design thinking goes hands in hand.

## **1.2 Objectives and Motivation**

Companies and Organizations can understand their current position, where the world is now, follow the trends, shape the future and plan a strategy to reach aimed position.

However, the small businesses cannot easily reach to the new technologies and even some of them are not aware of what is happening in the world.

Purpose of this study is to discuss the essentials of digital transformation and design thinking, find out how to help small businesses or micro sized companies to transform digitally with the help of design thinking methods. It will also try to show that it is possible to help small businesses to find out what would they need to do for catching the pace of the digital era.

The objective of this study is to help even small businesses to reach out new hot trends, create their own visions and establish a sustainable future.

### **1.3 Research Questions**

#### **RQ1 - What is digital transformation/revolution?**

Digital transformation is more than technology or more than transforming organization tools to modern ones. Digital transformation is strategy, management, branding and mind-set.

#### **RQ2 – What are the pitfalls and problems of the small businesses that prevents them from digitalization?**

Small businesses are usually built of few people and they are mostly occupied with their day-to-day works. Technology changes so fast and it is sometimes hard for people to follow the trends. In this condition, it is hard for small businesses to spare time and money and change their mind set.

#### **RQ3 - How to help small businesses to reach new technology, create their strategies and become more digital?**

The methods and processes that were used by big organizations can be adapted and used by small business. Such as design thinking principles and methods.

### **1.4 Scope**

This study will discuss about essentials of digital transformation and design thinking. Using the design thinking tools and methods, will try to help a micro sized case company to start implementing a digital transformation roadmap understanding the needed steps of digital transformation strategy development.

## 2 Methods

Different Design Thinking methods and tools used as the research and development approach in this study. Below figure illustrates the 5 stage of the design thinking and the tools used during the workshops as design thinking activities. These tools are necessary to spot the best solution idea from understanding the user, defining the problem, ideating the solution, prototyping the solution and to testing the solution.

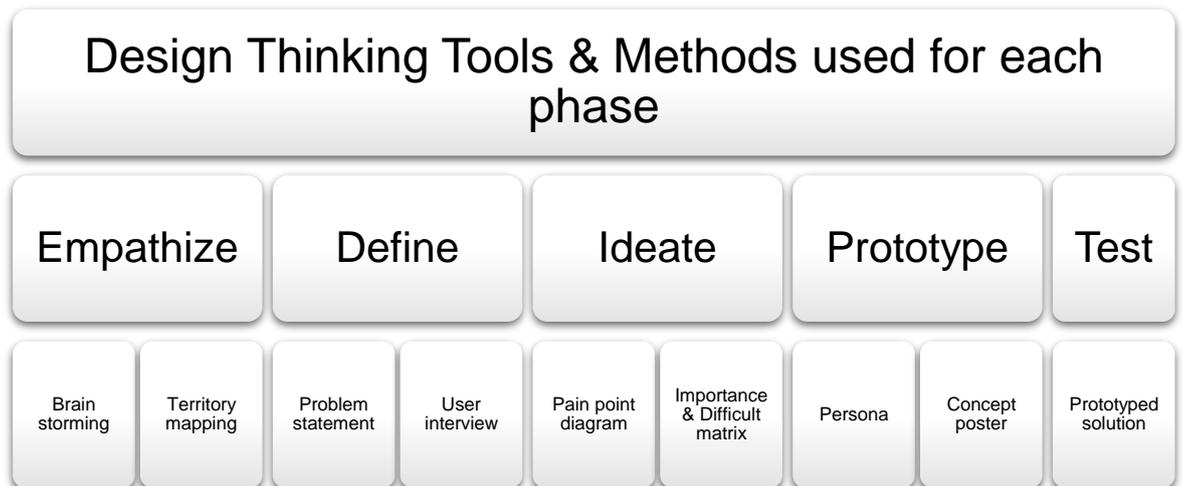


Figure 4: Design thinking tools & methods used in this study

### 2.1 Tools

Below table lists all the tools that used together with the case company during the workshops. Description of the tools described according to their usage in this study. However, they can be used and applied to other problems differently. For instance, important & difficulty matrix is used here to identify priority of the user actions and the level of difficulty and performing those actions. It can also be used to identify how important and difficult is implementing a feature.

Tool	Description	How to?
Brain storming	Generates a lot of ideas with collaborative effort by focusing on one problem at a time. It is fun, cheap, quick, team building and	We started with identifying the problem and set a defined and limited time in order to prevent criticizing the ideas before they are born. We tried to answer who, what, how, why and where questions. We used very simple and

	creates a greater acceptance.	basic tools such as post-its and colored pens.
Territory mapping	It is a creative thinking process where the ideas or topics gathered in a group.	We gathered the outcomes of the brainstorming session in meaningful groups such as 'branding', 'costs', 'activities' and 'customer relationship management'.
Problem statement	Defining and framing the design challenge in a concrete way in question format of "How might we..." It should be not too broad but not too narrow either.	We needed to evolve the problem statement for few times as we narrowed down the scope.  While our first problem statement was " <i>How might we make attending to conferences, congresses more easier and fun for the organizations</i> " we finalized it as " <i>How might we improve attending academic events experience of low budgeted academicians</i> "
User Interview	User interview is a technique to collect feedback and learn about the user experience.	We asked users to provide their experiences about attending an academic event starting from hearing about the event, registration, reservations, event itself, transportation, activities until coming back home.  We did not list specific questions or did not limit the channel (email, WhatsApp message, voice message, phone call...) for delivering the response. We also did not limit the language of the response.
Pain point diagram	Expressing the customer experience in the customer journey with human feelings, such as happy, sad	We went through the user experiences that gathered from 4 participants and highlighted those experiences as painful, good and

	and normal. It helps to identify what are the problematic or improvement areas.	informative. Based on those, created pain point diagram to understand what can be improved in potential customers journey.
Importance & Difficult matrix	A simple 2x2 matrix of contrasting priority & importance forces of the listed items to measure the tension.	It is a visualized view of the priority of the touch points and the level of difficulty to perform those actions in the customer journey.
Persona	Persona is a character profile to gather features of an existing target assuming that it represents the social needs, desires, habits, cultures and background. Persona creates visibility of the center of the design activities.	Persona created based on the outcomes of the user interviews combining different user experiences in a single profile.
Concept poster	It visualizes the essence of the solution idea and why it matters. It is a useful tool to start prototyping phase as well.	This is where we visualized our solution around the problem by naming the target users, core functionalities, value proposition as well as the risk we considered as might cause a failure. This is used as building prototype of the selected core functionality.
Prototype	A simple simulation of one of the core functionalities which helps designers to collect feedback from the real users. This is a trial and error with several revisions.	We prototyped the <b>Event View</b> to test the idea and collect early feedback from the real user.

Table 1: Used tools and their descriptions

## 2.2 Workshops

Below table lists the workshops, scope, performed activities with the case company, participants and their roles in the workshop.

Workshops	Scope & Activity	Participants & Roles
Empathy & Definition workshop	In the first workshop we applied the brainstorming, territory mapping and problem statement tools of the design thinking and this workshop held in two sessions.	Sebnem Jarventaus, Kalabalik Travel, client of the case study  Özlem Gürsel, case study project manager, workshop facilitator
Ideation & Prototyping workshop	Second workshop held in two sessions. In first session we discussed and planned how to gather user experiences and defined interview candidates. In second sessions, we applied the pain point diagram and important & difficult tools on the gathered user experiences from the four interviewees.	Sebnem Jarventaus, Kalabalik Travel, client of the case study  Özlem Gürsel, case study project manager, workshop facilitator
Testing workshop	Testing session held in one session together with a test user. Before the session, we prepared a prototype of the selected core functionality in simple paper form and presented to the test user to observe his experience.	Sebnem Jarventaus, Kalabalik Travel, client of the case study  Özlem Gürsel, case study project manager, workshop facilitator  Test user, academician

Table 2: Workshops with the case company

## Workshop rules

There are specific rules that need to be followed during the design thinking workshops. These are also discussed and agreed between the participants during the workshops.

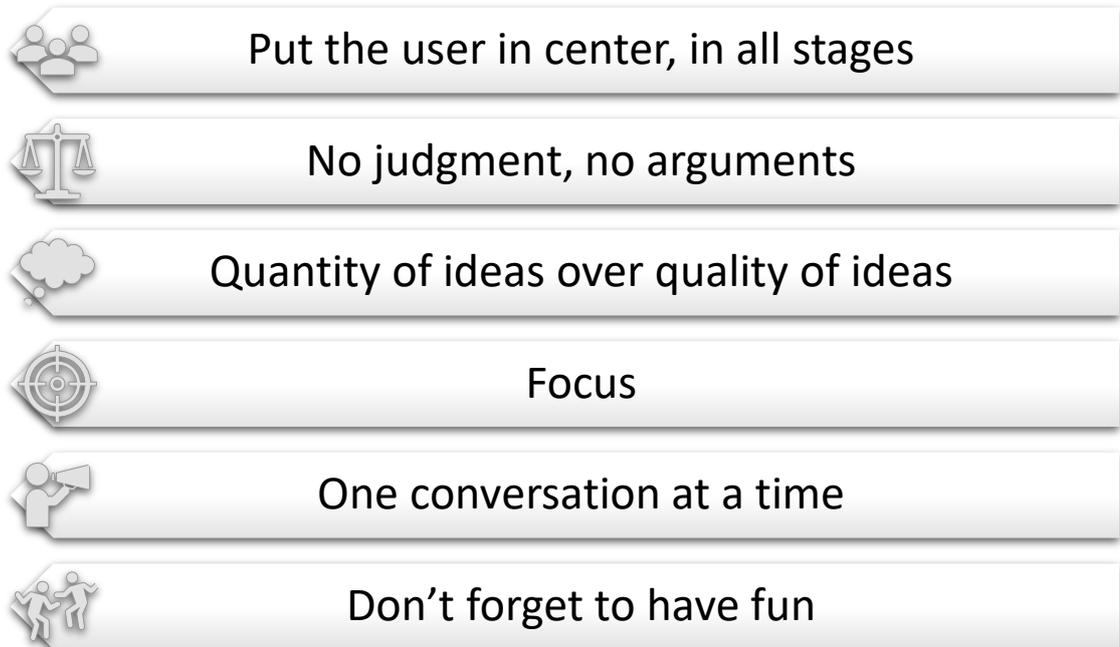


Figure 5: Workshop rules

### 3 Digital Transformation

*“Digital used to be about coding and IT; now it's becoming a people business”* Mary Kate Loftus (American Banker, 2019)

Digital Transformation is described by (Uhl and Gollenia, 2016) as; *“a specialized type of business transformation where IT plays a dominant role. In the digital age, new business opportunities arise, and enterprises transform their strategy, structure, culture and processes using the potential and power of digital media and the internet”*.

In the last few decades technology has been changing and evolving faster than ever. These changes are impacting from the life of the biggest organization to a regular person who walks on the street. We have started talking about big data, cloud, mobile, internet of things, smart devices, artificial intelligence, social media, analytics and block chain. However, all these things are linked to each other, they feed each other, and they improve & develop each other.

The digitalization has given the best opportunities to both consumers and businesses. Such as, the consumers can be connected to anyone any time of the day. They do not anymore have to wait for store opening hours to buy a new TV but buy it from an eCommerce shop. They do not anymore have to go outside for renting a DVD, but Netflix, Amazon or many other digital movie platforms serves them in a few seconds any time of the day. Digital businesses give consumers full transparency and they are informed better than ever. In this environment, decisions of consumers are impacted by social media, immediate customer services, easier and cheaper shopping experiences. On the other hand, the businesses and organizations benefit from consumer generated 'big data', shape their market, discover potential customers and sell anytime and anywhere in the world.

All the companies regardless of their size, their business and either they produce product or service, should become digital sooner or later. If they choose 'later', the question is 'when will the digitalization hit them'? The traditional businesses, or new start-ups who do not know how to catch the pace of digitalization, should ask the most critical question. This question is not about the technology but strategy. How to implement a digital strategy?

#### 3.1 Digital Strategy

The traditional description of strategy is the long-term direction and scope of actions of an organization. Strategy aims to meet the expectation of stakeholders while creating an advantage over competitors by using the capacity (resources and competences) of

organizations. Strategy has vision which is the place or state in the future where the organization targets to be. Strategy also has a mission, the reason of its existence and how to get where the organization wants to be. Strategy needs a business model where the product or the service of the organization defined, information flows and the roles of the participants are defined. Finally, the strategy monitors actions of itself to make sure that everything is under control (Johnson, Scholes and Whittington, 2009).

