VISIT ARCTIC EUROPE

SUMMARY- short version

Digital tourism -

An analysis of digital trends in tourism

and customer digital mobile behaviour

for the Visit Arctic Europe project

The future belongs to those who prepare for it today. The Future starts now!

Hans Gelter

May 2017

VISIT ARCTIC EUROPE 🇳🇴 🇸🇪 🇫🇮 🏴

Content of summary:

VISIT ARCTIC EUROPE 🇳🇴 🇸🇪 🇫🇮 🏴

Digital trends in tourism

Tourism trends

Tourism megatrends have been suggested by many researchers such as the six large-scale exogenous trends for the global tourism sector over the next 30 years:

(1) The social, economic and environmental consequences of gradual warming and of extreme weather events associated with climate change;

(2) The effects of higher fuel costs and social concerns on mass long-haul travel;

(3) The role of new technologies, including social media, in marketing, managing, experiencing and monitoring tourism;

(4) Economic growth and social change in the highly populous and newly wealthy BRICS nations, especially India and China;

(5) The consequences of armed conflict and geopolitical negotiation for tourism, and the use of tourism as a tool for geopolitical interests;

(6) The increasing linkages, and also conflicts, between tourism and conservation in many countries.

There are several recent trend reports in tourism trying to forecast what the future of tourism will be. I will here only list some recent identified tourism trends with bearings on trends in digital tourism.

1. **Global customer,** informed and well-travelled, and thus easy blasé, expecting the extra ordinary, requesting personalized experiences, ethical and egoistic tourists.
2. "Dive into the **digital world**" and "**Your friend in tour pocket**" – Internet and mobile phone, now part of everyday life and a natural travel companion, connectivity is a lifestyle.
3. "**Virtual worlds** without borders" - Combining the authentic in In-Real-Life (IRL) experiences with digital experiences, 3D, 4D and 5D experiences, Augmented reality. Digitalization as an argumentation of the experience.
4. **New customers** with new values, self-determination**,** self-actualisation, networking, contacts, the Millennials, the Gen Zs, the *Homo Zapiens*, the *Homo ludens*.
5. **Togetherness** – To do things together (friends, partner, family) to share, like, belonging, storytelling, sympathy, social networking.
6. **Edutainment** and **gamification**, knowledge in a fun and easy way.
7. **Internet-smorgasbord** – everything should be easily accessible, easily to book, available on all platforms, booked at home, choices, add-on´s and extras should be only one click away.
8. "**La Dolce Vita trend**" with high service quality and accessibility, comfort and convenience (such as "*glamping*" – glamour camping).
9. "Make it beautiful" – **Designification,** design hotel, storytelling, cosy atmosphere.
10. "**Transparency trend**" – customers are expecting true transparency and openness, with several digital dialog channels to providers.
11. "From producer generated to **user generated** experiences and content." E-Word-of Mouth marketing, Social media, *YouTube* content, user-driven marketing, and video "hacks".
12. "**Homo maximus**" Everything here and now trough digital technology for time optimising, problem reducing, "que management", accessibility, fun and personal development.
13. Rapid development of **disruptive technologies** – big data, cloud technology, Internet of Things, automatization, robotization
14. **Experience production** – innovative experience design, create something out of the ordinary.
15. **Sharing economy** – cheep, personalised experiences, sharing and reusing.

16. **New travel pattern: -** from 2016 to 2017 we will see increase in**;** short (weekend) trips (48%), DYI (Do-it-Yourself) trips (38%), Off-beat experiences (36%), Solo-trips (33%), off-season trips (12%) and Homestay (14%).

The Experience Economy Trend

A megatrend in business in general, and in tourism especially, is the paradigm shift from the post-modern service economy into the transmodern **experience economy**. In 1999 Pine and Gilmore launched the paradigm shifting book "*The Experience Economy*" introducing the new economical offerings based on experiences and transformations. They introduced a model of progression of economical values driven by changes in society and economy from an agricultural society focused on extracting commodities to the industrial society focused on producing goods, to the post-modern society based on delivering services, to the present "experience society" where the offering is stating or producing experiences (*figure 1*).
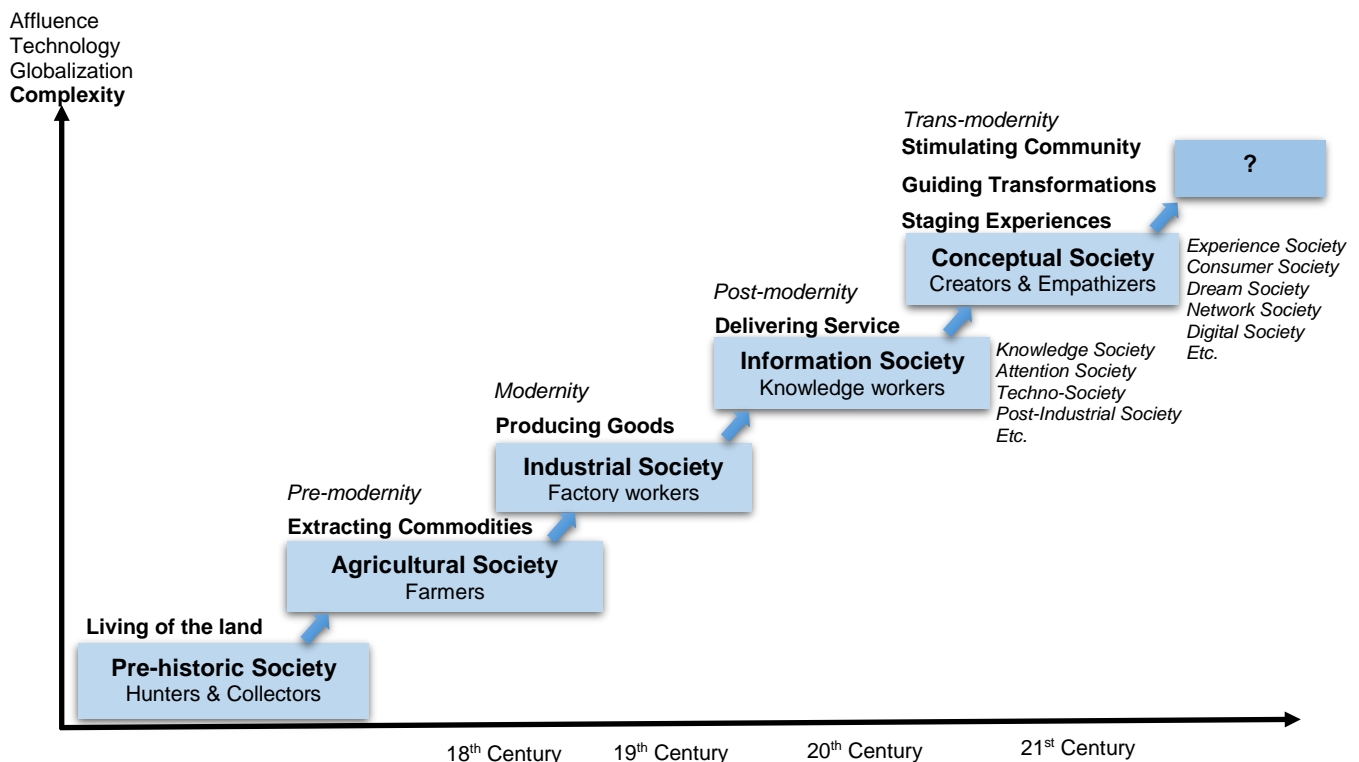

Figure 1. A simplified stage model of progression of society and economical offerings. (modified after Pine & Gilmore 1999, Florida 2002, Luyckx Ghisi, 2006, Pink 2007, and others.)

Customer values and behaviour drive the industry, and as meaningful and transformative experiences are the focus of the new traveller, not only striving for gazing at attractions (*Tourist Gaze* - been there, seen it, done it) and taking selfies (*Selfie Gaze* – experienced it, and lately *Groupie Gaze*) but the tourist rather want to learn, develop and self-actualize (become it), the tourism industry sooner or later must embrace the concept of transmodern tourism. This means that **experience production** should develop from 1.0 of Pine and Gilmores staging experiences and passive experience consumption, to the second generation of experiences 2.0 of **co-creation** of experiences (often called **customer-centred production**), to the third-generation experiences 3.0 of **self-direction**, where the provider only provides the stage and tools for the active self-experience production of the customer.

VISIT ARCTIC EUROPE 🇳🇴 🇸🇪 🇫🇮 ⚑

New technology trends in digital tourism

e-tourism

Digital technology has in the literature many different names, such as **IT- Information Technology**, **ICT – Information and Communication Technology**, **DT - Digital technology**, and **DICT - Digital Information and Communication Technology**, and its application in tourism as DT – **digital tourism**, **e-Tourism** - **electronic tourism** and **e-tourist** – electronic tourist. IT is usually defined as a term given to digital computer and communication technologies used for the acquisition, processing analysis, storage, retrieval,

Hardware trends

Since the first introduction of mainframe computers in the 1960s and personal computers with *Apple 1* in 1976 and *IBM PC* in 1981, the evolution of **hardware** has strongly accelerated and diversified. The first *laptops* that came in 1989 (*Machintosh Portable*) have now developed in fast and light computers, where laptop computers get ever thinner and now also can be rolled up. The first cell phones appeared in 1983 and have now evolved into today's powerful **smartphones**. Smartphones have brought forward the merge of several separate technical devises into one, such as voice recorder, digital camera, and digital video camera, video player, MP3 player, gaming devices, eBook, and web and mail functions and well as office functions of the PC laptop. In 2010 Apple introduced the first iPad starting the **tablet PC** evolution, that now is slowing down as larger smartphones are increasingly substituting tablets, and laptop computers getting thinner and lighter approaching the wearability of a tablet PC. New screen concept in the form of transparent, bendable or even projected scenes will in a near future probably substitute both laptop and tablet PCs. As a complement or substitute to smartphones, new **wearables** are developed in the form of **smart watches** (2012) or **smart bracelets** (*Jawbone* 2011), and such new gadgets, devices and design solutions are becoming increasingly embedded in our daily lives, capable of making life more comfortable and smart. They are now more and more becoming substitutes to smartphones with same apps and social media functions as smartphones. *Google*s released in 2013 **smart glasses** which now are transformed into wearable computers with high resolution displays, HD camera, optical touchpad, GPS, WiFi, Bluetooth, and own CPU computer. Next development step are **Bionic contact lenses,** that have the form of a conventional contact lens with added bionics technology, in the form of augmented reality with functional electronic circuits and infrared lights to create a virtual display. In the future, most functions of smart glasses and wearables will become integrated in **smart lenses** powered by smart phones or smart watches.