Digital transformation is all about strategy rather than technology. Digital strategy involves openness to change, understanding customer centricity, willingness to learn, constantly producing innovative ideas and solutions, agility, ability to share knowledge, accepting failure and valuing the cooperation.

Steinbach suggests 4 implementation patterns to develop a successful digitalization strategy:

**First pattern** suggests businesses to implement a digital platform on top of the existing IT system environment. Implementing digitalization layer by layer would be a good start, such as integration bus, business process management platform and Big Data management layer.

**Second pattern** suggests defining personal digital enablement tools for personal productivity.

**Third pattern** suggests defining the digital systems for the top important departments, such as Salesforce for the sales & marketing.

Finally, the **fourth pattern** suggests creating a roadmap for transforming the whole business into a digital enterprise (Steinbach, 2014).

Rogers states that the digital forces are reshaping around the customer, competition, data, innovation and value strategies. These domains of the digital transformation are redefining the principles of the strategy and changing the rules of operations (Rogers, 2016).

In digital age, the **people**, who are the customers of businesses, are dynamically connected and constantly interacting. These people impact and change their relationships to each other and to businesses. While they are using the digital tools such as social media, mobile applications and smart phones their buying behaviors, habits of using product are changing as well. Therefore, the businesses are forced to rethink their customer relationships and marketing strategies. Businesses must see their customers not as a target to

sell a product but as a partner of their brands. Achieving to making your customer as a partner of your brand requires you to transform your customer experiences.

The high-level idea of a strategy is to become a **competitive** and a profitable. In old era while the companies competed with the other firms who offered similar products and services, they cooperated with partners to distribute their goods. However, in the digital era, the competition has been changed. Some of the partners of the old era became the rivals and some of the rivals of the old era became the partners. For instance, the partners used to distribute the products have started direct serving to the customers (Rogers, 2016).

**Data** is the most vital asset of any business and data strategy must not be missed while developing a digital strategy. The data strategy must focus on building a strong data asset which would need cooperating with data partners. The success of the data strategy depends on understanding the data value creation, analytics of big data, making decision based on the data as well as understanding the data security, privacy and constitutions about using the data.

**Innovation** must not be excluded from the digital strategy since the digitalization need innovative solutions. Generation innovative new ideas requires different approaches than the traditional product and service development strategies. Constant idea generation, testing their validity and experimenting customer involvement into the development processes ensure validating their success.

In order delivering the best **value** as the opportunities and needs of customers are changing by the new technologies, businesses must learn not to stick on a single value creation but adapt their value proposition in constantly changing environment. The value strategy must include understanding the different market values and position, analyzing the existing value, risks and defining the steps needs to be taken next.

### **3.2 Digital Business**

Digital business uses the digital resources inside and outside the company to create great value for customers (Sacolick, 2017). Sacolick suggests looking at the below attributes for better understanding the digital businesses. These attributes also help businesses to anticipate the need of digital transformation even their products are not digital, but they should drive digital service experiences.

- Digital businesses often use the subscription model to generate recurring revenue. Such as Spotify, its users subscribe to Spotify and pay monthly fixed amount to listen music rather than buying a single album or song.

- Some of the digital businesses do not own any assets but they allow individuals to use their own assets to provide a service. Such as Airbnb, does not own apartments or hotels, but apartment owners rent them through Airbnb.
- Some of the digital businesses provide services through algorithm-driven experiences. Such as Waze, instead of using a GPS device, it provides driving routes based on the users' inputs and traffic patterns.
- New cost structures and digital disruption markets. Such as Etsy, where the handmade product producers can freely demonstrate and sell their products with not owning a shop.
- Digital businesses use new digital tools for smarter, effective and efficient marketing and sales. They provide multichannel customer experiences, co-create with their customers and improve the quality constantly.
- They also use IoT and Cloud platforms to connect the physical and digital worlds to increase productivity and efficiency. Such as security cameras and smart meters.

Eventually the digital transformation must enable businesses automating their operations, generating revenue using digital capabilities and bringing new digital experiences and value to their customers (Sacolick, 2017).

### **3.2.1 Customer experience transformation**

(McKeown and Durkin, 2017) suggest organizations to look at inside of their businesses and review it to decide what they expect from it, to understand customer demand, market competition and to review the organization resources.

Organization must provide unique value proposition to their product or service users. The unique value proposition is not something to create internally by the organization, but it is something perceived by their customers up on experiencing their product or service.

(McKeown and Durkin, 2017) believes that organizations can create unique value proposition by clearly defining their ambition. Ambition is an idea and believe that the organization

wants to see what happens after applying their digital strategy. Ambition helps them to focus on customer, customer problems and their needs.

In the digital era now, organizations do not meet always their customers face to face but in most cases, their customers are globally distributed, and they use new digital channels to manage their Customer Relationships. There are no more borders or boundaries to deliver a product or service as used to be only few decades ago. Hence, understanding the customers in digital business is understanding their behaviors and understanding the things that impact those behaviors. Now people can easily reach to any information online, share a lot of knowledge and experience on social media. They make their own research before buying a product or service. They get an expectation of quality and price already before becoming a customer of any provider.

*“Don’t start from engineering, don’t implement something and then look for a market for it, rather start from the customer experience and work backwards to the technology” Steve Jobs (Forbes.com, 2018).*

Smaller to bigger companies or organizations it requires hard work, very good planning, strategy and marketing to sell their product or service to consumers. However, keeping those consumers as a customer, and meeting their increasing requirements is the biggest challenge. Poor customer experience has direct impact on business with poor satisfaction and decreased customer loyalty. This will also lead customers to reduce or stopping their buying.

Customer experience is a competitive advantage. Prove of knowing the customers is providing a unique and best customer experience, which can be achieved by using technology for instance data and analytics to understand customer behaviors and expectations.

### **3.2.2 Business model transformation**

*“Evolution is obvious. Everything started with products” (Streibich, 2014).*

Businesses generate value by producing products. The successful and the best products can produce high revenue, however these types of products become commoditized and the consumers no longer able to distinguish one from the similar offerings. Streibich suggest offering a service along the product. Therefore, offering a service can be a new field for the business or difficult to develop a smart service. Hence, transforming the business model into the digital one, is an inseparable part of the digital transformation.

Many areas of our daily lives are being digitalized such as shopping experiences, entertainment, personal lives, houses, education, public transportation, finance and banking and many areas that we are even not aware of. In the digital era, the business model elements have also been changed. The business model transformation is one of the challenging parts of digitalization. The challenge is that 'not knowing' the relevance of the business model in near future while everything is changing and evolving very fast than ever.

Business model defines how the business should identify and implement their operations. What are the key activities and resources; what value to propose to customers; who are the customers, how to communicate with those customers, and how to make money and be profitable. While defining the business model during the digital transformation, all the elements of the business plan should be defined very well.

Characteristics of customers, who's behaviors have been impacted by the social media and all other digital platforms should be understood and the customer segments should be defined carefully. A business delivers its value to the target customer groups through different channels. Cost effective and efficient channels, especially the ones that consumers use are digital channels such as eCommerce and other platforms that brings different people/organizations together.

Customer Relationship also transferred to the robot chats, self-services or automated services. While the customers become more knowledgeable and sensible, the close and human based relationship with the customers become distant. For successful and long-lasting business, companies must identify what type of relationship they want to establish with their customers.

Probably the most critical element of a business model is how to generate money. With the digitalization, the way of generating a revenue stream have been changed. For instance, subscription fees, service fees rather than selling product, or giving free service exchange of advertising.

Regardless of the area or size of the business, every company should run its internal works. These activities and effort are the business operations and includes the resources, processes, systems and anything makes the organization to continue functioning. Business operations are defined in the business model to capture how the organization will structure and use the internal processes and activities.

The first module of Saldanha's Five-Stage model of digital transformation is the Foundation, where the companies start automating those internal processes iteratively executing

and producing new innovative ideas. Automated business operations help business to create a foundation for future digital transformation. It helps saving money, generating more income and producing effective and efficient values (Saldanha, 2019).

### **3.3 Change Management and Leading Digital Transformation**

*“It is not the strongest of the species that survives, nor the most intelligent; it is the one most adaptable to change”* Charles Darwin.

Digital transformation is a business change and change need to be managed by understanding the behaviors and thinking of people. Organization’s decision will impact to different departments, teams and people hence it is important to develop digital mindset and be adaptive to the changes that will continue (Rowles, 2017).

A business which cannot innovate with the similar pace at the external changes, will be disrupted by the business who can catch the external changes. Many big companies have failed catching this pace even they were the market leader, such as Nokia and Kodak. However new era digital companies for instance Uber, owning no cars; Airbnb, owning no hotels; Facebook, owning no content were born digital and they keep growing. On the other hand, the companies such as Apple, Microsoft, Samsung stayed tuned in the digital era (Gibbons, 2019).

Leaders in digital transformation, must understand from the change management perspective what makes some of the companies to fail, and what makes other ones to sustain. Probably they should start asking, “how to change”. They must adapt “being digital” instead of using digital tools and software.

(Saldanha, 2019)’s first stage of the digital transformation includes the special commitment and ownership from the leaders. Digital technologies are new and fast changing, which requires special attention. Saldanha suggest never to outsource any problem, because always the failure of the digital transformation rooted back in the leadership.

People who are committed to lead digital transformation cannot delegate clarifying the business issues and spending time connecting the business issues to digital transformation strategies. Translating business goals into digital strategy is the key role of the digital transformation leaders (Saldanha, 2019). Depending on the size of the transformation, level of the manager can change. For instance, while automating small project process can be led by a manager, leading digitalization of a bank payment process need more and long experienced leader.

Leading a digital transformation is not only doing digital but acting digital and creating digital mindset. They must create right environment and condition, translate technical and business goals into digital strategy and constantly remove obstacles in order to enable digital transformation.

Not every leader must know how to automate ERP process or how to implement a website, however they must understand what the changing technologies are, what is big data or what is AI, what are the new possibilities and what are the digital trends. The leaders at least must have enough knowledge and skill to remove obstacles, must commit enough time and create digital mindset.

Digital transformation leads must know how to deliver big works in smaller iterative portions. They must well understand the different type of agile and lean methodologies for experimenting development in a smaller scale and testing them before launching any products to the market.

Digital transformation leads must be open to change, implement a customer centric approaches to the problems and willing to learn and share their knowledge. They must adopt innovative and agile methodologies, accept failure and know how to co-operate with others.

### **3.3.1 Culture and talent developments**

It is not enough to focus on the customer experiences, trying to offer services on several devices and every possible channel. Customer engagement and offering a unique service to customers lays on understanding the customers and their behaviors, which comes from big data and AI analytics. Big data analytics can find out what customers want, before the customers want. While this is crucial for digital transformation, developing a digital mindset, hiring the digital talents, creating a data-driven culture is essence of the digital transformation. Good digital strategy and best business model can help organizations to start their digital transformation journey, however implementing the transformation is much more important, and it can only happen by implementing specific culture and skills.

Rowles's the digital culture framework structures most important things that an organization needs in constantly changing environment (Rowles, 2017).

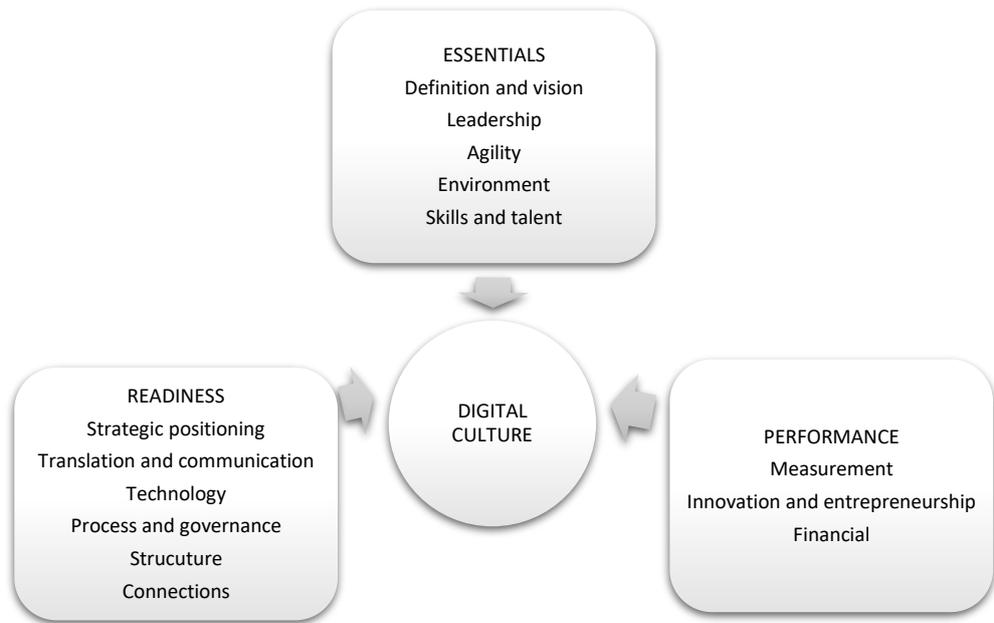


Figure 6: Digital culture framework (adapted from Rowles, 2017)

Organizations talk about ‘being digital’ and claim they are a digital company however most of the time the “being digital” and “digital transformation” are used synonymously, and (Gibbons, 2019) explains “being digital” as;

- Digital centralized vision and purpose
- Digital culture and mindset
- Customer experience and employee drives the value
- Disrupting your own business model
- Exploring platforms that increase the connectivity
- Systematic approach to opportunities.

Building a digital culture and agreeing what does it mean to everyone in the organization is one of the critical elements of digital transformation. This follows creating a simple and straightforward vision with clear outcome and will be understood by anyone in the organization.

Talent and culture change are mandatory, and it starts from employee experience with hiring practices. Along the digitalization, new professions have been growing such as data scientists, AI engineers, SEO specialists, digital marketing experts and automation specialists (Gibbins, 2019). According to the McKinsey Global Institution research, many jobs will be automated by 2030 and many jobs will disappear (McKinsey & Company, 2019). However new category jobs will arise, but this fast change will be overwhelming who must

learn new skills and it will be challenging for organizations to train existing employees. This is one of the important changes that needs to be planned and managed including both technical and psychological aspects. Organizations must understand what new skill they will need; will they hire new people and & or train current employees.

### **3.4 Digital Technology**

Some of the disruptive emerging technologies that impacted and evolved the digital technologies are

IoT, Big Data Analytics, Cloud Computing, 3D Printing, Robotics, Blockchain, Self Driving Vehicles, AI & Deep Learning.

#### **3.4.1 Cloud computing**

We hear “cloud” every day and it is one of the important parts of digitalization of big organizations. Cloud computing is a service which provides a network storage space and computer resources. Organizations use this service on subscription base and consume it as per the need. How was it before cloud? Organizations used to have their own server centers or room with high cooling systems, they were owning those servers and they were using their own resources (employee, electricity, hardware etc.) to run them. Whether they needed the full capacity or partially, they had to take care of and pay the full system.

Idea of cloud service enables businesses to have a storage over the internet and access from anywhere in the world with a device that can connect to the internet. Businesses using the cloud services do not have to maintain or administrate the consumed services. The capacity of those services is virtually infinite (Edureka Blog, 2018).

Cloud services divided in three different models as SaaS, PaaS and IaaS.

SaaS – Software as a Service

Cloud provides applications or software which can be accessed by a device and through a web browser or an application. For instance, a CRM service called salesforce.com provided on cloud, clients pay for cloud services, but the application is owned by Salesforce (Edureka Blog, 2018).

PaaS – Platform as a Service

Cloud Provider gives a platform service with possibility of deploying own applications using the provided programming languages and tools. Architecture, operating systems, storage and servers are provided by the Cloud Provider. Its user cannot control them

(Edureka Blog, 2018). This service is for developers. For instance, Google App Engine provides a framework on a cloud computing platform for web applications in Google managed data centers (En.wikipedia.org, 2018)

#### IaaS – Infrastructure as a Service

Cloud Provider gives a service of a virtual machine and similar other resources as a service. User can independently use any operating system regardless of their own OS (Edureka Blog, 2018). For instance, Amazon Web Service, like AWS EC2 which enables users to maintain the capacity in a very short time (in minutes) (Amazon Web Services, Inc., 2018).

### 3.4.2 Big Data and Analytics

In old era, the data generated through different types of planned methods such as customer surveys and result of these activities used for decision making. However, in this digital era the data is generated by every click of people on the internet, by their connection and interactions in social media, and by using their mobile applications. These not planned data generation is now the biggest assets of the businesses in order to make predictions and find out new values. The operations, place in the market and value creation of the businesses rely on the huge amount of 'big data' (Rogers, 2016).

Every customer is different than other; hence their behaviors are also different. Success of digital strategy lays on the customized, needs driven, unique selling offerings. However, how to customize a product or service for each of your customer? (Streibich, 2014) focus on successful mass customization, means that a new way of go-to-market strategy which needs a digital multichannel to customize all customer's products. Organizations should reach to customer information in real time, their wishes, problems, complaints, likes and dislikes. This information cannot be collected by any person or department. Hence, using Big Data analytics can help to collect these data and enable organizations to provide customized product or service to their customers.

We create everyday more than 2.5 quintillion of new data which comes from different sources and called Big Data (Edureka Blog, 2018). Google, Facebook, Netflix, Amazon and many other big companies build their business based on the big data. They collect big amount of data and they analyze, classifies, process data to perform analytics on them. Then, they visualize data to make decisions.

It is said that the Data is the new oil. Oil needs to be refined and processed to get gasoline or plastic that can produce a value and used as a product. As the oil, data is similar if

only it is refined and processed to get a real value. This is achieved by combining structured and unstructured data to get new insights to the business (Sato, 2018).

Big Data analyze is investigating huge amount and different types of data to find out unknowns and their correlations between themselves. Analyzing big data helps businesses to make better decisions, smarter forecast, understand customer behavior, reduce cost and produce better service or products. Hence, helps companies to develop and grow.

#### Important characteristics of Big Data

Below figure illustrates the characteristics of Big Data where the data grouped and organized to understand what type of data is in question (Edureka Blog, 2018).

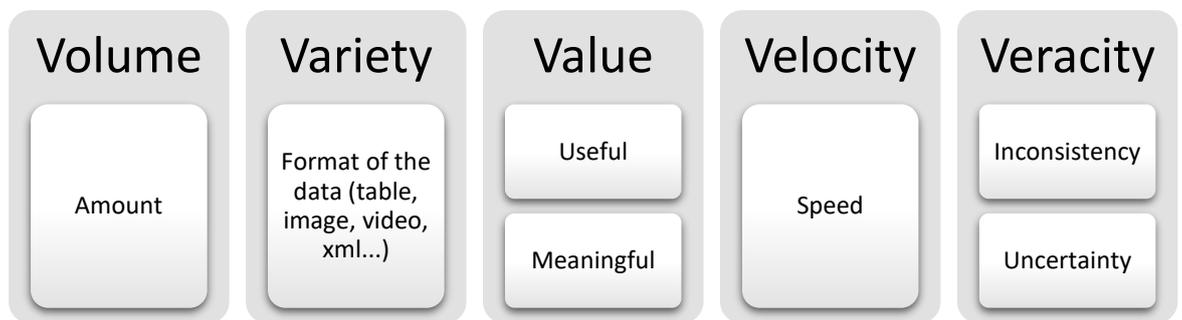


Figure 7: Characteristics of big data

#### Stages of Big Data analytics

Following figure illustrates the lifecycle of big data analytics. They are iterative or can overlap if needed (Edureka Blog, 2018).

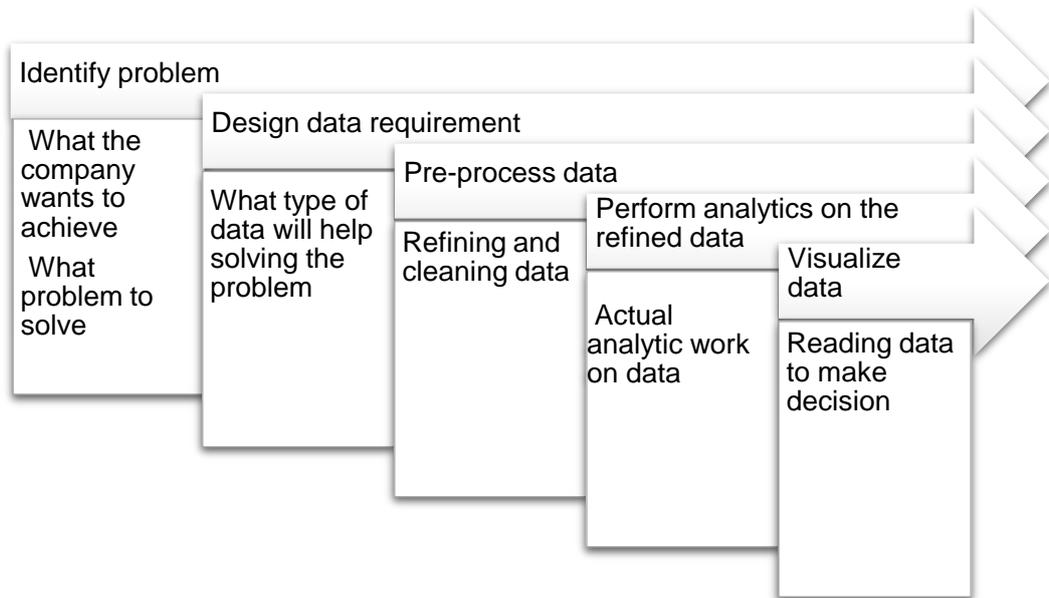


Figure 8: Stages of big data analytics

#### Types of Big Data analytics

Below figure lists the types of big data analytics which are selected according to need of the analytics (Edureka Blog, 2018).

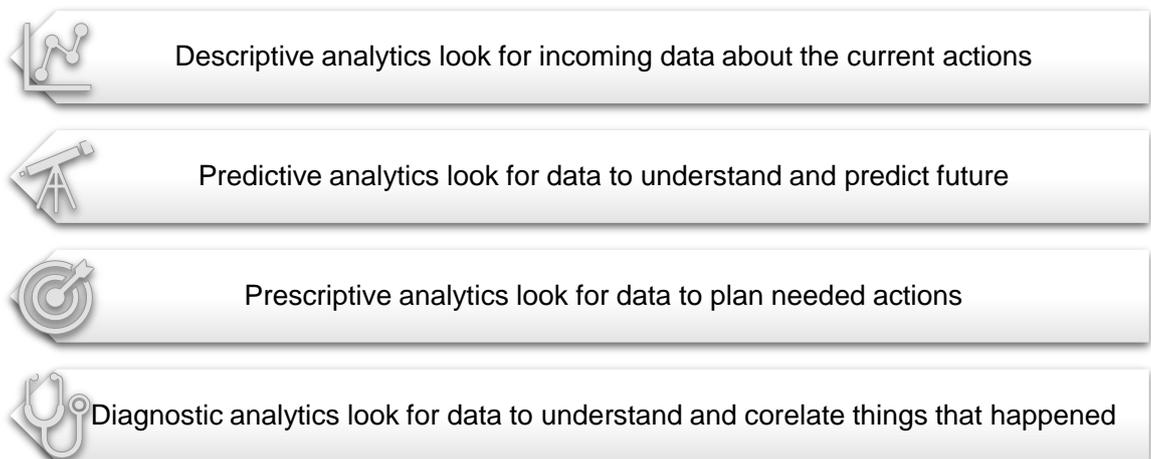


Figure 9: Types of big data analytics

#### Four Domains of Data

Below figure lists the different domains of data which refers to all the values that data element can contain.

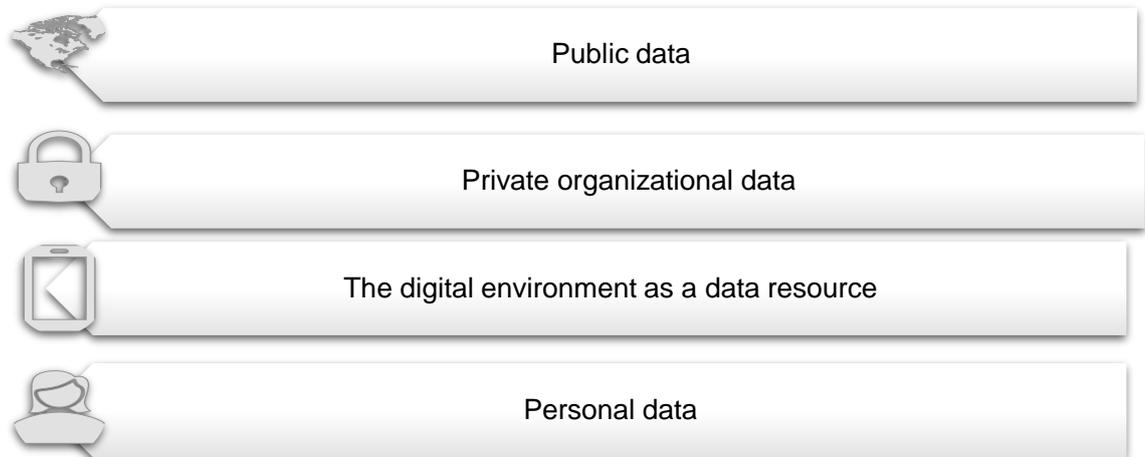


Figure 10: Four domains of data

### 3.4.3 Artificial Intelligence, Robotics, Internet of Things

Human intelligence and behavior imitation by computers are called as AI and the data is the source of AI. According to (Sato, 2018) the AI, Robotics and IoT will transform the digitalization through 2020.