These wearable devices are predicted to have a huge impact on future tourism trough the capacity of **Augmented Reality** (AR). In AR digital information is overlaid over a real-life experience. In a similar way, devices for **Virtual reality** (VR) became commercially available in 2016 with several affordable headsets. Virtual reality technology simulate reality or creates virtual worlds with the help of headsets, that transports the viewer to new places or times. This technology will revolutionize **virtual tourism** as an alternative to In-Real Life tourism. Tourism marketing is just starting to discover this opportunity. One future application that will flourish is to linking history and heritage, to capture historical events on a cultural heritage. AR and VR have the potential to become natural applications within **eTourism** to enhance the tourist experience of most tourist sites.

Other new technological progress with bearings on tourism are for example **3D printers,** which are a kind of industrial robot, controlled by a computer, which instead of printing characters on a sheet, carves and shapes with laser in a substance, to create a finished tangible product. The user shapes the desired object

in a computer software and then in minutes or hours, the object will emerge from the printer. Marketing people immediately have used this opportunity to give visitors the opportunity to create personalized souvenirs. **Action cameras** have become very popular by both travellers for documenting their experiences, and by providers for marketing and for customer's relations by filming their customers in action. However, soon smart glasses with built in cameras or *EyeTap* **technology**, will substitute action cameras. An *EyeTap* is a device that is worn in front of the eye that acts as a camera to record the scene available to the eye as well as a display to superimpose computer-generated imagery on the original scene available to the eye. Another technology that recently have become available are **360-cameras,** a camera with two 180-degrees lenses, that merges the images to a 360 image. As 360-cameras take the surround-picture or even a 360-video in an instant, and the pictures with a few clicks can be downloaded to *Facebook* or YouTube, this technology will be common in promoting facilities such as hotels, hotel rooms, cabins, restaurants and other environments. At visitor's centres and amusement parks the new **4D movie technology** is becoming increasingly popular. Such 4D cinemas incorporate physical motion and the seat you are sitting on may vibrate or move using seat effect simulation. They may also include other sensory stimuli and effects such as strobe lights, smoke, lightning, air bubbles, air jets for wind, water sprays for rain and water spray, smell and leg and back ticklers.

One final hardware evolution to mention that will have profound impact on travel and tourism is **robotization.** Lately robotization in the form of self-driven cars has become a hype, and self-driving tractors and self-driving trucks are already a reality, soon strongly influencing agriculture and the transport sector. Self-driving aviation is under development while self-driving taxis hit the streets of Singapore in August 2016. The future in automatization within transport sector and travel is just taking its first trial steps but will in many ways have bearing on future jobs in transport- and travel sector. Another tourism sector that will be strongly influenced by intelligent robots and androids is the tourism service sector. Besides "classic" appearing robots, we start to see robots take up jobs as receptionists, interpreters, hotel staff, economists and salesmen. They look ever more human-like in appearance, intelligence and behaviour, and half of all service jobs are predicted to succumb to automatization within two decades. This may seem dystrophic, but already today a large share of the modern service economy is run almost entirely by computers. New technologies automate physical tasks (robotics), intellectual tasks (cognitive computing), and customer service tasks.

The first roboticised hotels are already open in Japan, where the receptionists have perfect service faces. We already see automating hotel services with self-service check-in and reservations such as *YOTEL*, robot helpers, and automatized **property management system** (PMS) that provide hotels with the tools to quickly process core functions include reservation and room management, customer information, setting room rates according to revenue analysis, accounts receivable and compiling reports. The foremost **cognitive computer** in the world today is *Ipsoft's Amelia*, marked as "*Your first Digital Employee*", that after two months of learning from her human colleagues, can handle over 60% of support tickets on her own. **Moore's Law** with its prediction of exponential grow of computing capacity can only be applied on present silicon based computer chips technology, and the law must be adjusted when **quantum computers** will enter the market and we go from computer technology 2.0 to 3.0. This ever-increasing speed of technological progress makes it impossible to predict what the future will bring in five to ten years, and when trying to predict beyond 2030 we enter Science Fiction.

Software trends

The **software** or *application programs* develop in symbiosis the computer capacity and hardware evolution, and operation systems such as *Windows* or *Mac OS* have developed tremendously from their first appearance. Soon AI - **Artificial Intelligence,** will be integrated parts of any software applications. Beside the increased usability and capacity of traditional applications such as *Office* and other everyday applications, the evolution of the Internet from Web 1.0 to present web 3.0 and future web 4.0 show an amazing technological development.

Internet trends

The first use of the web in the 1990s, **web 1.0,** was about information search mainly in databases, webpages and on discussion Forums, and simple communication through e-mail. During the web 1.0-era people were limited to the passive viewing of static content of websites, text was often unlinked, and interaction with webpages was limited. By the millennium the **web 2.0** emerged as an interactive and social web facilitating collaboration between people, with websites that emphasize user-generated content and usability. The web could start to work with other products, systems and devices besides the traditional computer, such as tablets, smartphones and wearables. It became collaborative allowing social layers and collaborative projects such as *Wikipedia*, social networking sites and virtual communities with user-generated content like *Facebook*, blogs and micro-blogs like *Twitter,* podcasts, video sharing such as on *YouTube*.

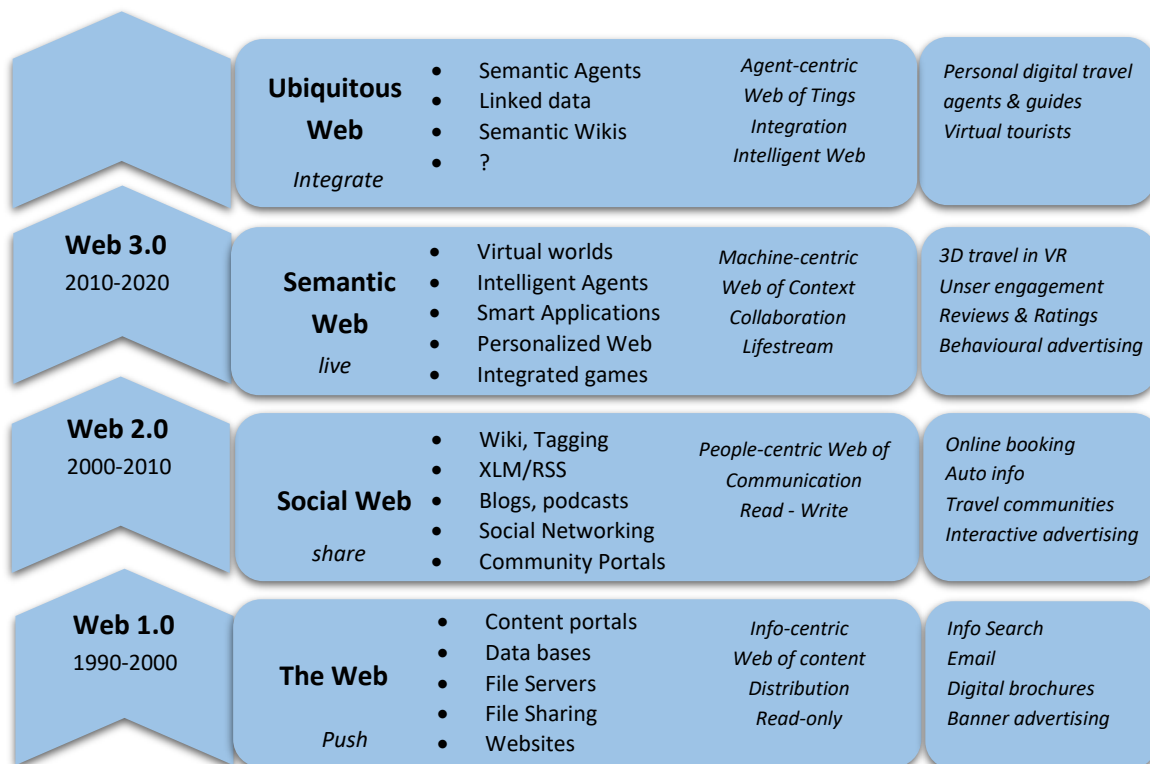|				
	Ubiquitous Web *Integrate*	• Semantic Agents • Linked data • Semantic Wikis • ?	*Agent-centric* *Web of Tings* *Integration* *Intelligent Web*	*Personal digital travel agents & guides* *Virtual tourists*
Web 3.0 2010-2020	**Semantic Web** *live*	• Virtual worlds • Intelligent Agents • Smart Applications • Personalized Web • Integrated games	*Machine-centric* *Web of Context* *Collaboration* *Lifestream*	*3D travel in VR* *Unser engagement* *Reviews & Ratings* *Behavioural advertising*
Web 2.0 2000-2010	**Social Web** *share*	• Wiki, Tagging • XLM/RSS • Blogs, podcasts • Social Networking • Community Portals	*People-centric Web of Communication* *Read - Write*	*Online booking* *Auto info* *Travel communities* *Interactive advertising*
Web 1.0 1990-2000	**The Web** *Push*	• Content portals • Data bases • File Servers • File Sharing • Websites	*Info-centric* *Web of content* *Distribution* *Read-only*	*Info Search* *Email* *Digital brochures* *Banner advertising*

Figure 4. The evolution of the Internet (compiled from diverse sources)

Recently *Internet* has transformed into **web 3.0**, however, researchers and others do not fully agree on the definition and content of web 3.0 as is still is under development. It refers to a third generation of Internet-based services that collectively comprise what might be called '**the intelligent web**' —to be more connected, open, and intelligent, with semantic web technologies, distributed databases, natural language searching and processing, data-mining, machine learning, machine reasoning, autonomous

agent, recommendation agents, and artificial intelligence technologies — which emphasize machine-facilitated understanding of information in order to provide a more productive and intuitive user experience. Often the "**Semantic web**" is used as a synonym for web 3.0 to describe the movement away from the centralization of services like search, social media and chat applications that are dependent on a single organization to function. Other names for web 3 are**; Artificially Intelligent web 3.0.** which advanced that artificial intelligence will be the next big breakthrough on the web. **World Wide Virtual web 3.0**, indicated the increasing presence of virtual world on the web, especially in the travel industry. **Ever-Present web 3.0** indicate the increasing popularity of mobile *Internet* devices and the merger of entertainment systems and the web. The merging of computers and mobile devices as a source for music, movies, and more, puts the *Internet* at the centre of both our work and our play. This will make the *Internet* always present in our lives - at work, at home, on the road, out to dinner, the *Internet* will be with us wherever we go.

What **web 4** will bring is still wild speculations. But it will fully integrate intelligent systems with in our everyday life. **Smart** – or **Intelligent systems** are next-generation information systems that promise to supply tourism consumers and service providers with more relevant information, greater decision-support, greater mobility, and, ultimately, more enjoyable tourism experiences. They currently encompass a wide range of technologies relevant for tourism contexts such as recommender systems, context-aware systems, autonomous agents searching and mining web resources, and ambient intelligence.