AI technologies have already entered in our daily life with our smart devices, digital applications and virtual assistance tools. For instance, the suggested products in Amazon.com, or movies in Netflix are based on our earlier behavior and experiences which detected by AI. News, falling on the site we are searching, ads appears next to Google account, events displayed on Facebook are all the result of AI tools (Saldanha, 2019).

Businesses must also understand what kind of AI capability they must implement based on their digital strategies. Do they want to predict user behavior, personalize the services, set the best price, increase the quality, improve logistic activities or to generate ads to targeted customers? (Saldanha, 2019) suggest for experimenting by immediately hiring data scientist to start gathering data.

Robots are not anymore fancy and curios toys, but they are part of manufacturing, logistics and warehousing, delivery servicing, surgery and medicine as well as our homes. They are almost in all industry and services from military to entertainment, construction to disaster management. Autonomous vehicles have also been started taking place in our streets.

We want everything smarter. In our home smarter oven, smarter window and smarter lights and in our office's smarter doors, smarter computers and smarter coffee machines. Arriving home after a tiring working day, we find our smart oven already cooked the chicken, and next morning at the office our coffee machine recognizes us and prepare our coffee already we select it from the menu. These smart devices connect the physical and digital world and digitalize our daily routines. While we are talking about smart homes, smart cars, smart offices the smart factories, smart cities and smart world are on their way to reach us soon.

### **3.5 Digital Branding**

*"A brand for a company is like a reputation for a person. You earn reputation by trying to do hard things well"* Jeff Bezos (Forbes, 2019)

In old era, we were seeing commercial branding activities on TV commercializing a product with a one-way communication. We were only hearing what they were telling about themselves and we were not really understanding them because we were not getting to discuss or engage with them. However, now the digital media change the communication style from one-way communication to both ways. We are now having chance for questioning and expressing our opinions and we can see what that brand is. According to (Rowles, 2019) brand is a personality of an organization and social media through the digital channels enables us to see the actual personality of those brands.

Success of a brand was measured traditionally with the positiveness of the answers of specific questions. Such as, do you know the brand, do you like that brand, do you buy that brand, if you buy once, do you buy it again?

Organizations must focus on few key things; what is the business objective and how the marketing activities connected those objectives. Whom are you planning to convey your message and does your message align with their expectation? Focusing on these fundamental key elements help organization not to get distracted from the business and marketing fundamentals while creating a brand perception and social media engagement. While this is still true, traditionally the overlapping area of the business objective and customer expectation was enough to create value. However, in digital era the organizations must give a reason to their customers for engaging and interacting with their brands. Digital branding lays in between the business objectives and user objectives for bridging the gap that the target audience wants to engage with.

Shortly the digital branding is explained by (Rowles, 2019) that it is the all online experiences of the customer which relies on the offered value. User journeys helps

organizations to understand how to provide the value, so users decisions are impacted while they are purchasing anything. Digital branding is all about understanding all the factors that are impacting to make people to choose this brand over that brand. This can be done by modeling and measuring these factors by using different types of tools. In digital era, there are enormous amount of data and tools to understand and measure the user journeys.

Below diagram illustrates the stages of the user journey described by Avinash Kaushik and demonstrated by (Rowles, 2019). Organizations needs different content for each stage of the user journey to understand the user motivations. While **see** content is the largest interest to offer to the target audiences, think content is directly related to the product or service organization offers. **Do** content is the key product or service and the content used in **see** content can be used also in **care** stage.

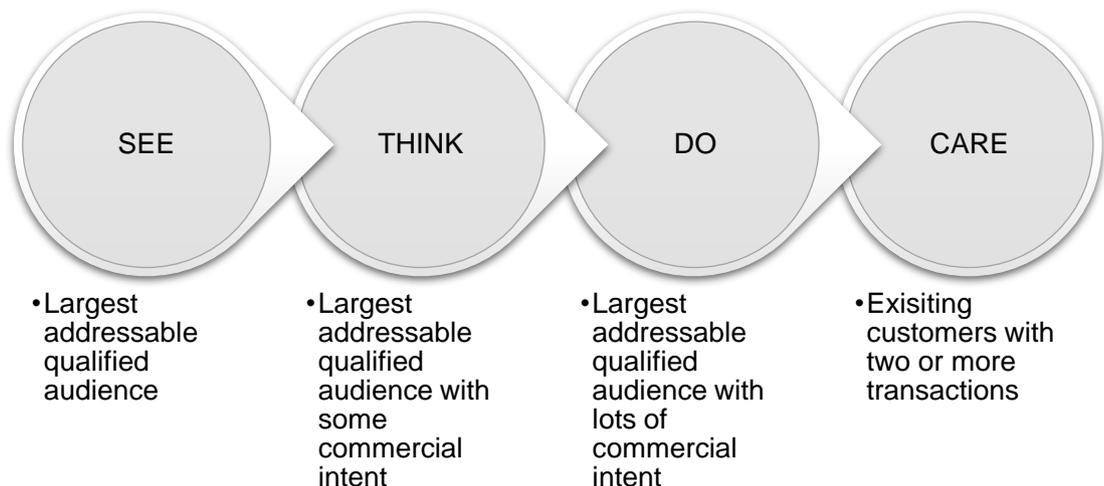


Figure 11: See, think, do, care framework (adapted from Rowles, 2019)

Different types of marketing activities will help building the digital branding with connection to the business objectives. For instance, tweeting 3 times a day, posting daily a story on Instagram or creating a website content must contribute to most important factors of the business objectives. These tweeting or posting a story in Instagram will create a traffic to the website where the organization is selling or promoting their products

Value proposition is the key between a brand and its customer, however reliable and consistent promises through the digital branding is must. If the brand promise being environmentally friendly, the product, processes, company culture and mindset everything should be environment friendly. With a digital branding, it is not anymore possible to hide or manipulate the offerings. Digital branding offers transparency and makes real promises to build faster and powerful brand.

Social media has changed the branding by removing the walls between the users and the companies. Social media created transparent and two-way of communication. Social media is one of the powerful channels to get users engaged with the brands, however understanding the trends, topics that discussed, users interests and how they are behaving in social media is needed before any social media activity. There are different types of tools to listen and monitor social media to get prepared for social media activities. Analytics also useful and one of the necessary tools to be informed about the social media activity. Analytics helps to understand which social media will create traffic to the website and get statistics about how many users visits and what kind of devices they used.

When we need any information, want to compare the prices of two brand or find a new cheesecake recipe we start typing in search bar of a search engine. To be found through the search engines must be one of the key results of digital branding activities, otherwise even the best product or service given, the users cannot reach out your website. Search results displayed to users either naturally or organically or via paid search. Search engine optimization (SEO) helps to get higher ranking within the natural searches. Pay per click (PPC) is paid search option which helps to ranked in tops faster than SEO, but it will be still depend on how much you would like to pay per click.

Customer data, contact details, history of the engagement, marketing activities are stored in customer relationship management (CRM) systems. The CRM system helps organizations to make smarter marketing decisions since they can see the history of users' earlier activities.

After all the digital branding activities measuring the results for instance calculating the ROI of social media activities, number of created traffic through the search engines must not be forgotten (Rowles, 2019).

### **3.6 Why the Digitalization is Difficult for Small Businesses?**

Some businesses suit best in small scale and some businesses operate in small scale. Small scaled businesses operate with smaller teams of employees in a small market and in limited locations. These businesses are privately owned corporations with small revenue.

Many aspects of the business are impacted by the new digital technologies and these technologies are defining the new rules of customers, competition, data, innovation and value. Understanding and playing according to these new rules requires companies to apply different approaches and implementing holistic processes of digital transformation (Rogers, 2016).

Even the smaller sized companies are more flexible and agile, the lack of knowledge and lack of understanding is a challenge to find out digital opportunities. These small and micro sized companies are also lacking certain skills to understand potentials of innovations, what to digitalize and what technology to use. The other struggle of these companies is prioritizing their goals, making decisions for change (Scholarspace.manoa.hawaii.edu, 2019).

Digitalization is long term process with employee and leadership commitment. While the digital world is already an unknown era for these companies, implementing digital mindset, creating urgency for the digitalization, training existing employees are some of the other obstacles of the digitalization.

Digitalization need financial investment, time, certain skill and mindset. Without these, or not knowing how to utilize existing ones, is difficult to understand digital forces around the key domains of strategy explained in Chapter 3.1.

Any transformation is a change process from one state to another, when small companies are lacking the well-formed structure, operations, management and sales, it is hard to transform from that state to digitalization.

## 4 Design Thinking

*"If a picture is worth a thousand words, a prototype is worth a thousand meetings"*  
John Meada (Balas, 2018).

Design Thinking starts with Thomas Edison. Until he invented the light bulb, he failed hundreds or thousands of times. He built prototypes, tested them until one of them worked. After his invention, one journalist asked him how it feels to fail thousand times, and Edison replied him that, he did not fail, it just took a thousand steps to succeed. Later, in early 90's, consultancy company IDEO took their customers feedback seriously and started product developments from the customer perspective aiming to resolve their problems and meet their needs. When the founder of SAP, Hasso Plattner were visiting the Stanford Design Institution, he realized that group of students were working on solving problems as a team, and Plattner donated a big amount of money to the university to see what this design school will achieve with their creative problem solving methods. After that, the faculty named as Hasso Plattner Institution of Design. Following that around 2007, Plattner introduced the Design Thinking to Germany. From now on, universities started including it in their curriculums and then opening programs. This digital era, all the big players rely on Design Thinking for generating smart ideas, implementing innovative solutions and combining different areas together.

Every organizations and business have challenges that needs to be solved. Design Thinking offers concrete and innovative solutions to these problems by putting the human in the center of the problem applying simple principles and methods. Design Thinking aims to improve the experience of the people and it helps learning faster, looking at the problems from different perspective and eliminates launching the risky ideas. The solutions that applied to the problems by applying the design thinking methods are more accurate and user centric (Plattner, Meinel and Leifer, 2013).

Design Thinking approach can be used to encourage the teams to use innovative and systematic processes to produce a solution; for developing a new product or service; to find out most crucial and the best problem to solve and to propose a clear, feasible and viable solutions.

Design thinking has three pillars.

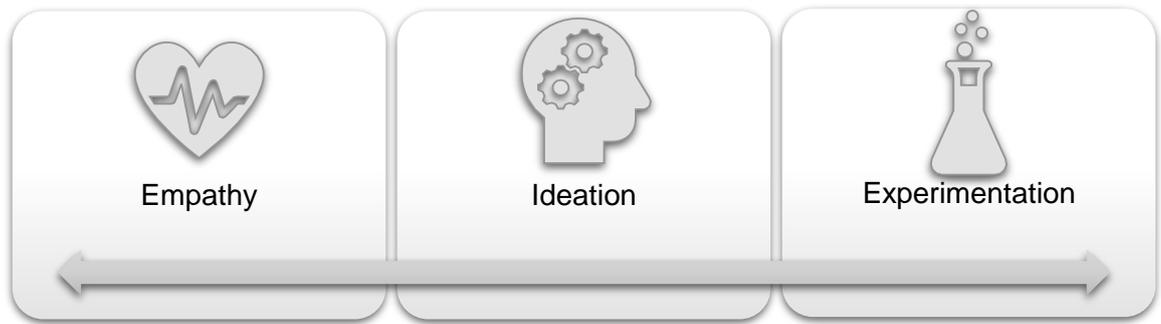


Figure 12: Pillars of design thinking

**Empathy** is the ability and willingness to recognize, understand the thoughts, emotions and motives of another person. In Design Thinking the empathy aims to get closer to End User to understand their problems and needs,

Without an idea, no problem can be solved, or no new products produced. Finding the good ideas on the right time is important. In Design Thinking the **ideation** states the problem without criticizing the feasibility of the ideas and focuses on accumulating ideas to enable design thinking to select few feasible ones.

**Experimentation** is creating the physical prototypes in order to encourage people to test solutions. Experimentation tests the ideas from the end user perspective which helps learning from the users.