Early approaches to intelligent systems in tourism mostly focused on expert systems providing support for tourism industry professionals. Nowadays, intelligent systems in tourism are typically envisioned as fully **autonomous travel counsellors** or concierges that have the ability to determine user preferences and anticipate user needs while having a large and at the same time specialized knowledge repository at their fingertips and continuously evaluate their suggestions based on feedback received from their user. Intelligent systems in tourism are also developed to provide functions traditionally offered by tour operators and travel guides, such as travel planning/scheduling tasks, navigation and interpretation. The **context-aware mobile system** is an application that uses sophisticated algorithms to dynamically assemble tour packages. There is a high potential of the intelligent system in in tourism product development contexts, in tourism demand forecasting, and in areas of process automation.

There is an ongoing discussion for the possibility of the **web 4.0** in the form of "**the ultra-intelligent electronic agent**", consisting of an artificial intelligence device. In web 3.0 the tourist could compare prices, and facilitate the work of planning and booking, while in web 4.0 the tourist will have a personalized travel friend in the form of a **e-Agent**. This will be a "digital friend of travel", permanently accompany the tourist, and permanently connected to the Internet. It will handle all matters related to travel. You will be able to talk to it like you talk to a friend to obtain information or communicate with the web 4.0.

Three-dimensional technologies will find widespread applications, and everyone will have a 3-D printer at home. The compsany *Musion* has developed a **3-D holographic projection system**. *Cisco Systems* used the system to "beam" a couple of its executives onstage to deliver a speech in 2009, opening for the technology of **holographic telepresence** where a holographic camera at home or at your office beams you to a conference room or a virtual conference. This technology will revolutionize the business meeting industry making IRL travel superfluous. Three-dimensional holographic video conferencing will first be

used at large expositions and conferences, and would later when prices decline, trickle down to enterprises. Over time, it might even be used at home where you oversee friend could virtually walk into your living room and talk to you.

The scientific progress that appear as Science Fiction does not end here, as the line between human and device will blur and even disappear in a near future. **Brain-Computer Interfaces** (BCI) or **brain-machine interfaces** (BMI) aim to wire up the brain with external devices to improve vision, movement etc., with pure medical aims today, but will open new experiences in the future for direct connecting to VR and AR and digital friends of the web 4.0. With a similar goal, *Tesla* and *SpaceX* CEO Elon Musk has founded a new company called *Neuralink Corp*, with the aim of pursuing the "**neural lace**" **technology**, which consists of implanting tiny brain electrodes that could one-day upload and download our thoughts. AI layers interact with the brain making smartphones and other wearables unnecessary in the future. Also, *Facebook* and the *Defense Advanced Research Projects Agency* are pursuing similar research and development.

Webpage trends

Web design for web 2.0 and web 3.0 based on both functionality and usability is becoming of critical importance for the travel industry. Travellers expect websites to be informative, interactive, and attractive. A successful website should therefore take customers' interest and participation into consideration, to capture information about their preference, and to subsequently use the information to provide personalized communications and services. The **mobile web** is constantly evolving, and *Google* is always experimenting with new ways to speed up content delivery and performance across all devices. One of the most important factors in the mobile Internet experience is **speed**. This means that companies are potentially experiencing massive losses in traffic and revenue if their sites do not meet the needs of customers. *Google*'s solution to this problem has been the launch in 2015 of AMP, or **Accelerated Mobile Pages**. AMP is a stripped-down version of the mobile web which runs on a reinvented version of the language used to create web pages: HTML. Using AMP, however can improve load time by as much as 15 to 85%. Page speed is one of the many ranking factors for *Google*, hence your site's visibility is at risk if it's too slow. **Responsive web design** and carefully-crafted sites with performance in mind are part of the solution. **Accelerated Mobile Pages** (AMP) are shown in 70% of *Google* News search results for mobile users. In October 2016 *Google* announced that they will create separate indexes for mobile and desktop results, and will treat mobile as the primary index, thus *Google* becoming a "**mobile-first" search engine** as an adaption to the rapidly changing mobile ecosystem. This will open for a special **Search Optimization** (SEO) for mobile channels, and calls for a robust mobile strategy to understand what the mobile visitor wants from your website, and how that will differ from Desktop search optimization.

Cloud computing trends

A major megatrend that started in 2015 is business digital transformation into **cloud computing and cloud services**. During 2017 Cloud 2.0 will be established where most of companies will have moved from "experimentation" with the cloud into full scale use, predicting that in 2018 over 60% of all business data will be cloud based. This disruptive digital transformation consists of transferring local daily data handling and computing to a distributed computing architecture in the cloud, providing computing resources and server-free applications located in the cloud as externally provided computing services, where organizations buy whatever resource they need (as a service) from an external cloud service provider. This lower or eliminates the cost of ownership for hardware (servers and storage media), software and

software updates such as for office and accounting applications, booking and customer management among others, and reduces the need for IT support staff, and allows a payment based on what you actually use. Cloud computing also brings access to external modern and next generation technologies, services and capacity that would be impossible to host internally. Cloud computing thus changes how IT supports the business and provides increased capabilities at lower costs to a degree that was previously unobtainable.

Big data trends

For a long time, companies threw away data because they had too much to process or had limited storage capacity. But now collecting and transforming data from various sources into common **data lakes** has created the latest megatrend and hype, **Big data**. All industries are affected by the emergence of big data, but travel industry has seen the most dramatic transformation in this respect. Companies that quickly embrace this digital transformation will more likely succeed in the future. This disruptive transformation is an effect of the exponentially rise of data and information over the last 10 years combined with the increased scale of computing power and storage capability together with the introduction of artificial intelligence in data handling. The plethora of connected tech by the **Internet of Things** (IoT) that has entered our lives over the past couple of years is now starting to generate a wealth of useful consumer data for travel companies. *IoT* and connected wearables can now collect data on your everyday life, from what you watch on TV to the websites you visit, what you like on *Facebook* and even how often you boil your smart kettle. Every purchase we make with our cards, every search we type into *Google*, every movement we make when our mobile phone is in our pocket, every "like" is stored. *Big Data* means that everything we do, both on and offline, leaves digital traces, **digital footprints**.

Travel companies now can use this information to provide more targeted customer service and marketing. leads to a potentially new and lucrative area for travel professionals – **predictive analytics**. Thus, we are not only being able to predict where, when and how a customer is likely to travel but also being able to serve customers marketing messages or prompts at a time when they are likely to buy. Such connecting of separate data sets will be a growing trend for the travel industry in 2017 and forward. Today much data is still difficult to access hidden in servers of travel companies, but with the transformation into cloud computing, departmental walls break down as data starts to be held in central reserves, **data lakes,** that can be shared across businesses.

According to *Amadeus Travel Intelligence*, the future travel industry isn't just about moving people from A to B, unveiling new destinations, or organising trips. Instead it is about a thoroughly progressive, completely **360-degree view** of the traveller and everything that goes into creating special, unique, memorable experiences. The information and data to enable such personalised experiences needs to be gathered and deployed throughout the customer experience known as the "**consumer decision journey**" from the moment they are inspired to travel, to the time they return home from their trip. Such data, picked up from hundreds of points across the travel ecosystem, together with external data such as weather, geographical, social, media consumption and purchases, presents a valuable opportunity for travel companies to provide better-individualised services to the traveller and improve his or her experience. By achieving a more complete picture of the traveller, companies will not only be able to improve the traveller experience and secure greater loyalty, but they will also reap the financial benefits of improved customer centricity. Tailored offers to the customer and a better service experience should

increase propensity to purchase - which will, in turn, translate into revenues. One important source for *Big Data* is **electronic commerce,** or **e-commerce,** shopping on the *Internet*, which includes travel and tourism service shopping**.**

Research shows that **smart tourism** with high effective personalised information services based on the tourists needs and the tourist's digital footprint compiled from big data, will result from the merging of tourism management, tourism services and tourism marketing, changing the strategies and decision-making of tourism businesses and organisations.

Customer digital segmentation trends

In the 1980 the field of **Psychometrics**, sometimes also called **psychographics**, was developed, that focuses on measuring psychological traits, such as personality. Teams of psychologists developed a model that sought to assess human beings based on five personality traits, known as the "*Big Five*." These are: *Openness* (how open you are to new experiences), *Conscientiousness* (how much of a perfectionist you are), *Extroversion* (how sociable you are), *Agreeableness* (how considerate and cooperative you are) and *Neuroticism* (how easily upset you are). These dimensions are known as the acronym **OCEAN**, and has become the standard technique of psychometrics. The founder Kosinski and his team could now ascribe Big Five values based purely on how many profile pictures a person has on *Facebook*, or how many contacts they have (a good indicator of extraversion) and the motion sensor on our phone could reveal how quickly we move and how far we travel Psychometrics can also be used in reverse: not only can psychological profiles be created from your data, but your data can also be used the other way around to search for specific profiles, which led to the invention of a people search engine, the *Cambridge Analytica*. The company offers **microtargeting** by measuring people's personality from their digital footprints, based on the OCEAN model. This has primary been used by political marketing, such as the last US president election, where previously campaigns have been organized based on demographic concepts such as all women should receive the same message because of their gender. This Psychometrics approach opens for tremendous power of personal travel service and travel marketing, making the traditional market segmentation by region, by age group or by travel purpose, outdated, which are too simple to reflect the reality of how travel is purchased.

The new digital travellers

The term new digital travellers were coined for the digital generation, the Millennials. The Millennials, or GenZ, are associated with the number 8, the number of seconds that GenZ take to process information, consider what it means and then move onto the next thing that catches their eye. Within that **8-second window**, travel brands' best bets for reaching this generation of travellers lies in using images rather than words. In fact, Gen Zs' brains are suggested function fundamentally different than those of older generations. They have learned to process information much faster, but they have trouble retaining that data. They value social media, but not the kind their older siblings, parents and even grandparents share infatuation with. GenZs love incognito apps like *Snapchat* and *Whisper* much more than *Facebook* and *Twitter*, but *Instagram*'s popularity with this group remains high. The number of GenZs using *Facebook* is on a steady decline while *Instagram* is increasing, indicating that marketing and communication with GenZ should primarily be trough *Instagram*, *Snapchat* and similar channels. GenZs watch twice as many videos on mobiles as other generations, 70% of GenZs watch at least two hours of *YouTube* per day, and receive over 3000 text messages a month.

There has been a recent trend of interest in the young generations for three reasons. First young people's values and attitudes are important for employment, as students, as consumers and as citizens. Secondly, it is the youth that set trends in society, what they do today, older generations do tomorrow. Thirdly, young people´s values provide a glimpse of the future, as values developed in the formative youth tend to stick into adulthood. We thus must understand these **e-generations** of **GenY** and **GenZ** as they are the new **e-travellers** with the biggest purchasing power for travelling. When travelling, they expect total digital presence and being connected to the *Internet*, putting digital demands on the travel industry. They are the major consumers of social media and expect communication with service provider's trough the new channels of social media and digital services. Free *WiFi* on hotels and facilities is taken for granted. And they want to have fun, preferently trough **gamification** of their experiences. Thus, a new trend in travel and tourism industry will be to adapt services and experiences according to these new *e-travellers* and their expectations, demands and values. There is still limited research on e-generations travelling. To meet the e-travellers, the tourism industry must move away from traditional values of tourism developed for the *Baby Boomers* and *Generation Jones* in the era of tourism services, and stepping up the ladder of the experience economy offerings. The industry must embrace the new values of *Generation Y* and *Generation Z* in the era of **transformative experiences**. The next tourism hype after experience production might thus be **transformative tourism** trough transformative experiences.

Social network trends

The history of social media is traced back to and co-evolved with the evolution of the *Internet*. Social media started with precursors such as *Bulletin Boards* (1978), *Usenet* (1979), and *Internet Relay Chat, IRC* (1988) before the launch of *Internet* (1989), followed by the first webpage in 1991 and first blog (1994). The Social media landscape has now exploded with hundreds of platforms for different interests, and is beautiful summarised in the "**Social media Prisma**". Social media, being one of the global "megatrends" in digital development, has significantly impacted the tourism system and affected the traveller's decision process. It offers a large scale online participation, emphasized transformation of consumer to more active roles, which are called **prosumers**, one who is both producer and consumer, thus defining the web 2.0 concept as well as co-produced experiences (Gen 2.0 experiences). Over a third of the total global population has some form of **social media** account, with somewhere between two and three billion people being active social media users.

A new trend from 2016 is that **messaging** is exploding as an engagement channel at hotels. Hotel brands big and small have made headlines for their adoption of various messaging channels, as well as for the development of their own messaging systems within existing apps or apps for the purpose of just messaging. Consumers have taken quickly to messaging platforms like *Facebook Messenger*, *WeChat*, *Snapchat*, *WhatsApp*, *Viber* and others, on top of their existing SMS abilities. **Messaging** is a particularly sticky engagement channel. About 90% of all text messages are read within 3 minutes of their delivery – and over 99% of all text messages are read by the recipient. The real-time, immediate and personal nature of messaging is part of what makes it such a compelling engagement channel. It's conversational, much like traditional interaction between guests and staff. It's also threaded and tied to an identity, which means context is retained. Staff can scroll through previous exchanges with a guest to recall preferences and previous requests. And, unlike phone calls and in-person communication, conversations in the form of messages between the guest and a hotel represent data that can, for the first time, be analysed individually and in aggregate. Messaging can help hotels improve guest satisfaction, by giving

hotel the opportunity to take advantage of every request, suggestion, concern or compliment from guests.

Messaging has entered the travel mainstream in 2016, primarily driven by text based bots, although voice based interfaces are starting to make their presence. **Bots** are virtual customer service agents that operate mostly on social networks, especially *Facebook*. 2016 was the year when **chatbots** emerged as a new interface for consumer interaction. Advances in artificial intelligence technologies – such as neural networking and natural language processing – have allowed brands such as *Facebook*, *Google*, *Apple* and *Amazon* to offer conversational products, letting consumers order products or map their journeys through speech or messaging. Machine learning will allow chatbots to become more and more sophisticated while customer expectations will rapidly evolve in tandem. On-demand 24-hour information and service will become commonplace. When online travel agents democratised travel 20 years ago, they gave the power of flexibility and choice to the consumer. But chatbots represent the next seismic shift that will evolve not only the travel booking process but also the customer service experience for decades to come. There's a vibrant and growing ecosystem of start-ups developing chatbots for all stages of the travel funnel.

Megatrends in digital technology and society

To wrap up this first section of "**Digital trends in tourism**", we will listen to three outstanding trend analytic company's. We start with *Interactive Intelligence*[1] who predict **Five Technical trends** that will redefine customer's experiences:

1. **Multimodality** - The speed and usefulness of information sharing is growing exponentially. We consume and share information using multiple modalities - words, images, sound and video. It's instant, intuitive and helpful. We swiftly search, watch, listen, read, type and talk – all at the same time. The multimodal mindset is about speed, choice and "cool factor"
2. **IoT, Internet of Things** - "Things" are devices at home, on your wrist, in the car, everywhere that generate automated and live customer interactions. IoT are predicted to change the world, now starts to take off due to many new smart sensors that have reach the market, making it possible to apply sensors to machines and things. Ecosystems of computers, smartphones, transport vehicles, wearables, smart clothing, smart shelfs etc. will revolutionize retail, create "**Smart homes**" and "**Smart cities**", - infrastructure oriented applications with the aim of improving the quality of life of citizens. **Smart Destinations** transforms IoT infrastructure of Smart Cities into service design for visitors.
3. **Data Science** - Effective use of **data analytics** will determine who survives in this new era of digital enlightenment. Winners will operationalize key insights derived from big data and math to deliver customer service that is far more proactive, timely and cognitive.
4. **Bots** - bot is software that performs an automated task over the *Internet*. They have traditionally addressed more repetitive, mundane work, but breakthroughs in artificial intelligence and machine learning are transforming bots into brilliant digital tools. Automating business processes with bots is expected to become a large opportunity for almost every enterprise
5. **Microservices** - Most older cloud applications are monolithic under the covers, offering limited innovation, scale and reliability. Modern microservices cloud architecture, where applications are divided into hundreds of independent microservices, introduces innovation, resilience, elastic and simplicity. A failure in one microservice has no impact on the other, providing unsurpassed reliability where "if one fails, another one is waiting right behind".

---

[1] Interactive Intelligence 2017: 5 Tech Trends Redefining the customer Experience

Kairos Future in several reports "*Whats on ….*", Predict **10 global trends** each year. Some of the global trends that are relevant for this papers context are presented here:

- **The Robotic Revolution**: They're already here, not yet like R2-D2 and C-3PO, at least not in every office or home. But they are here in the format of drones and self-driving cars.
- **Automation Revolution**: Automation is not only about physical robots, although the mechanics are crucial. It's first and foremost about the algorithms behind them. They already write articles in newspapers and magazines, they make weather forecasts and bet on stocks. The world's most advanced cognitive computer is called *Amelia* and learns like a human.
- **Personalized Revolution**: Internet search is getting intelligently personalized. By the algorithms developed by *Google* and *Facebook* we don´t need to search any more, but get wat we want trough automatic authentication based on the digital fingerprints we leave, which also allow us to move seamlessly between sites and platforms without ever logging in.
- **Availability revolution**: We have every library advisable instantly at our fingertips. We also have access to university programs, informative talks and journals from all parts of the world. Thanks to the availability and instantaneous revolution, we can be smarter and more educated than any generation before us ever could dream of.
- **Connectedness Revolution**: Hundred thousand billion sensors are predicted in 2030, monitors are going to connect "everything" giving immense opportunities. We will be able to measure and control anything we like, our homes will be able to control themselves, adjusting light, heating and air quality after each specific person's desires. Such intelligence-connected sensors overseeing every step we take sounds like Science Fiction, but this Internet of Things is already a reality in many areas.
- **Low Cost Revolution**: Globalization and automatization gave us cheap labour and almost costless gadgets. Technology once very expensive such as computers or TV-sets are now available for nothing. During recent years, the digital and sharing economy has taken low cost to a new level, and digital products (apps, music, films, information etc.) can be multiplied and distributed at no cost at all. Powerful automation increases productivity and replaces white-collar workers with algorithms, and gives corporate clients more for less.
- **Disruption**: Faced with a world in chaos, nations, companies and individuals will be engaging in introspection, re-evaluation, searching for new solutions and salvation. The world's most successful taxi company does not own its cars, the biggest hotel chains do not own any rooms, and the biggest software companies only produce a fraction of all software they sell. Virtual currencies like Bitcoin, that used to be mocked, are now looked upon as the rescuers of the world by financial firms.
- **New Futures**: The interest in future has been coming and going, but not since the 1960s have a greater number of optimistic and spectacular visions for the future been ready for realization. **Space tourism** through private enterprises such as *Virgin Galactic, SpaceX*, *Blue Origin*, *XCOR Areospace* and others are planning to send space tourist on sub-orbital trips, and *SpaceX* even on lunar free return trajectory. These enterprises have launched a race of establishing spaceports, where ***Spaceport Sweden*** is competing with US, UK, Germany and others. Musk is also testing the *Hyperloop*, a magnetically driven train with a maximum speed of 1200 km per hour. A journey between Los Angeles and San Francisco will take just 30 minutes, at a cost which is only a fraction of a plane ticket.
- **New ownerships**: New ownerships in the form of sharing, of taxis, housing, cars and ideas in the **Sharing Economy**. And borrow everything that can be borrowed to maximize comfort and flexibility and to minimize hassle and costs. For both companies and employees. Saving is the new trend after decades of wasting.
- **New Values and Beliefs**: Yesterday's dream was about freedom, experiences and short engagements. But today new ideals and dreams are emerging among the young: they value security more than

freedom, truth more than opinions, the little world over of the big one. Yesterday's youth considered the manager position as one of many possibilities, and as an exciting challenge. Today's youth see it as a life-long engagement where they want to be productive, develop and improve an organization, employees and themselves. And they want to be paid well for their work. Just as the crises of the 1930s and the 1940s created new ideals, we now see a trend shift when **Generation Pragma** takes over.

- **Work: Hope or Fear?** We see the emergence of two radically different perspectives on the future of work. Many enthusiasts of blazing technological progress long for a future where everything is automated and people don't work, while others look upon the same future fearing their own obsolescence. The next futuristic dream in line to come true is that of the "human-free company".

- **Star Trek economy?** Markets and competition are subject to clashing visions. Online winner takes all and second place is seldom worth much, and fourth or fifth nearly nothing. One search engine is enough for everyone, and so is one or a few communications platforms and one travel-app. The only way to survive is to claw your way to the status of global empire before someone else does – or get bought out while trying. The philosophical alternative way, the "**post-scarcity**" era, is the idea that in the future, thanks to technology and automation, everything will exist in abundance: data, information, energy, computing power and intelligence. Marginal costs will approach zero, both in the digital and the physical world. We then need no money or nor businesses. Nobody needs to make anything. We can all share, print and synthesize what we need in the **Star Trek economy**. Time will be spent on luxury and experiences, In Real Life but mainly in virtual life, and "*Matrix*" will lure around the corner.

Another trend researching company is the German company *TrendOne, which* identified several tends for 2017 and beyond:

1. **Conversational Commerce** - Digital conversations are the new form of customer interaction. Messengers, as central platforms, are becoming an ecosystem for retailers, brands and service providers. Whether by text, video or automated as a chat bot, natural language signalizes proximity and comfort.

2. **Deliver Readiness** - Immediate deliverability is becoming a guiding principle in product development. Instant and Now are the key words of delivery services and logistics companies. Goods and services have to be "deliver ready" in future and be available to customers anytime and anywhere.

3. **Mixed Reality** - Holographic images herald an age without screens. Limiting the user experience to screens is a thing of the past. Mixed reality enables the realistic presentation of interactive 3D projections in the direct surroundings. Where the possibility of touching holograms was once just in the realm of science fiction, it is now slowly entering our present lives.