#### 4.1 Innovation

There has been discussion about the difference between invention and innovation and it is possible to find several different definitions of these two terms. Sometimes also these two terms misunderstood or confused because they sound similar. However, they differ from each other on each characteristic. Invention is unique and totally new to the world; in contrast innovation might be new the industry or organization but may not be new to the world. Invention can contribute the innovation, but innovation does not require invention. Invention concerns about a single product or process, innovation can be applied many products or processes. Someone can invent a new product which may little or no use, but innovation is transformation of new ideas, knowledge into the economic growth or social wellbeing. Innovation aims positively change already known products, processes, ideas which can be more valuable to the society and can increase the productivity (Lindegaard & Kawaaki, 2010).

Innovation used to be difficult, expensive and the managers expected to guess how to improve the product or service before it is launched to the market. Besides being difficult and expensive, in this old era the success of the innovative solutions was a very small as they

were based on assumptions. However, in the digital era it is possible continuously to test the ideas, build cheaper prototypes to experiment them together with the customers enables businesses to learn constantly and develop their products and services iteratively before and after they go to market (Rogers, 2016).

Digital technologies force managers to redefine how to create value for the customers which directs them to look for constant innovative ways to improve their processes, apply the new technology, be competitive and profitable (Rogers, 2016).

Innovation is not the outcome, but the outcome of the goal and the Design Thinking is the process to achieve this goal. Design Thinking is the tool for those companies who seeks innovative ideas in order to create and adapt new behaviors and values.

There are different innovation methods, such as open innovation, co-creation, incremental innovation, radical innovation or user led innovation. All these of innovations aims to solve a problem.

**Incremental Innovation** is mostly used type of innovation which is used to improve the existing product or service by using the available resources and technology.

**Open innovation** aims to take the customers role in the business processes and improving the products or services. Surveys and ethnographic research applied to the customers in order to figure out their opinion and preferences. Applying an open innovation in companies requires a deep understanding of customer's views together with company's needs and shortcomings. They also must develop new skills such as, open communication, holistic point of view, networking and managing stakeholders. Open innovation connects and collaborates the internal and external resources of the companies to make innovation happen. The benefit of the open innovation is fast development, increased revenue and market share, more profit in shorter time, improvement of the success rate of the product and series and the reduced R&D costs (Lindegaard & Kawaaki, 2010).

**Co-creation** relates to open innovation in a way that, not only bringing new ideas from externals but also involves those externals to play key role in bringing ideas into the business (Lindegaard & Kawaaki, 2010). Companies encourage their customers into the product development to reduce the market risk and improve the return on the investment and launch in market on time (Westerlund & Lemminen, 2009).

## 4.2 Five Phase Approach of Design Thinking

Design Thinking solves complex problems approaching them step by step by connecting ideas starting from understanding user until testing the solution. Following figure illustrates

the five-phase approach of Design Thinking. Design Thinking provides also different approaches such as six phase approach and iterative three-phase approach with multiple stages. The five-phase approach is most common and straight forward approach which is applied in case company in this study.

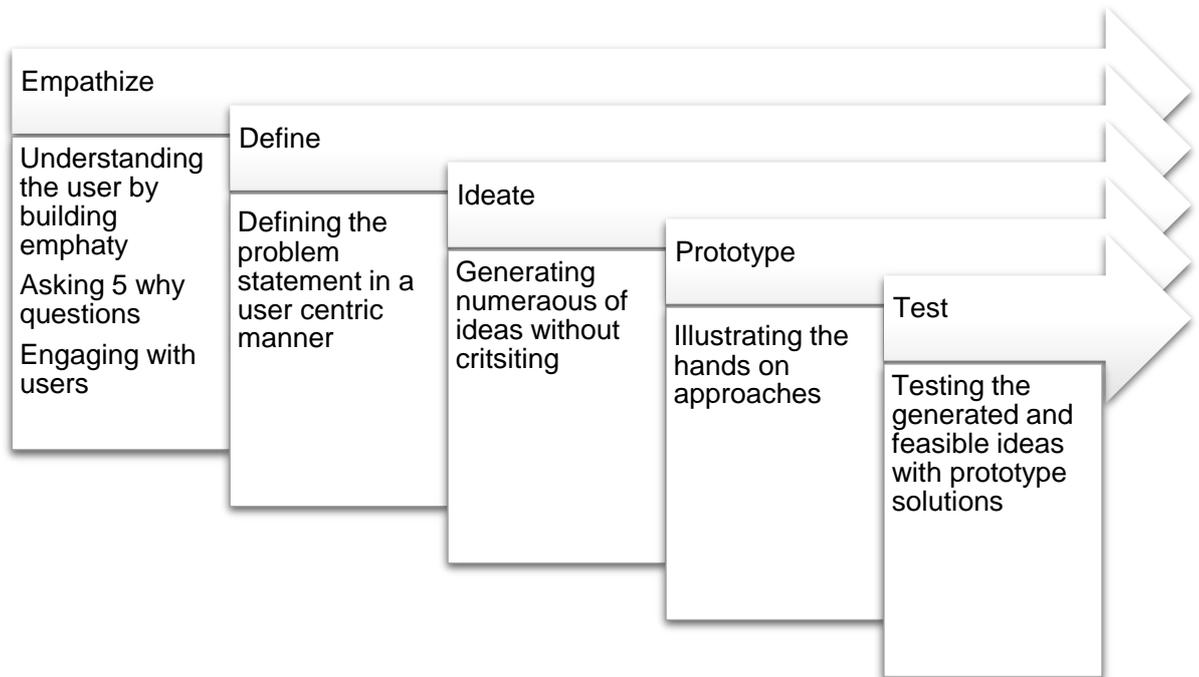


Figure 13: Five phase approach of design thinking

Design Thinking starts with **Empathize** stage by putting the real customer, user or consumer in the middle of everything in order to understand their point of views applying empathy by understanding the pain points of the users. This stage of the process helps to learn and think critically from the user perspective (Medium, 2017).

**Define** stage is how to form the problem with the form of “*How might we ...?*” question. Gained experience and learned pain points from the Empathize stage will help defining the problem.

The **Ideate** stage can be called as “think outside the box” applying some methods such as brainstorming which is well known and easy to apply. Participants should focus on the identified problem without criticizing or arguing. Here the focus is the quantity, not the quality. Some of the ideas may not be realistic or feasible, but later they will be analyzed and prototyped.

**Prototyping** stage helps to find out if the selected idea from the earlier stage is feasible. Prototyped solution can be simple drawings, sketches, card boards, mockups, experience boards or anything can help real users to experience the solution.

**Testing** the prototyped solution with the real users is the last stage of the Design Thinking. Idea is here to learn what works and what does not work. This stage requires well planning and preparing to the testing.

During the Design Thinking process it is important to understand to move step back to start again until finding the desired solution to the problem. For instance, if the solution fails after several test, reason would be either you did not understand your customer or understood but the definition was not good enough to generate good ideas.

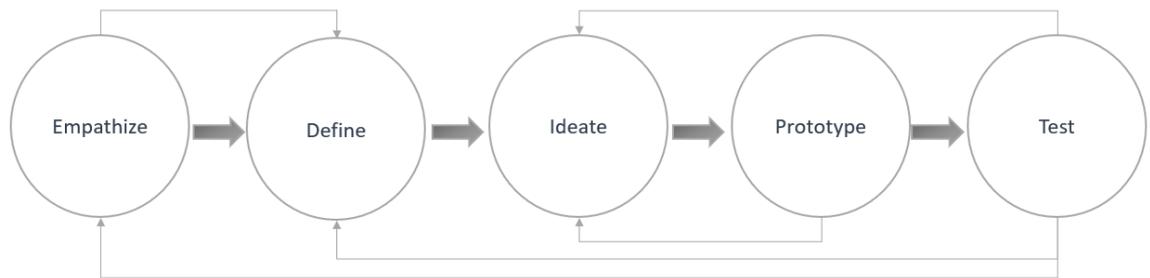


Figure 14: Design thinking process

### 4.3 Design Thinking Principles

Design Thinking is built based on following principles. When the new solution idea occurred, it is important to understand its impact on the human, hence the design thinking is human centered. There might be few people or several people who involves solving an issue, hence the collaboration is part of the teamwork. The problem might be new, or solution might have a lot of unknowns, hence the people who involves the solution process learn by doing. We mostly tend to block our ideas by criticizing them already before they come out, design thinkers embrace all type of ideas without criticizing them. Complex issues involve several systems, different relationships hence important to understand them and their pattern. Not last but the least principle of design thinking is visualizing and showing all the ideas, prototypes, outcomes with sketches, drawings or any possible items in order to visualize every step of the design thinking process.

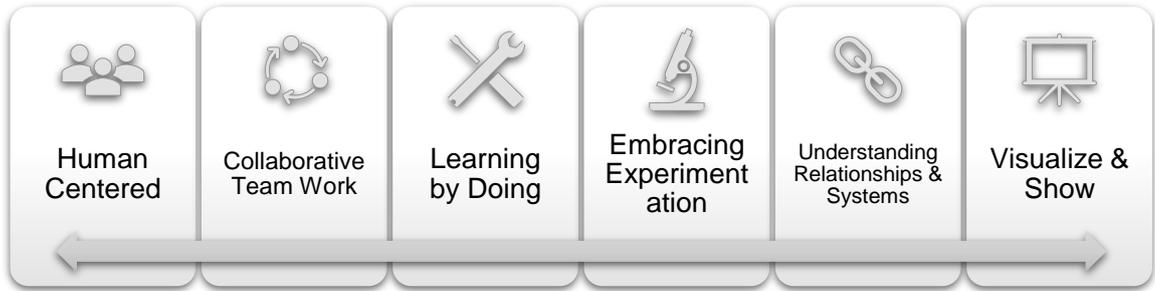


Figure 15. Design thinking pillars

#### 4.4 Design Thinking Tools

There are several tools that can be used, and everyday new ones are discovered and used. Design Thinking tools help to spot the best idea, which is desired by the targeted users, it is feasible to implement, and finally it will be profitable. The black point in below image is the most desirable, feasible and viable idea or solution related to the problem.

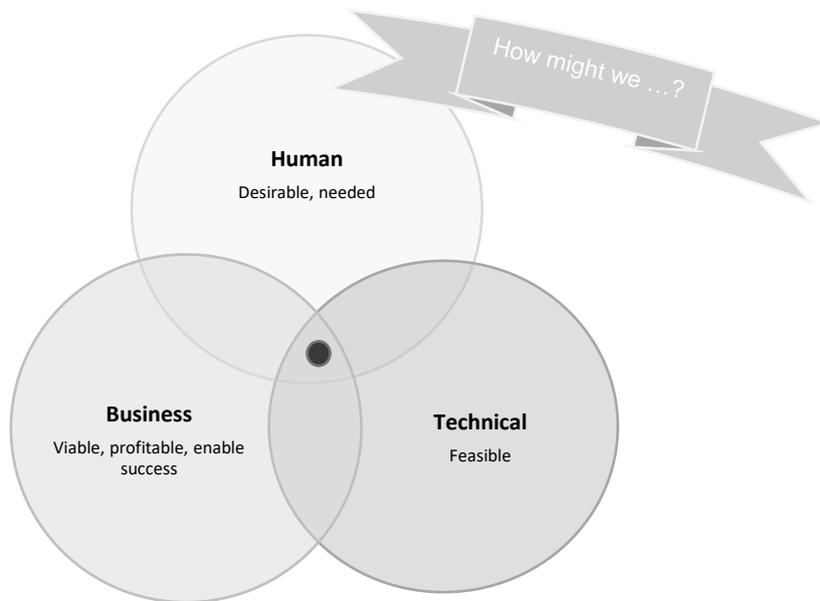


Figure 16: Most desirable, viable and feasible idea diagram

Some of these tools and the stage in design thinking where most applicable. However, there is no boundaries not to use one tool in another phase when suitable. Below figure

lists some of the tools that used for in design thinking stages.

Empathize	Define	Ideate	Prototype	Test
<ul style="list-style-type: none"><li>•Territory Mapping</li><li>•Pain Point Diagram</li><li>•Interviews</li></ul>	<ul style="list-style-type: none"><li>•Journey mapping</li><li>•Affinity clustering</li><li>•Statement starters</li><li>•Mind mapping</li><li>•Brain storming</li></ul>	<ul style="list-style-type: none"><li>•Creative matrix</li><li>•Importance &amp; Difficulty matrix</li><li>•Persona</li><li>•Alternative worlds</li><li>•Co-creation</li></ul>	<ul style="list-style-type: none"><li>•Concept poster</li><li>•Criticques</li><li>•Think around</li></ul>	<ul style="list-style-type: none"><li>•Business model canvas</li><li>•Round Robin</li><li>•Look, feel and functionality of the design</li></ul>

Figure 17: Design thinking tools

## 5 Case Study

### 5.1 Introduction to Kalabalik Travel

Kalabalik Travel is a micro size destination management company (DCM) whose services are designed to take the headaches out of the travelers and help them to enjoy their vacation. The Kalabalik Travel offers services such as organizing special events and tailor-made packages based on the client needs.