4. **Blockchain Business** - What the internet has done for communication, the blockchain will do for transactions. The blockchain has the disruptive potential to turn decade-long domination by industry mechanisms and business models on its head. The blockchain is more than just a secure, digital infrastructure for making transactions. The blockchain serves as a technically implemented form of trust between people so that there is no longer any need for trustworthy third parties. It can be used wherever security, fairness, distribution, accounting, verification and tracking are required.

5. **Retail Robots** - A new wave of automation is turning robots into cooperation partners. Around the world, the retail business is testing the use of robots in its stores. Self-driving shopping carts follow customers independently through the shops. These concepts are backed up by the vision of automated retail.

6. **4D Printing** - Materials are becoming machines. 3D is turning into 4D. This is made possible by programmable materials that can independently transform or further develop after being manufactured. Materials are capable of assuming tasks. They are no longer just materials but are

becoming machines. Adaptive, multimodal, self-healing and biodegradable – 4D printing heralds the future of materials and it won't have much in common with today's engineering.

7. **Space Colonization** - Humanity is heading towards becoming an interplanetary species. A new space area is approaching that will also include **space tourism**.

8. **Quantum Clouds** - Superfast computing power through quantum computing-as-a-service. The company *D-Wave Systems* is the first provider of commercial **quantum computing**. The quantum computer is around 100 million times faster than a conventional computer. In future, it will be possible to book and acquire its computing power from the cloud. Quantum clouds could well become the platforms of the future and they will be provided by companies like *Amazon* or *IBM* and trigger the era of hypercomputation.

TrendOne also identified **16 Mega tends**, that describe structural changes in society that influence all aspects of society and influence our lives over sustained periods of time. These are:

1. **Aging Society** - Medical innovations help to keep people agile and active into old age.

2. **Attention Economy** – The battle for attention is won by whoever adapts their message to the respective locations, devices, situations and moods, emphasis is being placed on emotionalisation and added value to win the rare asset of attention. So-called tailored touchpoints help to increase the possibility and quality of contacts between brands and customers.

3. **Autonomous systems** - use a machine-based form of self-organisation to carry out human work. everyday life too is becoming increasingly influenced and shaped by intelligent machines. Autonomous assistance systems are not only changing mobility but also society at large by creating more time for people and thereby boosting the quality of life.

4. **Connected World** - The increasing levels of connection has led to a new social dynamic that combines individual contributions with community-based actions and experiences. Consumer has given way to the prosumer, who is now involved in many stages of the value chain – from generating ideas for new products, to helping to decide on the range and to the marketing process. The Connected World mega-trend therefore heralds the entry into the era of the digitally supported empowerment of consumers and citizens.

5. **Continental Shift** - Forecasts show that Western industrial nations will become less important to the world economy in future and will be replaced by what used to be known as emerging economies and developing countries.

6. **Data era** - Every day sees the emergence of 2.5 exabytes of new data, and the overall figure doubles every 40 months. Today, more data races through the *Internet* every second than was saved in total just 20 years ago. We are walking data makers – social media activities, and self-tracking via the smartphone have brought about a growth in databases. Valuable information can be extracted from the multitude of data. With the help of big data techniques, companies are starting to comb their way through their customer data in search of hidden patterns.

7. **Distrust Society** - the basis of trust in central institutions is breaking up, as today, information spreads quickly and widely. The wide range of sources that people use for information and the invisible network of interests behind them have made people more sceptical. There is a growing desire to remove oneself entirely from political and economic interests. As a counter trend to the information society, the **Distrust Society** will raise the concept of credibility to the key aspect of public communication and interaction between individuals and institutions over the coming years.

8. **Healthstyle** - Health is no longer merely the absence of illness, but is a lifestyle in its own right. Working on the body, mind and soul with the aim of achieving greater vitality has become a philosophy of its own. Inner health is also maintained by slowing down and developing a more spiritual view of the world. Thanks to digitalisation, Healthstyle has become an omnipresent companion to our daily lives. Health assistants are moving into our homes and devices. Taking

preventive measures regarding our health opens new fields in both analogue and digital product and service markets.

9. **Individualisation** - Globalisation, digital connection and the growth of prosperity have multiplied the options for self-development over the last couple of decades. Solidarity and collective movements such as the workers' movement are no longer fashionable; everyone fights for themselves alone. People increasingly find themselves in competition with others through self-fulfilment and self-optimisation. People create their own brand identity to stand out from the crowd. To become unique, we often must individualise totally normal products and services. From self-designed clothes, to media consumption, to a chosen lifestyle and leisure such as traveling. Companies have spotted this and are meeting the needs, either customised or needs-based, individualisation is becoming personalisation as customers want to be independent and flexible, as well as individual.

10. **Outernet** - The Outernet is the technical infrastructure of tomorrow. It originated when the *Internet* jumped out of desktop PCs onto the streets so that all the possibilities of the digital world – linking, search, personalisation, interaction – could merge with the real world. The Outernet has led to digital things becoming as important as the oxygen we breathe – we now take it for granted as it has seamlessly integrated itself into many aspects of our lives, business processes and the objects around us. People are now entering a new relationship with objects and information. The next stage will be objects linking up with each other and forming a **Web of Things**. They develop their own sense of awareness of themselves and of their surroundings, and can directly react to what's happening around them. The tangible world becomes more sensitive and can react to people's current needs. Its potential to revolutionize our lives is enormous.

11. **Seamless Commerce** - The digital revolution has turned the world of retail upside down. The borders between e-commerce and m-commerce are becoming increasingly blurred, where the aim of Omnichannel is Seamless Commerce, a seamless Customer Experience across all channels. Traditional media like print, radio and TV are enhanced by new platforms and channels, and traditional real-life experiences such as tourism and outdoor activities are becoming enhanced through new digital platforms and channels as an omnipresent connecting link.

12. **Shy Tech** - High Tech has become Shy Tech, which works quietly in the background. Complicated devices with switches, cables and buttons are being replaced by intuitive interaction interfaces integrating itself in everyday objects. Intuitive operability, such as voice, gesture and thought control, also contributes to a more natural interaction with technology. The Shy Tech solutions lead to the disappearance of any barriers when switching between different media formats or features. Instead, content can be consumed seamlessly on a variety of devices and products adapt to specific usage situations. The next step will see the emergence of intelligent environments in which devices and sensors are connected to each other where technology acquiring the art of empathy and learning to meet our needs and preferences. Digital agents remember things on our behalf and help to organise our daily lives and travel experiences.

13. **Skill Society** - Knowledge is one of the most important resources of the 21st century and plays an important role in productivity and growth in the post-industrial age. Smartphones and tablet computers now enable us to access information everywhere and always enabling everyone to instantly find and use expert knowledge. The focus here will be on transferring knowledge in experience through practical applications. Companies must constantly work with innovations through the new methods of collaborative working and joint ventures. Knowledge gained through experience will grow in relevance as we are currently in a transition phase between the knowledge society and the skill society.

14. **Sustainability** - Sustainability was an influential topic of the past few decades and it remains so today. The economy, the food production chain and the entire consumption process are all tested for sustainability. The economy is becoming the **reconomy** or **circular economy**: the reuse of used

objects that were previously seen as waste will partly help to solve the problem of waste disposal. People are now trying to contribute to a more sustainable world through ethically correct consumption including ethical tourism.

15. **Transhumanism** – Previously a key-stone in Science Fiction, now wearables are an indication of most people's willingness to accept the close proximity of technology. With these new possibilities, the natural limitations of the human body no longer seem absolute. From artificial limbs to electronics fitted in or on the body and right through to the insertion of partly autonomous small robots and manipulated microorganisms in the bloodstream – none of the procedures that go on inside the human organism now seem out of bounds. An overall higher quality of life through new improvements in bioengineering, human enhancement, wearable tech, brain-computer interfaces.

16. **Urbanisation** - Half of the world's population already lives in cities today. According to estimates, this figure will rise to 75% by 2050. Concepts for ecological cities will minimize the impact of environmental damage caused by urban centres as well as increase people's quality of life. The city residents themselves will reshape their own urban surroundings by blurring the distinctions between the city and countryside.

Digital trends in tourism business management

The development of the *Internet* in the late 1990s, have dramatically transformed operational and strategic practices in the tourism industry. Since the year 2000 we have been witnessing the truly transformational effect of the communications technologies and how customers interact with tourism businesses (C2B, B2C) as well as business to business (B2B) interactions. Not only ICTs empower consumers to identify, customise and purchase tourism products, but they also support the globalisation of the industry by providing effective tools for suppliers to develop, manage, and distribute their offerings worldwide. Increasingly ICTs are now used to reengineer all business functions and processes towards supporting the organisation on its entirety working process, redesigning processes and eliminating repetitive tasks, thereby reduced labour costs and increased efficiency. In a study Microsoft tried to determine how customers perceive companies that are behind when it comes to digital technology. The striking take-away was that more than 90 per cent of consumers said they would stop doing business with a company because of its out-dated technology. Thus, using digital technology is a matter of life and dead on the market. Companies that are not up to date with modern communications technology, for instance, are simply hard to do business with, and will lose both customers and collaborative companions.

Business transformation has recently become a buzzword, but according to research and business Intelligence trend analysts, it is a paradigm shift that influences all industries, including the tourism industry. Traditionally, business transformation has simply meant rationalization and cost cutting. But today technology is far more than an aid in rationalization, but rather revolutionize business praxis. Thus, business transformation now usually means digital technology driven disruptive changes of working processes, lower costs and increased efficiency, new business models or even new services enabled by new technology. By new technology is understood all the digital evolution mentioned in the previous sections, such as Big Data, Cloud Computing, Mobility, Social Media, Internet of Things, 3D Printing, 3D displays and holographics, Augmented reality, Artificial Intelligence and Expert Systems, Mobile payments etc. The only option is to embrace technology and use it as a catalyst or enabler or be lagging behind your competitors. **Business digital transformation** is not only all about being on the *Internet*. As important, especially for micro- and small business, is to use smarter digital document flows, e-accounting, mobile

payments, and cloud storage. Companies that embrace digital transformation are 26% more profitable, but most organisations, even big companies, are just beginning their transformation journey.