*“As a DMC (destination management company) Kalabalik travel’ being a small size travel agent, determined for serving a niche A profile clientele for whom services and products provided by KALABALIK TRAVEL will include pre-arranged tours, tailor made packages concerning needs of client specifications. Hence, a digital platform by consulting and as time progress making bookings for all services offered, we are seeking to differentiate ourselves. In order to achieve our goal, we know we need to position our services with good care. With high quality, comfortable but significantly informative to our client needs we believe our clients will show more appreciation. Our company should make sure that it provides the latest technology to ensure continuing success at the frontline on the market. Within the tourism sector, experience is key which will result in bridging channels which requires focusing on customer experience, using data, developing a new business plan, learning and experimenting to improve”* Sebnem Jarventaus, Kalabalik Travel.

Kalabalik Travel understands that the digitalization connects people and destinations quicker than before and traditional travel agencies have become online agencies during last decade. This change emerges small travel companies, such as Kalabalik Travel to take a step-in to initiate digitalization and become visible in the market, as well as innovate new solutions for new customer segments. The personal experience of the traveler is the key factor in the tourism industry. Better understanding of the travelers and yielding the digitalization to meet their needs will help Kalabalik Travel to become visible and thrived in the market.

This case study aims to help Kalabalik Travel (KT) to create a digital transformation roadmap with the gained knowledge on the theoretical part of this thesis by applying Service Design thinking methods.

KT works based on the requested services by the earlier established business relationships and it is most of the time one-way relationship. For instance, a travel agency from Turkey sends a group of travelers to Lapland and KT provides a service including

transportation, guiding and arranging events. KT also provides a service to the universities in Turkey who sends group of teachers to Finland as part of Erasmus program for training, or knowledge sharing. KT wants to focus on a specific customer segments and find a new business area. Applying design thinking methods, we want to find out most desirable, viable and feasible solution that can deliver value to KT's customers and KT can take its place in digital era.

## **5.2 Pre-study with Kalabalik Travel**

KT understands that the games have been changing and surviving among the digital competitors is getting harder and harder. KT wants to discover new customers, reach them, define value proposition and find out how to support these with digital technology and its tools.

Initially, KT was looking for a way to focus on Erasmus programs, however during the first open interview and discussion it is found that the Erasmus programs involves a lot of bureaucracy with limited budget which is highly low for providing even minimum required service in Finland.

## **5.3 Workshop**

For practicing the design thinking methods, we arranged sessions of workshop to go through at least one full cycle of the design thinking processes.

### **5.3.1 Empathy session**

Understand your customer

During the first workshop with KT we discussed around the business and brainstormed without any boundaries. We wrote down the keywords and ideas. Later we extended the discussion and gathered them in a meaningful group and created a territory mapping (Image 1).



Image 1: Territory mapping

### 5.3.2 Definition session

Problem statement: "How might we ...?"

Territory mapping helped us to see KT and its surroundings, as well as the business opportunities. After the discussion around this, KT decided to concentrate on the MICE (Meetings, Events, Incentive Travel) and continue workshop based on that. Finally, we defined an initial Problem Statement as: "How might we make attending to conferences, congresses and seminars more easier and fun for the organizations?"



Image 2: Problem statement

### 5.3.3 Ideation session

We collected user experiences from who are regularly attending conferences and asked them to express their user experiences end to end in a free form (with no specific list of question), starting from getting the idea of attending to a conference until arriving back home. We did not limit the delivering the information channel (email, WhatsApp message, voice message, phone call...) and we did not limit the language of providing the information. This helped us to hear their very personal opinions and as a result we received totally different four experiences.

Introduction to the participants

**Person 1:** Academician in a university in Sweden, regularly attends conferences about her area

**Person 2:** Academician in a university in Turku after working as academician 20 years in a university in Turkey

**Person 3:** Network engineer and former academician in Helsinki. Travels and attends conferences for business reasons

**Person 4:** Global Program Manager and former academician in Helsinki. He has been travelling and attending conferences for business and academic reasons.

User interviews and how did we use the gathered experiences?

Each information was unique including all sorts of details that remained as positive or negative experience in users mind. We highlighted details as **pain, information** and **happiness**, then wrote down each of them on a post it. With these posts its, we created a **Pain Point Diagram** in order to understand and visualize the level of satisfactions (Image 4).

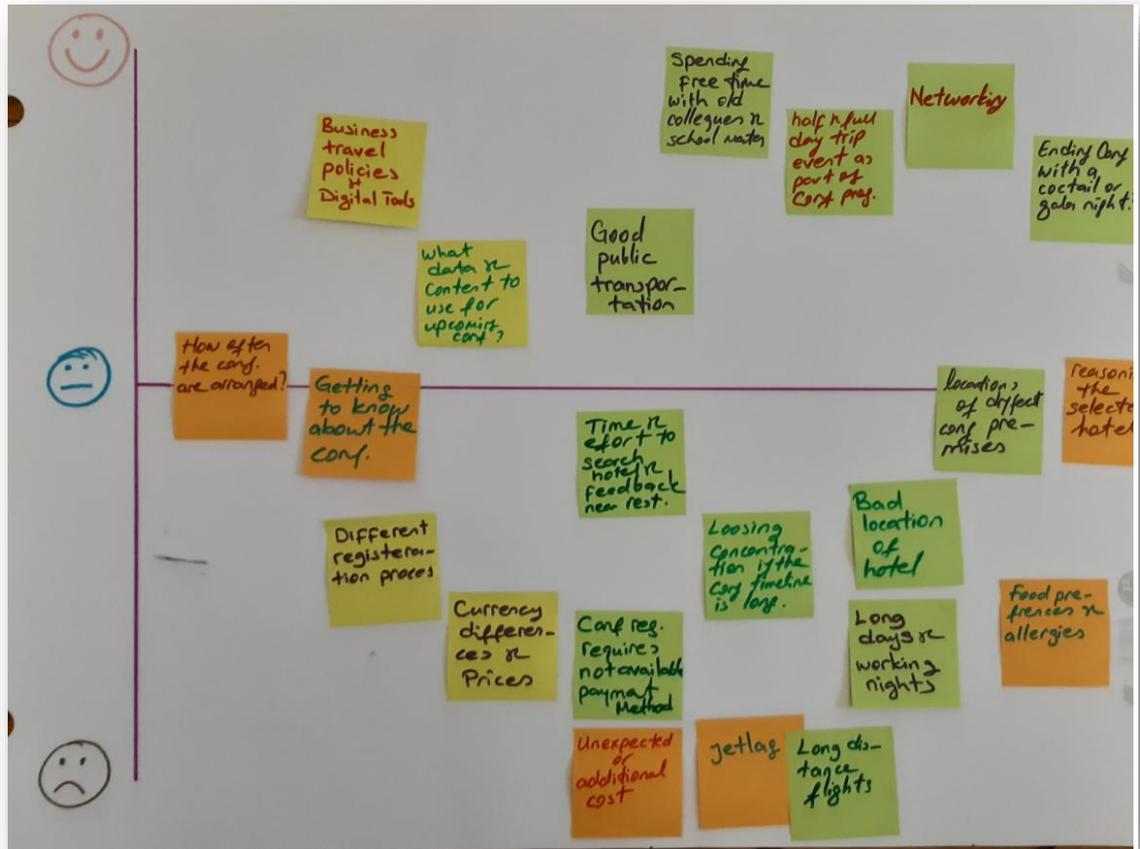


Image 3: Pain point diagram

As a next step, we created an **Importance & Difficulty Matrix** (Image 4) in order to understand the priorities of those users.

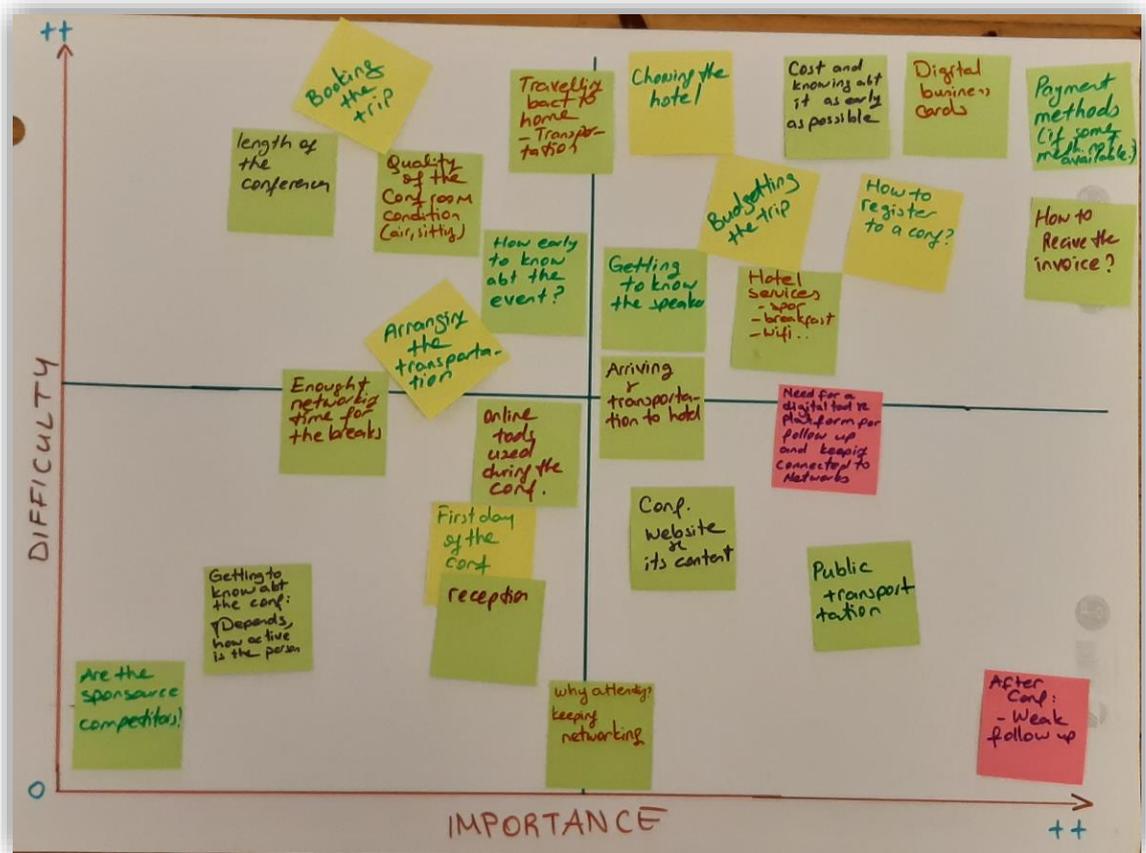


Image 4: Importance & difficulty matrix

### 5.3.4 Prototype session

After first 3 sessions, KT decided to scope down of her focus to academicians, since we understood that businesspeople have better budget and their trips are arranged according to the company policy and with agreed agencies. Hence the concept created around the academicians and academic conferences. Universities also use certain business travel agencies, however since the budgets reserved for the academicians are limited and defined yearly, some cases academicians can make their own reservation if they find more convenient and affordable options. This is going to be the point where KT will attract the academicians with its services.

#### Persona

Below persona illustrates the ambitions, challenges and desired experience of a potential customer who is looking for an affordable option with less effort to book her trip to an academic event.