Digital trends in travel distribution

Traditionally, the travel distribution role has been performed by **outbound travel agencies** (OTAs**)**, **tour operators** (TOs) and **inbound travel agents** (ITAs). As the *Internet* and eCommerce developed in the 1990s, the **on-line travel distribution** developed. *Internet* allowing to purchase travel products on-line on a 24h/365 days basis at their convenience, rather than during the office hours of traditional tourism providers. **Search engines** play a fundamental role in creating traffic to travel websites. Search has become increasingly important in travel and tourism, and about two-third of online travellers use search engines for travel planning. Search engines, through their indexing, matching, and ranking technologies, control what information is available to consumers and how it is presented. To be represented by search engines, tourism suppliers must engage in sophisticated search engine optimization.
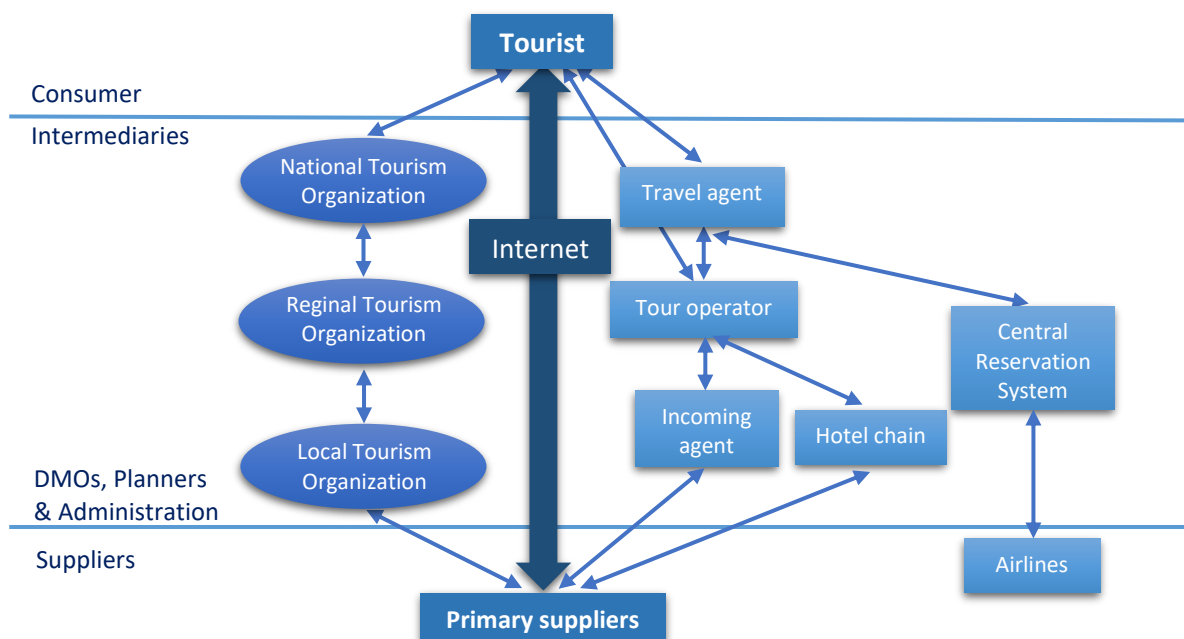

Figure 13. Simplified traditional travel and tourism industry value chain (adapted after Werthner & Klein 1999)

Traditional distribution on the internet is trough supplier's websites, which are carrying a **booking engine**. There are plenty of booking engines on the market, from low-end products with good prices to high-end booking services with great service. Website have traditionally been used to get people interested in the product, offering other channels such as mail or even telephone for closing the sale. Using a booking engine makes this process easier, more efficient and thus resulting in more sales.

 Travel distribution has also seen the emergence of new intermediates for bookings, such as third-party distributors websites, known as **online travel agencies** (OTA) such as *Priceline*, *Expedia* and *TripAdvisor*. These intermediates provide greater exposure and handle transactions, but also hold a tight management approach and control over inventories However, as customers start to take matter in their own hands by booking directly through a supplier´s website and creating their own packages, they will no longer require the services of OTA. The latest players in the distribution chain, are **metamediaries** such as *Sidestep* and *Kayak*. They form strategic alliances with suppliers and intermediate and provide consumers with opportunities to simultaneously search the database of their partners. The partner site then handles the transaction. **Metamediates** are empowered by increasingly sophisticated search technology and artificial intelligence. **Dynamic packaging** is another technology-based development disrupting established

relationships among tourism service providers. Through direct access to inventory databases and sematic web technologies, dynamic packaging involves the assembly of various travel products and service components into one package at the moment of request. Dynamic packaging requires instant access to information, interaction with the consumer and adaptability. Dynamic packaging applications change the notion of collaboration in tourism as the consumer rather than the providers now drives bundling.

There, is currently a lot of turbulence in the on-line booking business. Besides traditional business marriages, and buying of competitors and new start-up, as new actors such *TripAdvisor* as well as *Google Travel* and *Facebook for Travel* enable direct booking and start competing with traditional booking services such as *booking.com*, and others. The new trends are traffic monetization with online marketing, as well as OTAs and metasearch companies are converging. There first was a shift from transaction-based to advertising based revenues, and now the wider **metasearch ecosystem** is changing in several ways. From being online referral operators, OTAs are becoming super online advertising businesses. This convergence of the two models is giving rise to a **Mega Online Travel Retailer**. They may buy their marketing channels, giving them the opportunity to build a brand, while metasearch companies get a closer relationship with the customer through OTAs.

A **disruptive innovation** in informal tourism accommodation was the emergence of **Airbnb,** a company whose website permits ordinary people to peer-to-peer rent residences as tourist accommodation. It Their novel business model is built around modern *Internet* technology, and focuses on cost-savings, household amenities, and the potential for more authentic local experiences. However, *Airbnb* has significantly disrupted the traditional accommodation sector. *Airbnb* aspires to create a world where everyone can belong anywhere. That means visiting cities not as travellers, but as locals.

Tours and activities suppliers are usually "*low tech, small budget, offline and fragmented*" with many still struggling to get online, never mind become mobile compatible, while travellers who have booked their flight on their mobile expect to be able to book their tours in their same way. With over 80% of tours and activities booked on the destination with mobiles, the days of email confirmation or "*no booking within 48 hours*" are on the way out. Thus, from 2017 most suppliers must be offering **instant booking**.

Travel distribution faces a range of potentially huge disruptions over the next 10 years that will significantly impact industry players and their business models. Five disruptive factors for the travel distribution industry:
1. **Consumer expectations** will grow to be the major disruptive factor demanding more choices, frictionless purchasing, inspirational shopping and personalised services.
2. **Mobile devices** already today are a disruptive factor and will in the future have a major disruptive role, demanding 24-hour services during the whole travel cycle, where micro-moments in search and booking will influence the travel distribution system.
3. **Big data and AI** will allow real-time analysis of consumer preferences and responses to consumer's request based on consumer's previous choices and digital footprints. Virtual assistances and travel guides will change consumer behaviour and shift power to those players who control the technology.
4. **Regulations** on the national and international level determine the rules governing the competition in the industry. A major disruptive factor over the next decade will be the extent to which regulators intervene to limit the power of larger players such as mega meta-online travel agencies (OTAs) and travel management companies (TMCs), and the rising gatekeepers such as *Google* and *Facebook*.
5. **Travel risks**, such as terrorist attacks and natural disasters affect significantly consumer behaviour at all stages of the travel with impact on travel distribution. Demand may increase for low-risk

destinations, safer times of the year or hotels with higher safety ratings. Regulations could be strengthened for **advanced passenger information** (API).
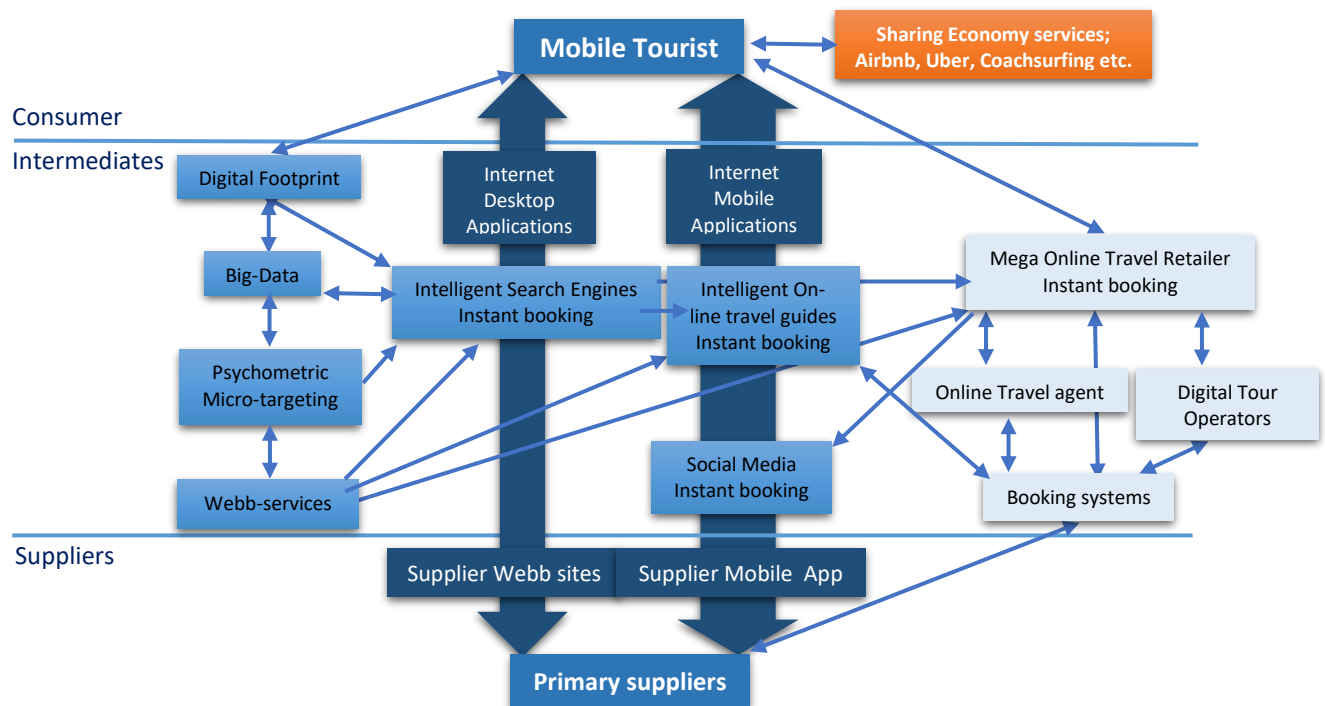

Figure 14. Simplified interpretation of future digital value chains in travel and tourism.

Digital trends in tourism marketing

ITC has drastically changed the marketing environment of the tourism industry. What we see today is a paradigm shift from **push-marketing**, where like a megaphone, companies try to reach as many as possible by buying ads, and attract attention to webpages, all under fierce competition, towards **pull-marketing**. Here information is delivered only to those who ask for it on a personal level, by creating interesting material to those interested, and by talking and interacting to people, and being in such customer relations by deserving it on the customer's terms.

 Website marketing and **search engine marketing** have until present time become essential components of contemporary tourism marketing. Until recently, even smaller travel businesses could expect to do okay on the "free" traffic generously supplied by *Google*. Today, suppliers having only a webpage will not reach far on the Internet. New search algorithms that prioritize aggregators and OTAs, forces smaller suppliers in their marketing to use paid web-ads such as *Google Adword* or *Facebook ads*, paying per klick to their webpages. But as the competition increases in such paid traffic ad-channels, providers face ever increasing cost per click. Marketing on social media is the fastest growing sector in digital marketing.

There is plenty of research on the time and length of travel purchase decisions in leisure travel, that show that the process from an initial spark of inspiration down to actually booking a trip can take months, years or even decades. On each step in the process people are drowning in third party sources of information, reviews, distractions and competing offers, with the risk they put their attention to a competing destination. In addition, customer retention is usually low in tourism. Most go traveling only a few times a year, with just one or two international trips, making travellers coming back to the same place with the

same travel company during several years very rare, thus loyal customers are hard to find. To attract attention, **content marketing**, to build audiences by using interesting content has become a recent trend. The aim is to keep the prospect traveller interested during this extended "decision journey". Thus, promotion is recommended to be at most only 20% in your market communication, the rest of interesting content. Thus, developing efficient **Customer Relations Systems** (CRMs) with personalised communication has become essential in a market strategy.

Costly branding strategies employed by tourism marketers can, however, easily be undermined by consumer reviews and blogs. Research has shown that interpersonal influence and **word-of-mouth** (*WOM*), and when digitally, **electronic word-of-mouth** (*eWOM*), are ranked the most important information source when a consumer is making a purchase decision, especially in the tourism industry, whose intangible products are difficult to evaluate prior to their consumption. *eWOM* has thus change the structure of travel information and travel marketing, the accessibility of travel information, and subsequently travellers' knowledge and perception of various travel products. Such **user-generated contents** provide tourism marketers with invaluable information about their consumers, but to efficiently capture such information, big data and intelligent data analysing technologies must be applied, still out of reach for many smaller suppliers and smaller DMOs.

Context-based marketing uses ICTs tools such as **location-based technology** that recognise and enable to respond on the physical environment (context) of their users. Connecting the different concepts of context-based marketing, social media and personalisation, with mobile devices, result in **social context mobile (SoCoMo) marketing**. *SoCoMo* marketing introduces a new paradigm for travel and tourism. It enables tourism providers and destinations to revolutionise their offering by obtain and share real-time, contextual information for various decision-making processes associated with the consumption of experiences, and to co-create products and services in real-time dynamically with their consumers. Such **location-based social network** (LSN) **marketing** using contextual information is increasingly relevant in tourism marketing, as in the near future big data collected by a wide range of sensors in a **smart destination** provide real-time information that can be used to influence the tourist experience.

A trend in tourism promoting is to use different picture-based social media applications such as *Instagram*, *Pinterest, Snapbucke*t, *Twitter*, T*umblr* and others, which can be regarded as a form of **express marketing**. Here pictures and videos are used as content carriers in the form of **visual storytelling**, to share content across different platforms to engage uses from *YouTube*, 360-degree feeds and *Facebook Live*. **Infographics** - the use of visualized information. The reason for the popularity of infographics is said that the brain is visually wired as almost 50% of the brain is involved in visual processes and 70% of all sensory receptors are in the eyes. **Video is** the strongest trend in social media, the film capacity of smartphones, and cheap editing and productions on desktop and smartphones, has made video production everyone's option. For travel marketing, **online video** is a powerful way to convey excitement about a destination, product, service or brand and create awareness and engagement of a product or destination. From previously buying expensive 30 second advertisings on television, today spreading 8 seconds marketing videos on *YouTube*, *Facebook*, *Instagram* and *Snapshat* is free, and will be the main channel to reach the millennium travellers. As more and more people around the world share their travel experiences on *YouTube* and **vlogs** (video blogs) that feature personal travel experiences, such travel videos have become natural information sources to seek inspiration for the next adventure.

The promise of **virtual reality, VR,** is its **"presence"**—the feeling that you're really somewhere else, as well as its interactivity. Using the VR, the tourists can stroll in the most extraordinary places on earth. It's the closest thing to teleportation, enabling deeper engagement than has ever been possible with a place. It will also become a time machine, as we today are recording all interesting things happening, that can be experienced in VR in the future. Mobile apps for VR are appearing across many platforms such as *Google Play*, *Google Maps*, *YouTube* and others making the technology available to everyone.

The revolutionary **360-degree video** means viewers can see the video from every angle just by swiping or moving the phone or tablet around—no headset required. Uploads of 360-degree videos continue to grow and have doubled lately. Virtual reality takes the 360-degree video experience a step further by adding depth. When viewed with a VR headset, 360-images become three-dimensional, which adds to the feeling of **immersiveness**. On top of that, spatial audio lets people listen to audio from all directions, just as in the real world. This makes VR and 360-degree video an incredibly powerful tool to create presence. When a viewer feels like they are there, they have a greater sense of the situation. Visual storytelling become more impactful. The promise of **immersive storytelling** with 360 videos has led brands to experiment with the format, even though at present times the new technology not always is chosen as the preferred watching format in experiments.

Virtual reality has entered the travel and tourism industry using the concept to encourage customers to try before they buy. VR can be used to show the layout of cruise ships, resort facilities at different seasons throughout the year as well as landmarks and attractions in a destination. Until now, the industry has mostly focused on allowing users to experience a 360-degree view of a product or destination.
Many are yet to be persuaded that 360-degree walk-throughs of a hotel or aircraft, using virtual reality device, can genuinely enhance a traveller's expectations of what they are buying. As the potential of 360-degree video and VR is immense, it will, however, require a shift in thinking. VR lets viewers be active participants; they can look wherever they want and the story is everywhere. So, rather than telling a story frame by frame, filmmakers need to build entire worlds. So far, the **360 video ads** have a lower retention rate than standard ads, but at the same time a higher click-through rate, means that the 360 ads drivee engagement via interactions, such as views, shares and subscriptions, even if people do not watch 30 seconds or more.

Customer digital mobile behaviour

In understanding contemporary and future tourism, tourist behaviour and tourist use of digital technology, we must connect the tourism evolution with the evolution of digital platforms and communication channels as described earlier in this report. By the introduction of *web 3.0* and user - generated content, **tourism 3.0** has evolved where *digital Word-of-Mouth* has become the major information source for travel decisions. Tourism 3.0 is also characterised by the development of the **Mobile ecosystem** – that has enabled the **mobility** of the digital information system that characterises the current mobile e-tourist of today. Mobility thus is one of the most important current trends, and a disruptive paradigm shift in tourist behaviour that radically distinguish tourism 3.0 from earlier tourism. It also, as we have seen in previous section, radically has changed the tourism business and its distribution and marketing processes. We now have **mobile-only companies**, **mobile-only communication** platforms, a constant flow of new **mobile-only technologies**, **mobile payments**, as well as virtual reality, augmented reality, bots, artificial intelligence – all of which are shaping new "**mobile only**" ways for the tourism industry to interact with the end-traveller. The three **Cs of mobile** – connection, convenience and context,

and the mobile in the centre of how we communicate and interact, puts high demands on the digital travel strategies with demanding, hyper-mobile customers and an ever-changing mobile ecosystem to deliver sophisticated mobile experiences.

Despite this paradigm shift towards mobile use of digital information, the **traditional travellers journey** has not changed fundamentally because of the new technology. It basically consists of, as all types of consumption, of a pre-consumption phase, consumption phase and post-consumption phase that in the traveller's context transform into the **pre-travelling phase** (pre-experience), the **travelling phase** (the experience phase) and **post-travelling phase** (post-experience phase). Traditionally tourism marketers have focused on the pre-consumption phase while suppliers have focused on the consumption phase, and the post-consumption phase has been left to the traveller with their souvenirs and photos. This pattern has also changed by the current digital transformation, where each phase is equally important for both the traveller and the travel and tourism business. These stages of the tourism consumption process are typically information-intensive, and *Internet* technologies have come to play a significant role in supporting consumers throughout this multistage process. *Google* has divided the travellers purchase travel into five phases of **Inspiration**, **Search**, **Comparison**, **Book**, and **Share**, where in each phase the digital landscape has drastically changed and will continue to change in the future.

Main conclusions from the *Google* study are:
- Digital is the primary source of travel inspiration
- At the onset of planning, travellers increasingly turn to search first
- The research phase is a clear branding opportunity for marketers: A majority of leisure and business bookers consider multiple brands when researching (regardless of category).
- Mobile is critical at all stages and influences booking decisions
- TV viewing habits continue to fragment, and video is key for inspiration and planning
- Half of travellers are not set on a destination at the onset of planning

Pre-consumption digital behaviour

The variables involved in where a consumer might go to purchase their travel product is a bewildering decision tree of options. In the matrix of choices, they can choose to use a laptop, smartphone, tablet, or travel agent, they can choose from 196 countries, a destination within these and then a mode of transport. Thus, the travel market is a world of overabundance for travellers, who have millions of different possible routes to their final itinerary, with an exponential increase in decisions each time they start part of the process without a clear idea of what they want. The positive effects of choice can quickly tail off. This can result in consumers using short hand reasoning, leading to bad choices being made, or to dissatisfaction with their choices post-purchase, Overall, the basic rule is the more cognitive power a consumer needs to exert to come to a decision, the less likely they are to purchase immediately. The complexity and high price of purchasing a travel product naturally means that consumers spend considerable amounts of time in the **pre-consumption phase**, considering their purchase and comparing the product between many sets of sites, thus the channel to purchase is in the travel industry extremely long. Therefore, the online travel market has learned how to aggregate content and present it to consumers in a manner that makes their lives easier.

Internet technologies are increasingly used in the **pre-consumption phase** to obtain information necessary for planning trips, formulate correct expectations, and evaluate, compare, and select alternatives, as well as communicate with the providers of tourism products and services to prepare or

execute transactions. With people spending more and more time on their mobiles, the **path to purchase** for consumers has changed dramatically in just a few short years. *Facebook* identified **five phases of the path to purchase for travellers**: Dream, Plan, Book, Experience and Reflect, very similar to the phase of Inspiration-Search-Comparison-Book-Share identified by *Googles* described above.

TripAdvisor identified **booking patterns** and identified four scenarios:

- **Flight bookers** book their flight first before planning the rest of the trip
- **hotel bookers** start their planning by researching and booking their accommodation
- **Balanced bookers** research both elements before booking either
- **mavericks** move straight to the booking phase. The behaviour of the mavericks is somewhat explained in the fact that 52% of them are business travellers.

Online travel shoppers take many sidesteps, turns and detours as they navigate their way to deciding on a destination. There are many factors that can influence where travellers book a trip, from recommendations, social media images, travel information sites, and much more. In all three regions studied, *online travel agencies* (OTAs) and recommendations from friends and families are the leading resources for selecting a destination.

*Jumpsho*t and *EyeforTravel* collected more than a quarter of a million individual travel purchases from five countries in mid-2016 to understand the customer journey and **path to purchase.** Nine out of 10 **travel purchasers** used a **search engine** before a purchase and being the most influential in the initial phase of the journey. Germany had lower rate of search engine usage, and were also less likely to visit review sites, social media or competitor direct booking routes. This suggests that German travellers have a more direct route to purchase when they are in the phase closest to booking, with a more strongly formed idea of what they will be purchasing and the channels they will use to do so. **Search engines** remains by far the most popular area of the *Internet* to visit in the very latter stages of travel buying. No doubt this is why the largest travel brands spend so much to try and gain visibility on search engines.