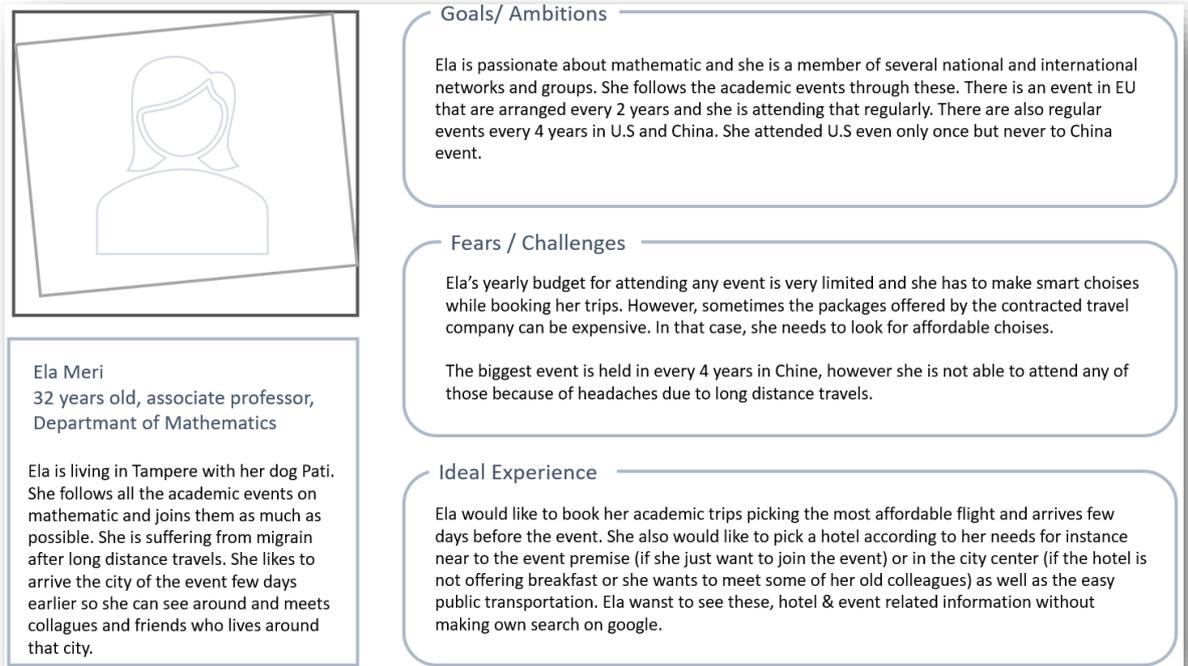


Figure 18: Persona

### Concept poster

Since KT scoped downed her customer segment and wanted to focus on academic events, we also updated the problem statement as “*How might we improve attending academic events experience of low budgeted academicians?*”. Around this problem, the below concept poster created together with KT to visualize the service, target group, core functions, value proposition, and risks that might fail this solution.

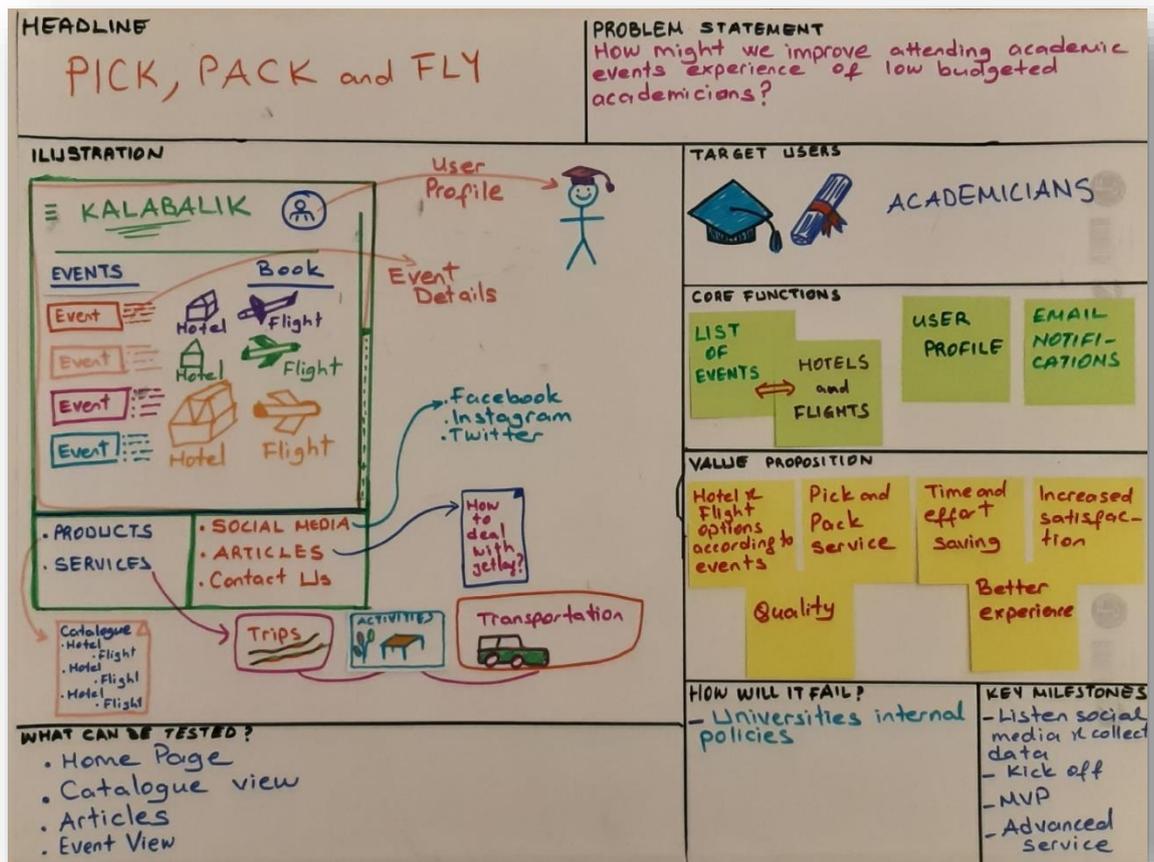


Image 5: Concept poster

### 5.3.5 Testing session

This session aimed to test one of the core functions of the solution if solves the problem based on the earlier sessions. We prepared a prototype of **Event View** functionality to observe the experience of test user. We explained user that for this session, only the green square boxes are clickable and can navigate to a new content (Image 6).

Below table demonstrates the steps that taken by the test user during testing session.

Step	Clicked	Navigated view	Description
1	An event	Event view	User clicked the <b>Gender Studies 2019 Conference: On Violence</b> event on the <b>Events list</b> page and he is navigated to the <b>Event view</b>

2	Conference website URL	Conference website homepage	User clicked the <b>conference website</b> URL and navigated to the <b>homepage</b> of the conference
3	Kalabalik tab on the browser	Kalabalik website	User clicked the <b>Kalabalik</b> tab on the browser to continue testing
4	Book button	Availability view	User clicked the <b>Book Your Trip to This Conference</b> button and navigated to the <b>Availability view</b>
5	Selected hotel	Booking view	User clicked the <b>Hotel Sun</b> and navigated to the <b>Booking view</b>

Table 3: Test flow

Below image illustrates the prototyped views, steps taken by the user, clicked elements and flows of the **Event View** functionality

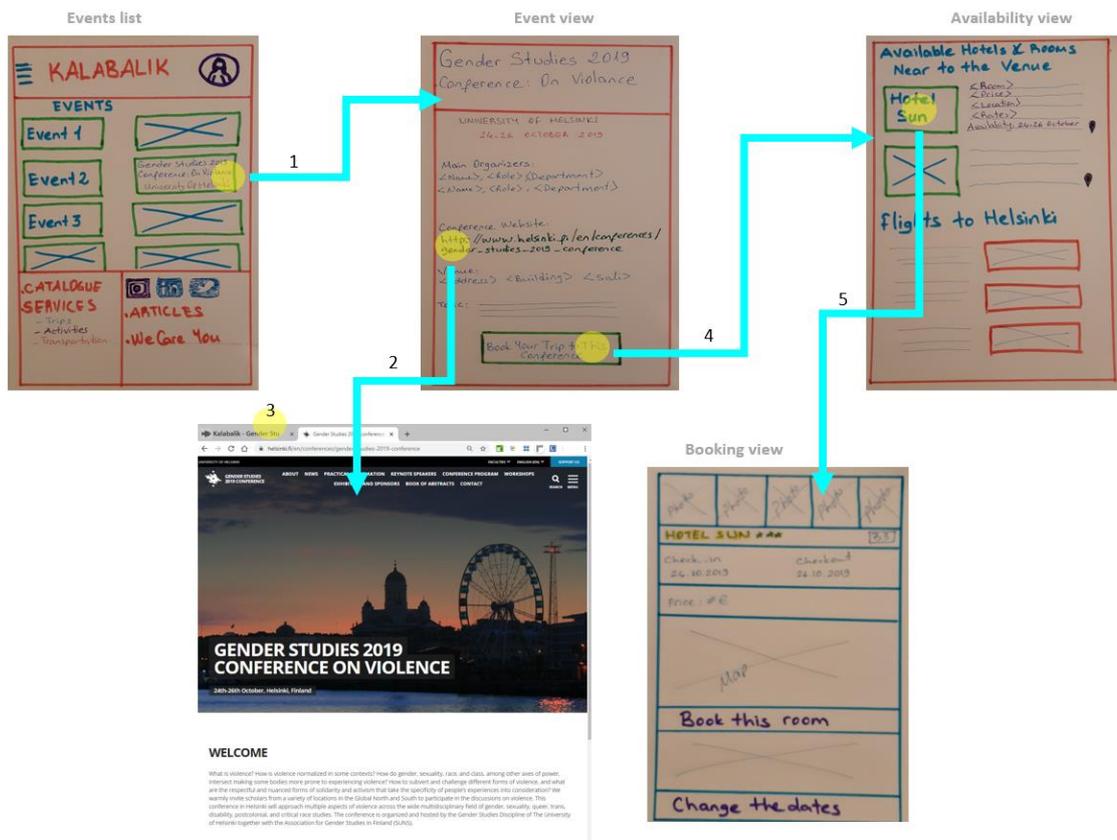


Image 6: Prototype of the Event View

## 6 Solution

### 6.1 Content Map

Content map created based on the Avinash Kaushik's See, Think, Do, Care framework defined in the Chapter 3.5. This will be part of the KT's branding activities.

Main product will be an online Catalogue (DO), where KT define its services and costs. Initial idea, the user can pick service & pack a program as needed. (SEE, THINK, CARE) are the supportive content to create traffic towards to KT site and increase the visibility of the Catalogue.

Stage	Kalabalik Travel (content)
See (Browse)	How to deal with jetlag?
Think (Active Interest)	Tips for networking and follow up after the conferences
Do (Point of Purchase)	Online catalogue
Care (Loyalty)	How to deal with jetlag?

Table 4: Content map

### 6.2 Value Proposition

Design thinking practices helped KT to find out most desirable, viable and feasible solution. Below figure illustrates according to the 'How might we...?' structure, how KT developed its offering.

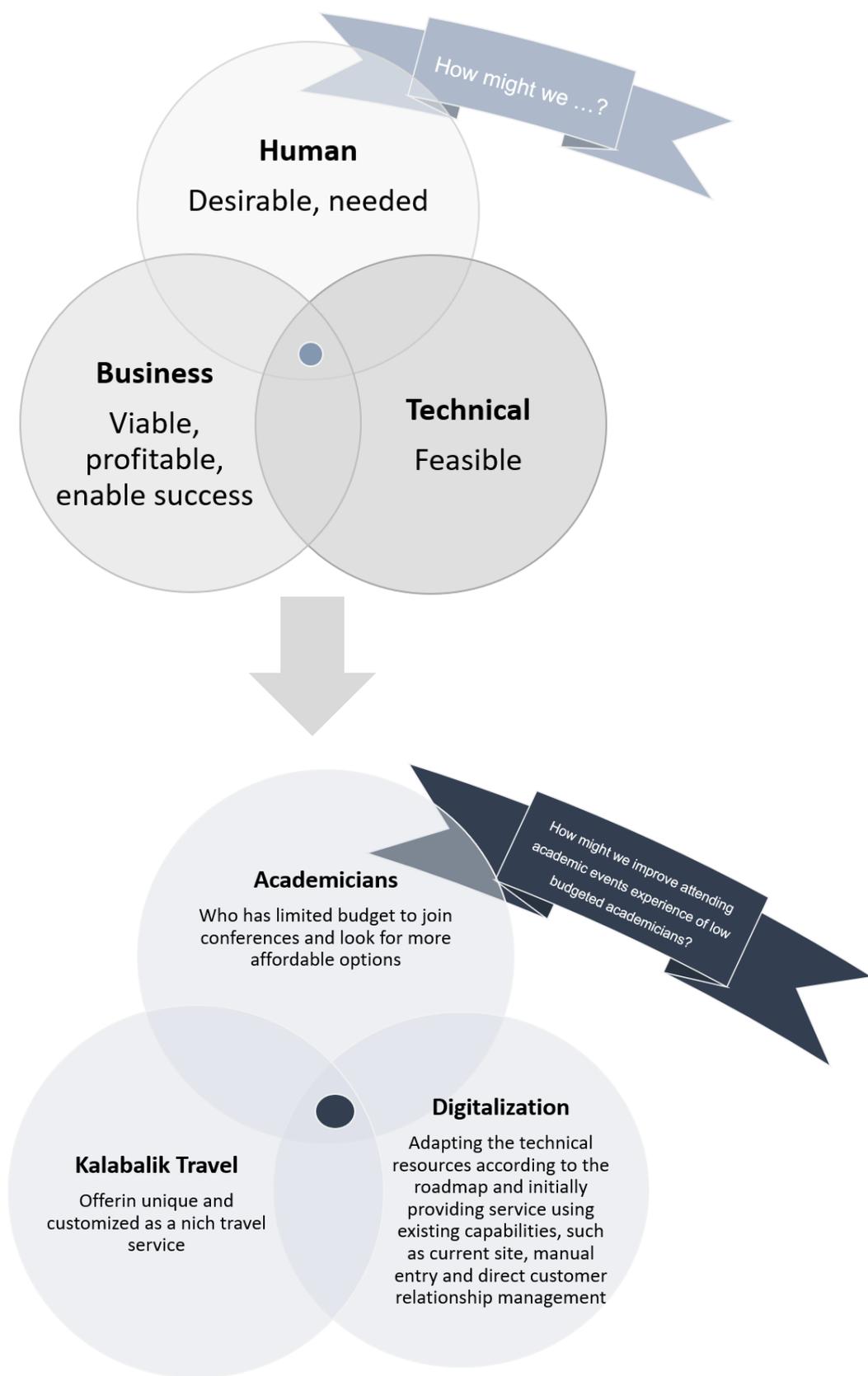


Figure 19: Most desirable, viable, feasible idea diagram to Kalabalik Travel's offering

Based on the developed offering, KT's value proposition is also defined as illustrated in below figure.