While smartphones play a key role in travel decision-making for many consumers**, millennials** are leading the way in mobile shopping and buying. *Google* has looked at recent research to understand the behaviour of these travellers. Millennials **shop on the Go** and are more likely to shop for flight and hotels on a smartphone.

Micro-moments in travel

Increasingly people are turning to their smartphones for immediate answers to their travel questions, to get itinerary ideas, compare flight fares, or reserve experiences. New mobile behaviours have created a new consumer journey consisting of what *Google* call **micro-moments**, a decision points when a well-positioned brand can influence a consumer. With travel, micro-moments happen throughout the consumer journey. They start when people begin dreaming of a trip. And they happen across planning, booking, and even during the actual traveling. When these moments happen, people reach for a device nearest to use, which increasingly is a smartphone.

Google analysed billions of searches to see travellers' digital journey and booking data from 350 million anonymized traveller profiles, and came up with several hot spots or micro-moments:

- **I-want-to-get-away, Dreaming moments**: These are the moments when people start thinking about the next vacation.
- **Time-to-make-a-plan, Organizing momen**ts: This is the moment the traveller narrows down exactly where to go and when. At this moment, they are still open to try new airlines and hotels. Travelers

don't merely turn to the web to get ideas or inspiration for a trip; they're also relying on it to get their trip right. *YouTube* is playing a large role as more travellers go there for "**travel hacks**"—from ingenious luggage-packing techniques to tips for staying healthy on the flight over.

- **Let´s-book-it, Booking moment:** This is the most important moment, when people put their money behind their decisions. Many do their final booking on other devices then the mobile phone, but people increasingly want to do their bookings on the go. It is therefore important to remove every unnecessary step from the purchasing process and making the mobile checkout process as easy as possible.
- **Can´t-wait-to-go moment:** Just because vacation is booked doesn't mean the research is all done. Now the traveller can start to think about all the things they can do and see while there. This moments occur when travellers start to look forward to their trip. To providing useful information in these particular micro-moments is a way to build your brand, drive word of mouth, and increase loyalty among travellers.
- **Can´t-wait-to-explore, Experiencing moments:** Travelers are ready to live the trip they've been dreaming about—and share it with others. 85% of leisure travellers decide on activities only after having arrived at the destination. Nearly nine out of 10 travellers expect their travel provider to share relevant information while they are on their trip. However, smartphones are changing travel industry trends by enabling people to be more spontaneous when they arrive at their destination. Upon arrival at a hotel, the traveller is turning to the mobile to overcome the unfamiliarity with the surroundings.

Google carefully looked into the micro-moments in a purchase journey in real life and followed one person over two months during the holiday season of 2014, where the person "Amy" was planning a trip to Disney World. In her planning of the trip, Amy had 419 digital micro-moments in the two months, and made 34 searches, watched 5 videos and made 380 web page visits, of which 87% of the moments happened on the mobile. In a Similar way, *Google* followed a 30-year-old "Liam", who over a period of 4 month had over 7 000 digital travel touchpoints, with 534 *Google* searches and 1400 images viewed, (*Google streets view*, Maps, pictures etc.). with 49% OTA visits, 20% Map visits, 12% Meta search travel sites, 3% transportation visits, 2% airline visits, 2% accommodation visits and 2% social sites visited.

During consumption digital behaviour

Internet technologies are used **during the actual trip** mainly for travellers to stay connected and to obtain *en route* information if the need arises. On-spot they search information about prices, hotels, sights, activities, alternatives, weather conditions, local traditions, food, drinks and others recommendation about the destination. The previous spread of Internet cafés at tourist destinations has today been substituted by a growing number of accommodation establishments, restaurants, airports, public places and even whole cities or other points of interests, that offers high-speed *Internet* connections through *WiFi*. Such *Internet* infrastructure was earlier offered as extras and a USP by hotels, but are today expected as basic infrastructure for tourism. *En route Internet* access means **anywhere-and-anytime availability** of tourism-related information for consumers. Therefore, many of the trip planning and information gathering tasks of travellers have shifted from pre-consumption to during consumption, resulting in travel as a much more **spontaneous** activity then before.

The **radical self-reliance of modern travellers** has caused a ripple in the travel industry, spawning a litany of apps, products and services to enable travellers to call their own shots. The rise of **worldwide mobile connectivity** and social media has magnified the difference between an agent and trusted advisor for the traveller. Travellers can easily text or call their advisor to fix a problem mid-trip. They can even *Snapchat*,

WhatsApp and *Facebook message* many of them as they become more integrated in the daily lives of their customers.

Constant access to communication technology changes the travel experience itself in that notion of home and away become blurred, and research found that the easy and frequent contact with friends and family members was associated with a feeling of being simultaneously at "home", with continued participation in pre-existing social networks, while also being "away". **Memories** of a trip that is not over yet can be instantly shared through the technology and messages from home or work can easily interrupt experiences at the destination. Friends and family at home can follow every move of the traveller if updated are posted on line, and in-spot travel blogs have become increasingly popular, even if Social media in the form of *Instagram* and *Facebook* or even *Snapchap* and others increasingly are substituting traditional blogs. Digital cameras, either with built-in WiFi and social media apps, or in the form of integrated in mobile phones allow for almost unlimited picture taking and instantaneous review and posting of what has been experienced. Thus, the **tourist experience** on the destination, also has transformed from the traditional gaze, the process through which a tourist objectifies and interprets the place that he or she visit, towards a more mediated experience trough modern digital technology, and where the experience immediately is transformed to personalised, and thus subjective, stories to share through pictures, videos and posts on social media on the spot.

Post-consumption digital behaviour

In tourism, the **post-consumption stage** involves treasuring souvenirs, remembering special moments, reliving an experience trough photographs or films, sharing travel stories, and often developing sense of attachment to a specific destination. Digital information technology and *Internet* play an increasing significant role in these post-trip activities, allowing instant sharing, documenting, storing and reliving the tourist's experiences. Tourism experiences are an integral part of the identity of individuals and thus require sharing. Blogs, video and photo sharing sites, personal web sites and other consumer-generated content sites takes place with an audience that has a very tailored interest in the topic. **Blogs** offer high levels of interactivity and immediacy in broadcasting a story that were not conceivable in the past, and have the advantage of closely resemble traditional travel journals, which used to be kept by many travellers. **Stories** play an important role in the recollection of travel experiences, usually comprised of many different impressions and emotions. Travellers reconstruct what happened during a trip so that it sounds good as a story to tell others. They include or omit details or stress certain aspects depending on the listener, and a story might change each time it is told, and as the story changes, so does also the memory of the experience. Technology makes this storytelling easy as pictures can be manipulated, content assembled and integrated with others, sound and narration can be added. The process can also be social in that others in **virtual communities** can post additional material or comments. Such virtual travel communities on different social media platforms allow obtaining travel information, maintaining connections, finding travel companions, or telling interesting travel experiences or stories.

The line between *en route* activities and post-consumption behaviours will become even more blurred in that post-consumption will increasingly happen while still on the trip. The possibility to stay on line during the trip and instant postings and live streaming on social media and blogs has today reduced the post-trip phase of sharing experiences trough texts, pictures and videos, but consists rather of contributing to advice and tips to other travellers. This is also a part of a hedonic trend and personal branding to instantly *en route* share your experiences, and post-trip become an "expert" for your friends and other interested.

Interestingly, research has shown that sharing positive experiences post trip increases travellers' positive affect while decreasing negative affect and therefore leads toward more positive overall evaluations of their traveller experiences.

Conclusions

Implications for tourism

The digital revolution is not behind us; it lies ahead of us. As web 3.0 gets more empowered and slowly transform into web 4.0, and digital technologies such as Internet of Things, Predictive Big Data Analysis, the Automation of knowledge work, mixed reality, virtual reality travel and increased mobility in wearables, we will see a drastic transformation of the tourism industry. This puts strong forces on any tourism business and organisation to keep up with the digital development to stay in tract in the ever-increasing competition within the industry. The tourism industry must also adapt to the paradigm shift from having been a service provider and staging experiences (tourism 1.0) to be fully immerged in the experience economy with its experience production, user co-production or even user-generated production and user-generated content, as well as the demands of gamification and designification of the experiences. Mixed Reality experiences with varying degree of Augmented and Virtual Reality or their mixture, will probably be important tools to enter tourism 3.0 in the conceptual society, where ShyTech, Artificial Intelligence, automatization and robotization will guide the traveller through its micro-moment decisions in the pre- during and after travel phases. To deal and adapt to these new digital technologies and service opportunities will be one of the greatest challenges the tourism industry has faced, and set hard pressure on small and micro companies, as well as on DMO´s to obtain the knowledge and resources for this digital business transformation.

Currently, the industry is trying to deal with the disruptive rise of mobile, which has created an omnichannel environment. In this environment, the barriers to entry are lower but the costs of getting noticed are spiralling high. This has created a crowded ecosystem, with consumers preferring to largely entrust their expensive and cherished holidays to a handful of powerful online players, who can give them reliable and good quality experiences. It is difficult to say exactly where digital travel shoppers will be in next five to ten years, but it seems likely that we can expect the digital side of the industry to remain largely with a handful of major players, with potentially an even smaller number holding more market share. The most likely change is to who these players are and how they are primarily accessed.

Summary Conclusions

1. Digital information technologies have had, and will have increasing profound impacts on the tourism industry.
2. Travel will continue to be one of the most popular online interests to consumers.
3. Access to the *Internet* and the mobile communication devices will increase the number of electronic connections between customers and the tourism industry.
4. These new technologies will increase the environment for creating relationships, allowing customers to access information more efficiently, conducting transactions more easily, and more closely interact electronically with businesses and suppliers.
5. The growing up of the digital generations changing the demographic profile and behaviours of *Internet* users, will result in *Internet* will be considered the primary source for travel information and travel experiences support.
6. *Purchase processes will move into the mobile devices and made over the Internet.*
7. Conversation between travellers of sharing experiences will grow through network technologies.

8. Experience- and emotion-oriented communication will grow in importance as emotionally intelligent interfaces are developed, incorporating emotional-psychological need context to provide supportive interactions.

9. User generated media such as blogging, podcasting, live-streaming, pictures sharing, and social networking are expected to play an even more important role in supporting travel planning activities as well as in the construction of memories and extended experiences in the post-consumption phase of travel. It will be an increased need to integrate such applications on tourism and travel websites and apps.

10. Social networking and virtual world will continue to merge, offering engaging opportunities for communication, sharing and online experiences.

11. There will be an increased demand of systems that support lifestyle during trips, and will require the same level of technology use on the road as they do at home. Wireless, wearable, global, integrated and smart system solutions.

12. New technologies are being developed in an increasing speed, that will have a significant impact on tourism. These will disrupt existing value chains in tourism, and lead to the emergence of new players in the tourism industry, and significantly influence consumer experiences.