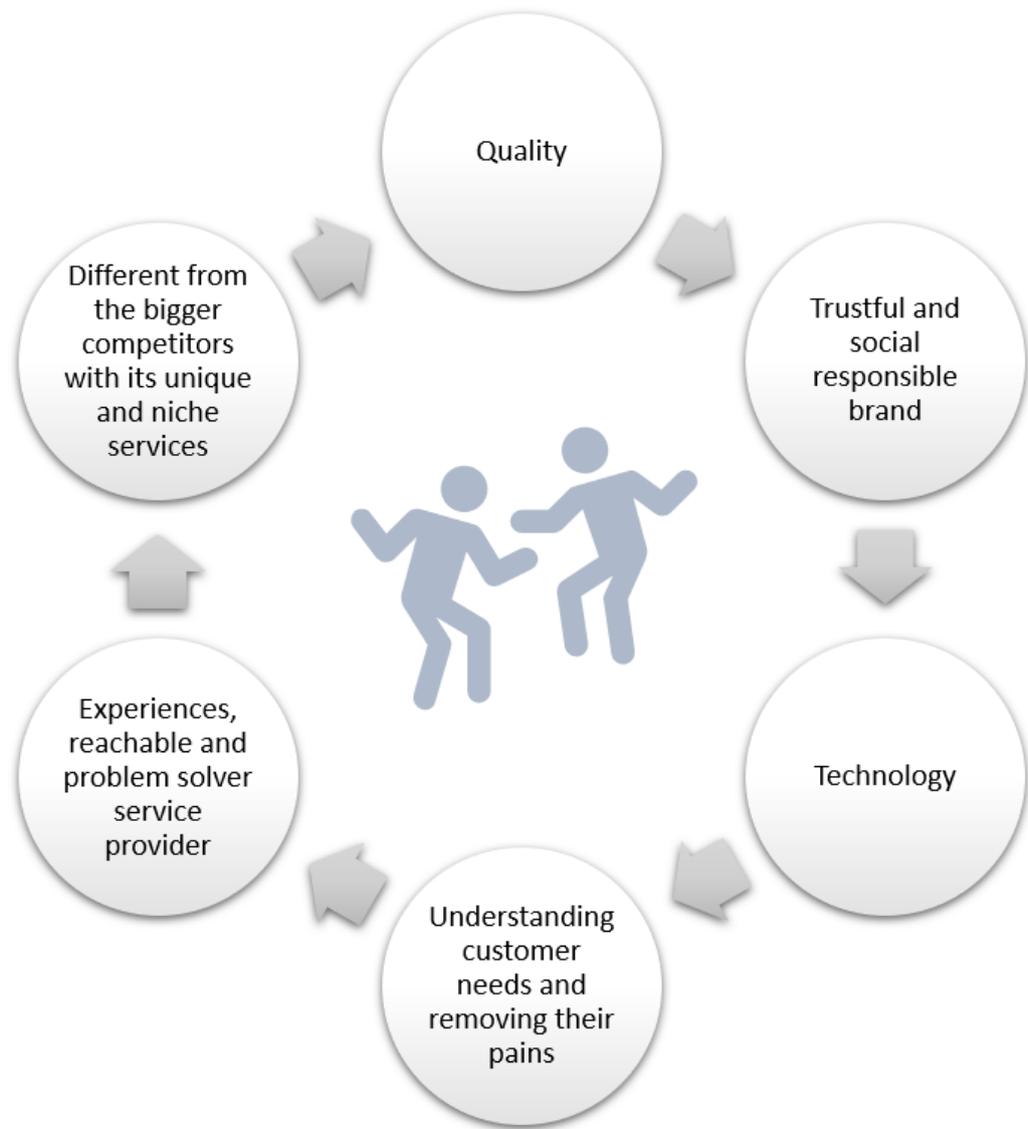


Figure 20: Kalabalik Travel's value proposition

### 6.3 Strategy Development Plan

KT will develop its strategy based on the strategy development steps defined by (Rogers, 2016).

Strategy development steps	Kalabalik Travel
Build your customer network	KT will start with its current network and expend it through advertising itself by digital marketing and

	implement a plan to engage those customers who have used its service at least once.
Do not build a product/service but a platform	KT's current website is very static and for long time there is no update. According to the Content Map defined in Chapter 6.1, it will start creating content. Aim is to become a platform who will brings academicians and available conferences in one place.
Use data, turn it to asset	KT understood that the data is going to be its biggest assets. However, since KT is a very small business and collecting own data will be costly and demanding work, KT will use a service who can provide processed and analyzed data so KT can use it for decision making.
Innovate by experimenting	This journey will be a very new for KT even though it is in the market for long time. KT will learn more about design thinking to apply it solve problems and find innovation solutions.
Constantly adapt your value proposition	KT also understood that this is not a one-time action and it should revise all its plans, observe its customer experiences and adapt to their changing needs.

Table 5: Strategy development plan

## 6.4 Roadmap

This roadmap has been created based on the overall understanding of digital transformation and outcomes of the Design Thinking workshops with Kalabalik Travel. The roadmap is illustrative, time and extend of the effort have not been reflected. Flexibility and adjustability of the roadmap considered, and it aims to guide KT with its digitalization effort.

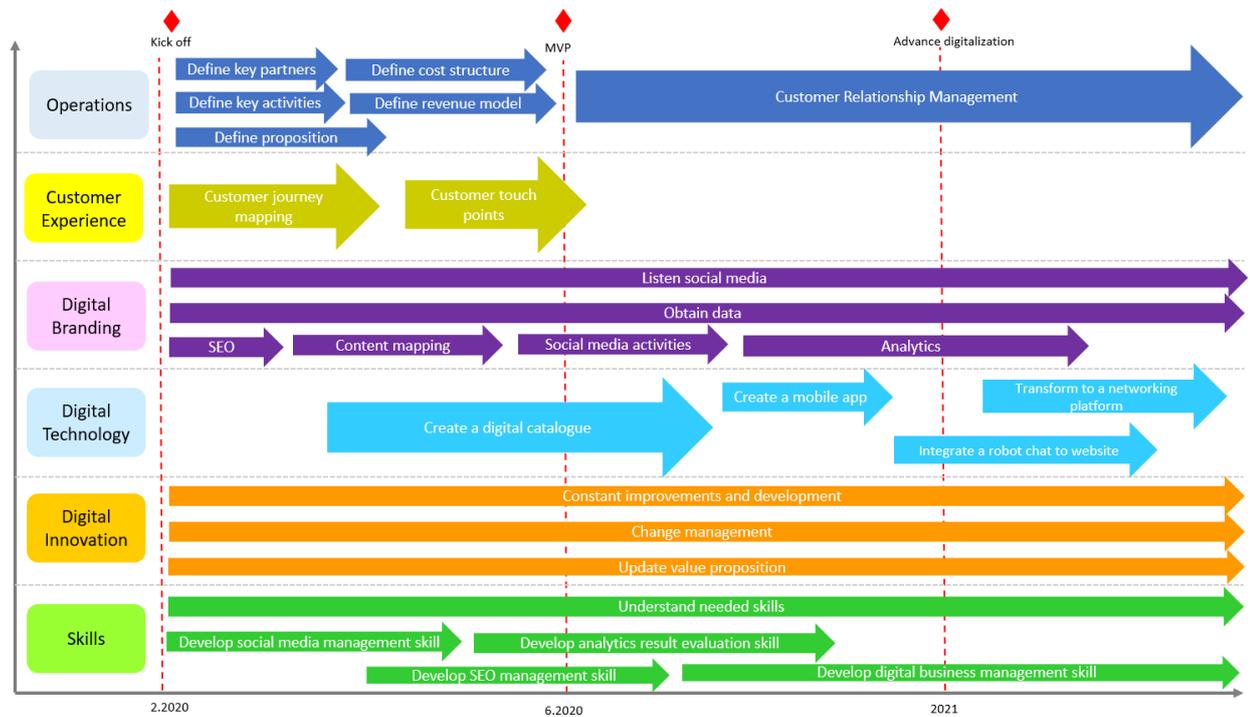


Figure 21: Kalabalik Travel's digital transformation roadmap

## 7 Conclusion

The digital change has impacted us heavily in recent few decades and it has been overwhelming for the human being. During this time, non-physical and intangible things have changed, and we met new areas that we have not seen before. These intangible changes introduced in our world mainly in four waves. The first wave includes new digital products and services such as digital cameras, music, media players; second wave includes internet which connected people removing the borders, time zone and distances; third wave includes social media which gathered people around similar ideas; and fourth wave includes the mobile which enormously increased the speed of the digital change.

While IT plays a huge role, digitalization is a specialize type of business transformation. This requires digital strategy, customer experience transformation, business model transformation, digital change management with culture and talent development, digital branding, adapting and adopting a wide range of digital technologies.

Data, innovation, value, people and competition are the key factors of digital strategy. Data is the most vital asset for analytics and making decision. Innovation is a must for generating solutions to new challenges. In constantly changing environment, delivering the best value depends on adapting the value proposition to those changes. People, who are the customers are dynamically connected and their behaviors are impacted by the smart devices, mobiles, social media which directly concerns of any digital strategy. The game of the competition has also changed, for instance some of the old competitors become as partner while some of the partners become as competitors.

Experience of customers up on using a product or service defines the delivered value proposition. Hence delivering a unique value proposition in digital business depends on understanding customer behaviors and things that impact those behaviors. Digital business model defines how the business should identify and implement their operations such as; key activities, resources, value to propose, customer segments, communication model and revenue generation. As the organizations transform their business, internal processes and activities must be as part of this transformation.

Leaders of the digital transformation must manage business issues and spend time connecting the business issues to digital transformation strategies. Their main goal is translating business goals into digital strategy, creating digital mindset, creating right environment and removing the obstacles to enable digital transformation. Digitalization needs leaders to understand agile and lean methodologies to deliver works in smaller and iterative

portions. Those leaders must be open to change, implement a customer centric approaches, accept failure and co-operate with others.

The technology is the key instrument in the digitalization, however needed technology can vary from business to business. Some of the main technologies such as cloud computing, big data, analytics, AI or robotics are mainly used common technologies regardless of type of the business or industry. Cloud computing provides services over the internet with no maintenance or administration effort. Data considered as the new oil and similarly, needs to be refined and processed. Actual analytical work will be performed on the processed data in order to read data and make decision.

Branding has been changed by social media by interconnecting users, companies and creating transparent two-way of communication. Social media is one of the powerful branding channels to get users engaged with the brands. Listening and monitoring social media, using data and analytics are some of the social media activities to create traffic to actual website, product or service.

Digitalization is a breathless journey with financial investment; time, skill and leadership commitment. Small and micro scaled businesses operate in small market with small revenue. They are privately owned, and they consist of a small number of employees. While the many aspects of the businesses are impacted by the digital changes, those businesses are required to apply different approaches and holistic processes of digital transformation. Those small and micro sized companies are lacking certain skills, understanding potentials and identifying what to digitalize and what technology to use.

Nevertheless, this study demonstrates that applying design thinking methods and principles, it is possible to help small and micro sized companies to digitalize. Design thinking takes them away from their black box and shows them new digital opportunities by emphasizing their customers, defining the main problem, generating new ideas, prototyping the selected most needed, viable and feasible solution idea.

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